Unit 1

Educational Research

- **Meaning, Definitions, Characteristics and Objectives of Educational Research**
- **Types of Educational Research- Fundamental, Applied and Action Research,**

Introduction:

Education is a lifelong and continuous process aimed at bringing about desirable changes in human behaviour through meaningful learning experiences. It not only imparts knowledge and skills but also shapes attitudes, values, and abilities that enable individuals to adapt to the changing demands of society. For education to achieve its objectives effectively, it must be guided by scientific understanding rather than assumptions or trial-and-error methods. This is where systematic and logical investigation, commonly referred to as research, becomes essential. Research is a planned and objective search for new knowledge and understanding that helps in identifying problems, verifying existing facts, and discovering new solutions. In the context of education, research plays a pivotal role in enriching the teaching-learning process, improving the efficiency of educational programs, and providing a solid foundation for policy formulation. It equips educators with evidence-based insights that guide classroom practices, help in developing innovative instructional methods, and offer solutions to persistent academic and administrative challenges. By enhancing the quality and effectiveness of education, educational research ultimately contributes to the holistic development of learners and the progress of society.

Meaning of Research:

The word research originates from the French word “recherche”, meaning “to search again” or “to investigate thoroughly.” Research is essentially a systematic, scientific, and logical process of inquiry undertaken to discover new facts, verify existing knowledge, or develop new interpretations. It is not a casual observation or mere collection of information; rather, it involves planned, organized, and methodical efforts to explore the unknown or solve a specific

problem. Research is characterized by critical thinking, careful observation, accurate data collection, and objective analysis, ultimately leading to the formulation of valid conclusions.

In practical terms, research is a journey from the known to the unknown. It begins with identifying a problem or a question, followed by the collection and analysis of data, and finally, the interpretation of results to arrive at new knowledge. For example, a researcher may study how different teaching methods affect student learning outcomes or investigate the reasons behind the decline in students' academic performance. In all cases, the goal of research is to enhance understanding, solve problems, and contribute to the advancement of knowledge in a particular field.

Thus, research can be summarized as a continuous and dynamic search for truth, guided by evidence rather than assumptions. It is the backbone of progress in every discipline, including education, because it provides a scientific basis for decision-making, policy formulation, and the improvement of practices.

Definitions of Research

To clearly understand the concept and nature of research, it is important to examine how various scholars and experts have defined it. Research is generally considered a systematic and scientific investigation carried out to discover new facts, verify existing knowledge, and develop theories or principles. Below are 10 widely accepted definitions of research:

1. Clifford Woody (1927): "Research comprises defining and redefining problems, formulating hypotheses or suggested solutions; collecting, organizing and evaluating data; making deductions and reaching conclusions; and at last, carefully testing the conclusions to determine whether they fit the formulated hypothesis." Explanation: Emphasizes the systematic process of research from problem identification to hypothesis testing.
2. C. R. Kothari (2004): "Research is a scientific and systematic search for pertinent information on a specific topic." Explanation: Highlights that research is scientific, systematic, and information-oriented.
3. Kerlinger (1973): "Research is a systematic, controlled, empirical and critical investigation of natural phenomena guided by theory and hypotheses about the presumed relations among

such phenomena." Explanation: Stresses the controlled, empirical, and theory-driven nature of research.

4. Best (1983): "Research is considered as the systematic and objective analysis and recording of controlled observations that may lead to the development of generalizations, principles, or theories, resulting in prediction and possible control of events." Explanation: Focuses on objectivity and generalization to predict and control phenomena.
5. John W. Creswell (2014): "Research is a process of steps used to collect and analyze information to increase our understanding of a topic or issue." Explanation: Points to the step-by-step process and knowledge-building purpose of research.
6. Charles F. M. (1960): "Research is an honest, exhaustive, intelligent searching for facts and their meanings or implications with reference to a given problem." Explanation: Stresses honesty, thoroughness, and meaningful interpretation in research.
7. Whitney (1960): "Research is a systematic search for facts and knowledge." Explanation: A simple and concise definition emphasizing systematic investigation for knowledge acquisition.
8. Slesinger & Stephenson (1930): Research is the manipulation of things, concepts, or symbols for the purpose of generalizing to extend, correct, or verify knowledge." Explanation: Focuses on expanding or verifying existing knowledge through research.
9. P. M. Cook (1935): "Research is an honest, exhaustive, and intelligent search for facts and their meanings or implications with reference to a given problem." Explanation: Similar to Charles F. M., emphasizing intelligence, honesty, and meaningful interpretation.
10. Fred Kerlinger (1986): "Research is a systematic investigation to find answers to a problem." Explanation: A concise, problem-focused definition highlighting the investigative nature of research.

From these definitions, research can be summarized as:

- Systematic and scientific investigation.
- Problem-oriented and evidence-based.
- Aimed at discovering new facts, verifying existing knowledge, or developing theories.
- A process involving data collection, analysis, interpretation, and conclusion

Meaning of Educational Research

Educational research is the systematic and scientific study of educational problems with the purpose of improving teaching-learning processes, educational practices, and overall educational outcomes. It involves applying the principles and methods of research to explore issues related to students, teachers, curriculum, teaching methods, evaluation techniques, and the functioning of educational institutions. Unlike general research, which may focus on natural phenomena or social behavior, educational research is concerned specifically with the field of education, aiming to provide practical and theoretical insights for its development.

The core idea behind educational research is to understand, explain, and improve the educational process. It may involve:

- Investigating learning behaviors of students to identify factors that enhance or hinder learning.
- Evaluating the effectiveness of teaching methods, instructional materials, or assessment strategies.
- Exploring the role of school environment, administration, and teacher performance in achieving educational goals.
- Developing new techniques, approaches, or programs to address classroom and institutional challenges.

Educational research is also evidence-based and problem-oriented. For example, a teacher might study why students show low interest in science classes, while a policymaker may commission research on the impact of digital learning tools in rural schools. Both are forms of educational research, as they involve systematic inquiry to find solutions that can improve educational outcomes.

In essence, educational research bridges the gap between educational theory and practice. It empowers teachers and administrators to make informed decisions, enhances the quality of instruction and curriculum, and contributes to policy formulation and innovation in the education sector. Without research, education would rely solely on tradition or guesswork, whereas with research, it becomes scientific, dynamic, and responsive to societal needs.

Definitions of Educational Research

1. Good (1959): “Educational research is the systematic application of scientific methods to the study of educational problems.” Explanation: This definition emphasizes that educational research is systematic and scientific, focusing specifically on problems in education.
2. Best (1983): “Educational research is that activity which is directed towards the development of a science of behaviour in educational situations.” Explanation: This stresses the behavioural aspect of education, such as student learning, teacher performance, and classroom interactions.
3. Travers (1978): “Educational research is the activity for the development of a science of behaviour in educational situations.” Explanation: Similar to Best, Travers highlights that educational research studies human behavior in an educational context to create scientific understanding.
4. Carter V. Good: “Educational research is the systematic study of educational problems using the scientific method for their solution.” Explanation: This focuses on problem-solving in education using scientific methods like observation, experimentation, and data analysis.
5. Whitney (1960): “Educational research is the study and investigation in the field of education to solve problems and to improve educational practice.” Explanation: Whitney points out that research is practical and improvement-oriented, targeting better educational outcomes.
6. Wiersma (1991): “Educational research is the scientific approach for answering questions about educational settings, processes, and outcomes.” Explanation: This emphasizes questioning and inquiry, covering all aspects of education including inputs, processes, and results.
7. Ary, Jacobs & Razavieh (1996): “Educational research is the application of scientific procedures to the study of educational problems.” Explanation: This definition reinforces the scientific procedure as the backbone of educational research.
8. Mouly (1978): “Educational research is the systematic application of scientific methods for solving educational problems and for development of educational theory.”

Explanation: This highlights both problem-solving and theory-building, showing that research serves practical and academic purposes.

9. Kerlinger (1973): "Educational research is a systematic, controlled, empirical, and critical investigation of propositions about the relationships among phenomena related to educational situations." Explanation: Kerlinger underlines that research should be empirical, critical, and based on observable facts, focusing on relationships among educational variables.
10. Borg and Gall (1989): "Educational research is the formal, systematic application of the scientific method to the study of educational problems." Explanation: This concise definition emphasizes that research is formal, organized, and scientific, avoiding guesswork or personal opinions.

From the above definitions, the key aspects of educational research can be summarized as:

- It is systematic, scientific, and evidence-based.
- It focuses on educational problems, processes, and improvements.
- It studies behavior and relationships in educational settings.
- It aims at solving problems, improving practice, and developing theory.
- It serves as a bridge between theory and practice in the field of education.

Characteristics of Educational Research

1. Systematic and Organized Process

Educational research follows a step-by-step process starting from problem identification, formulation of objectives and hypotheses, collection of data, analysis, and finally drawing conclusions. This systematic organization ensures that the findings are reliable and valid. Example: A study to measure the effect of activity-based learning on students' achievement will first identify the problem, define objectives, design a method, collect data, and interpret results in order.

2. Scientific in Nature

Educational research follows the principles of the scientific method. It relies on observation, experimentation, and evidence, not on guesswork or personal beliefs. Example: When testing the impact of digital classrooms, researchers collect and analyze real data instead of relying on assumptions.

3. **Problem-Oriented**

Educational research always starts with a problem faced in the field of education, such as poor student performance, high dropout rates, or ineffective teaching methods. Example: A teacher researching why students lose interest in mathematics is conducting problem-oriented research.

4. **Empirical and Evidence-Based**

The findings of educational research are based on observable and measurable evidence, not on personal opinion or intuition. Example: Collecting test scores and attendance records to analyze the effect of morning study sessions on academic achievement.

5. **Objective and Unbiased**

Educational research requires the researcher to remain neutral and free from personal biases, prejudices, or emotions. Example: If a researcher prefers traditional teaching but still evaluates digital methods fairly using evidence, the study is objective.

6. **Analytical and Logical**

It involves critical thinking, analysis of data, and logical reasoning to reach valid conclusions. Statistical tools are often used to interpret results logically. Example: Using correlation analysis to determine the relationship between study habits and academic achievement.

7. **Replicable and Verifiable**

A good educational research study can be repeated by other researchers under similar conditions to verify its findings. Example: If a study on the effectiveness of peer tutoring in English is repeated in another school and produces similar results, the research is replicable.

8. **Aims at Generalization and Prediction**

Educational research often derives general principles or relationships that can be applied to similar educational settings. It may also predict trends or outcomes. Example: A research study on the relationship between parental involvement and student achievement can help predict future performance trends.

9. Ethical in Conduct

Educational research follows ethical principles, such as maintaining confidentiality, honesty, and fairness, and avoiding harm to participants. Example: A researcher must not disclose individual student test scores without consent.

10. Practical and Utility-Oriented

The ultimate purpose of educational research is to improve educational practice. Its findings must be useful for teachers, administrators, and policymakers. Example: Research suggesting new strategies to reduce absenteeism can directly benefit schools.

11. Continuous and Ongoing Process

Research is never-ending because educational challenges keep evolving. Each study may open the door for further investigation. Example: Research on the effectiveness of online learning during COVID-19 may lead to new studies on blended learning models.

12. Interdisciplinary in Nature

Educational research often draws from psychology, sociology, economics, statistics, and technology, because education is influenced by multiple factors. Example: A study on the effect of socioeconomic status on student performance involves both educational and social research approaches.

In short, educational research is systematic, scientific, practical, and problem-oriented. Its characteristics ensure that the conclusions are valid, reliable, and applicable in real educational settings. By adhering to these principles, educational research serves as a foundation for improving educational theory, practice, and policy.

Objectives of Educational Research

The primary purpose of educational research is to improve the teaching-learning process, solve educational problems, and contribute to the development of educational theory and practice. Every research study is conducted with a clear objective that guides the selection of topic, methodology, and interpretation of results. The objectives of educational research can be classified into theoretical (knowledge-building) and practical (problem-solving) purposes.

1. **To Identify Educational Problems**

The first objective of educational research is to recognize and define problems faced in classrooms, schools, or the education system. Example: Identifying the reasons for poor reading comprehension among Class VIII students.

2. **To Improve the Teaching-Learning Process**

Research aims to find better ways of teaching and learning by testing methods, strategies, and materials. Example: Studying whether project-based learning improves science achievement compared to the lecture method.

3. **To Discover New Knowledge or Facts**

Educational research seeks to generate new insights and principles that contribute to the theoretical foundation of education. Example: A study on the impact of social media on students' academic motivation.

4. **To Solve Classroom and School Problems**

Research is conducted to address immediate, practical issues that teachers and administrators face. Example: Conducting action research to reduce classroom indiscipline through positive reinforcement techniques.

5. **To Evaluate Educational Programs and Policies**

Educational research helps in assessing the effectiveness of curricula, teaching methods, educational reforms, and policies. Example: Evaluating the success of the National Education Policy (NEP) 2020 implementation in secondary schools.

6. **To Improve Educational Planning and Administration**

Research provides data and evidence that help administrators in decision-making, resource allocation, and planning. Example: Researching how teacher-student ratios affect school performance and planning staff accordingly.

7. **To Promote Innovation in Education**

One of the major objectives is to develop and test innovative practices, materials, or techniques for better educational outcomes. Example: Testing the effectiveness of gamification in enhancing mathematics learning.

8. **To Understand Learner Behaviour and Psychology**

Research helps in studying the attitudes, interests, abilities, and motivations of learners to enhance their performance. Example: Investigating the relationship between study habits and academic achievement in high school students.

9. **To Predict Educational Trends and Outcomes**

By analyzing patterns and relationships, educational research can forecast future developments or student performance trends. Example: Predicting dropout rates based on attendance and socio-economic conditions of students.

10. **To Improve Teacher Effectiveness**

Research aims to identify qualities and strategies that make teaching more effective. Example: Studying how reflective teaching practices improve teachers' classroom performance.

11. **To Contribute to Theory Formation in Education**

Educational research also develops general principles and theories that can guide future practices and studies. Example: Formulating a theory on the relationship between collaborative learning and critical thinking.

12. To Enhance the Overall Quality of Education

Ultimately, the broad objective is to raise the standard of education, benefiting learners, teachers, institutions, and society. Example: Research on integrating ICT tools in rural schools to bridge the digital divide.

In short, educational research is goal-oriented and practical. It seeks to identify problems, improve educational practices, promote innovation, and build new knowledge. By achieving these objectives, educational research ensures that education remains dynamic, evidence-based, and responsive to societal needs.

Types of Educational Research

Educational research can be classified in a variety of ways, depending on factors such as the purpose of the study, the methodology adopted, and the scope or nature of the research problem. Among these, classification based on the purpose of the study is considered the most widely accepted and practical. This approach focuses on the intended outcomes of the research, whether they aim to generate new knowledge, solve practical educational problems, or bring about immediate improvements in classroom practices.

Under this classification, educational research is generally divided into three major types:

1. Fundamental research
2. Applied research
3. Action research

Each type has a distinct objective, approach, and contribution to education.

1. Fundamental research

Fundamental research, also known as basic research or pure research, is a type of research primarily aimed at expanding knowledge without any immediate or practical application in view. Its main purpose is to explore the underlying principles, theories, and laws that govern various phenomena. Fundamental research focuses on discovering new facts and developing new theories that contribute to the overall knowledge base of a discipline.

In the context of education, fundamental research aims to enhance the theoretical understanding of teaching, learning, and human behavior rather than solving a specific classroom problem. For example, studying the cognitive processes involved in learning or the impact of motivation on memory falls under fundamental research.

Several scholars have defined fundamental research as follows:

1. Kerlinger (1973): "Fundamental research is the research conducted to gain more comprehensive knowledge or understanding of the subject under study without specific applications in mind."
2. Best & Kahn (2006): "Basic or fundamental research seeks to discover new knowledge and to advance the general frontiers of knowledge without the immediate purpose of applying it to practical problems."
3. Travers (1978): "Fundamental research is designed to add to an organized body of scientific knowledge and does not necessarily produce results of immediate practical value."
4. Good (1972): "Basic research is that type of research which is primarily concerned with the formulation of a theory or with gaining new knowledge for the sake of knowledge itself."
5. Cohen & Manion (1994): "Fundamental research contributes to the development of theory by attempting to discover general principles or laws."

The main characteristics or features of fundamental research are:

1. **Knowledge-Oriented:** The primary aim is to generate new knowledge rather than solve immediate problems.

2. **Theoretical in Nature:** It focuses on developing theories, models, and principles rather than practical applications.

3. **No Immediate Utility:** The results may not have direct practical value at the time of discovery, but they may be useful in the long run.

4. **Seeks Generalization:** Fundamental research attempts to formulate universal principles that can explain phenomena in various contexts.

5. **Exploratory and Analytical:** It explores unknown areas and analyses relationships between variables to expand scientific understanding.

6. **Foundation for Applied Research:** The knowledge generated through fundamental research often serves as a base for applied research and practical innovations.

7. **Long-Term Impact:** Though it may not provide immediate solutions, its findings can significantly influence future studies, policies, and applications.

8. **Scientific Method-Oriented:** Fundamental research strictly follows the scientific method, ensuring systematic observation, hypothesis formation, experimentation, and conclusion.

9. **Conducted in Controlled Settings:** Most fundamental research is done in laboratories or controlled environments to eliminate extraneous variables.

10. **Contribution to Body of Knowledge:** Its ultimate contribution is enhancing the existing knowledge base of a particular discipline.

Example:

- A study on the relationship between memory retention and learning styles among adolescents.
- Research on cognitive development stages in school children.

Although fundamental research may not solve immediate problems, it provides a strong theoretical foundation for applied and action research.

2. Applied Research

Applied research, in general, refers to a systematic and scientific approach to investigate real-life problems with the primary aim of finding practical and immediate solutions. Unlike fundamental or basic research, which primarily seeks to expand knowledge or develop theories without a focus on direct application, applied research is action-oriented and problem-focused. It uses the existing principles, concepts, and theories derived from basic research and applies them to solve issues that arise in everyday life, industries, organizations, or social settings. For instance, research conducted to develop a new drug to treat a disease, improve crop productivity in agriculture, enhance the efficiency of machines, or create strategies for traffic management are all examples of applied research. Its ultimate goal is to bridge the gap between theory and practice, thereby making research outcomes directly beneficial for society, industry, or any specific field where the problem exists.

In the field of education, applied research plays a vital role in solving practical problems and improving educational practices. It focuses on the application of educational theories, principles, and findings to real classroom or school situations. The primary aim is to enhance teaching, learning, and administrative efficiency by addressing specific issues faced by teachers, students, and educational institutions. For example, applied research may involve evaluating the effectiveness of a new teaching method, studying the impact of digital learning tools on student performance, improving classroom management techniques, or assessing the outcomes of a new evaluation system. Such research is action-oriented, as it generates immediate solutions that can be implemented in schools and colleges. It helps bridge the gap between educational theories developed through basic research and their practical application in real-life educational settings, ultimately contributing to the overall development of the educational system.

Applied research has been defined by various scholars to emphasize its practical and problem-solving nature. Some notable definitions are:

1. Good (1959): “Applied research is undertaken to solve an immediate, practical problem of the modern world, rather than to acquire knowledge for knowledge’s sake.”
2. Ary, Jacobs, and Sorensen (2010): “Applied research is directed toward the solution of specific, practical problems and the improvement of practice.”

3. Kerlinger (1973): "Applied research is research directed towards the solution of specific practical problems in real-life situations."

4. Best and Kahn (2006): "Applied research aims at finding a solution for an immediate problem facing a society or an industrial/business organization."

5. Cohen, Manion, and Morrison (2007): "Applied research seeks to solve practical problems through the application of scientific methods and principles."

6. Travers (1969): "Applied research in education is concerned with the application and testing of theoretical concepts and the development of principles that can be immediately applied in practice.

These definitions highlight that applied research is purposeful, goal-oriented, and focuses on bridging the gap between theoretical knowledge and its real-life application.

Some important characteristics of applied research are as follows:

1. **Practical Orientation**

Applied research is primarily practical in nature as it focuses on addressing real-world problems rather than dealing with abstract or theoretical concepts. Its central aim is to develop actionable solutions that can be implemented to improve existing practices, systems, or conditions. For instance, educational applied research might focus on developing new classroom management strategies or designing an effective curriculum to solve immediate challenges faced by teachers and students.

2. **Goal-Directed**

Applied research is goal-oriented because it is conducted with a specific objective in mind. The research starts by clearly identifying what needs to be improved or resolved and then proceeds to achieve that purpose. For example, research conducted to increase student engagement in online learning or reduce traffic congestion in urban areas reflects the goal-directed nature of applied research.

3. **Application of Theories**

One of the key features of applied research is that it draws upon theories, models, and principles established by basic research and applies them in practical situations. Instead of generating new theories, applied research tests and uses existing knowledge to find solutions. For instance, psychological learning theories can be applied to develop effective teaching strategies in classrooms.

4. **Immediate Utility**

Applied research produces results that have direct and immediate usefulness in solving problems. Unlike basic research, whose benefits may be long-term, applied research ensures that its findings can be readily implemented to bring about improvement. For example, a study aimed at reducing workplace stress provides immediate guidance to employers to enhance employee well-being.

5. **Empirical Nature**

Applied research is empirical and evidence-based, meaning that the conclusions are derived from observations, experiments, and systematic data collection rather than assumptions. The validity and reliability of findings are ensured through the scientific method, making the outcomes practical and trustworthy. For example, testing the effectiveness of a new teaching technique requires collecting and analyzing data from real classrooms.

6. **Context-Specific**

Applied research is often contextual, as it is carried out in real-life settings where the problem naturally occurs, such as schools, hospitals, industries, or communities. This context-specific approach allows researchers to understand the practical conditions and constraints while providing solutions that are feasible and applicable in that specific environment.

7. **Problem-Solving Approach**

The foundation of applied research lies in its problem-solving orientation. It begins with identifying and defining a clear problem, followed by investigating the causes, analyzing the

situation, and proposing solutions. For example, an educational researcher may start by identifying high dropout rates among students and then conduct applied research to develop interventions to reduce the dropout rate.

8. Evaluative Component

Applied research often involves evaluation and assessment to determine the effectiveness or efficiency of methods, programs, or interventions. It not only provides solutions but also measures the outcomes to ensure that the proposed solution brings tangible improvements. For example, a researcher may evaluate the impact of a digital learning program to check whether it enhances student achievement.

9. Modifies and Improves Practice

Another important feature of applied research is that it leads to the refinement or improvement of existing methods and strategies. By identifying weaknesses and suggesting alternatives, applied research contributes to continuous development and innovation. For instance, an industry may use applied research to improve production processes, resulting in higher efficiency and better quality products.

10. Combination of Theory and Practice

Applied research bridges the gap between theoretical knowledge and practical application. It translates abstract concepts, principles, and findings from basic research into functional solutions that address real-world challenges. This integration ensures that knowledge is not limited to academic study but contributes to practical advancements in society.

Example:

- Research on effectiveness of group discussion vs. lecture method in teaching history.
- Evaluating the impact of digital classrooms on student engagement.

Applied research bridges the gap between theory and practice, turning theoretical knowledge into practical solutions for schools and classrooms.

3. Action research

Action research is a distinctive form of research that is primarily conducted to address immediate problems and bring about improvement in practices. Unlike traditional research, which often focuses on generating universal theories or contributing to the broader body of knowledge, action research is highly practical and context-specific. It is carried out by the practitioners themselves, such as teachers, administrators, or other professionals, who are directly involved in the situation where the problem exists. The central idea of action research is that those who face the problem are the best people to investigate it and take appropriate action to solve it.

In the field of education, action research plays a significant role in improving teaching and learning processes. A teacher, for example, may notice that students are struggling with a particular topic or that classroom engagement is low. Through action research, the teacher systematically identifies the problem, plans an intervention or strategy to address it, implements the strategy in the classroom, observes the outcomes, and reflects on the results to determine its effectiveness. This reflective and practical approach not only helps in solving the immediate classroom problem but also enhances the professional competence of the teacher.

Action research is also characterized by its cyclical nature, where the process of planning, acting, observing, and reflecting is repeated as needed until the desired improvement is achieved. This continuous cycle allows practitioners to refine their actions based on evidence and experience. It is also a participatory process, as it often involves collaboration among practitioners or stakeholders who share a common goal of improvement.

In essence, the meaning of action research lies in its combination of research and action. It empowers practitioners to critically analyze their own work, experiment with innovative practices, and implement changes that lead to meaningful improvements in their professional environment. By focusing on immediate and real-life problems, action research bridges the gap between theory and practice, ensuring that the knowledge gained has direct application and practical value.

Some important definitions of Action research are as follows:

1. Stephen M. Corey (1953): “Action research is the process by which practitioners attempt to study their problems scientifically in order to guide, correct and evaluate their decisions and actions.”
2. Kurt Lewin (1946): “Action research is a type of research aimed at the resolution of immediate problems of a local nature, undertaken by those who are directly involved with the problem.”
3. John W. Best (1983): “Action research is focused on the immediate application, not on the development of theory or on generalizations of findings.”
4. Cohen and Manion (1985): “Action research is a small-scale intervention in the functioning of the real world and a close examination of the effects of such an intervention.”
5. Kemmis and McTaggart (1988): “Action research is a form of collective self-reflective inquiry undertaken by participants in social situations to improve the rationality and justice of their own practices.”
6. Hopkins (2002): “Action research is an act undertaken by teachers to study their own teaching and their students’ learning with the aim of improving both.”

Some important characteristics of action research are as follows:

1. **Problem-Oriented:**

Focuses on solving specific, practical, and immediate problems in a local context rather than creating universal theories.

2. **Action-Oriented:**

Involves taking action to address a problem and studying the outcomes of that action.

3. **Cyclical Process:**

Follows a repetitive cycle of planning, acting, observing, and reflecting to continuously improve the situation.

4. **Participatory Nature:**

Involves active participation of practitioners (e.g., teachers, administrators) who are directly concerned with the problem.

5. **Situational and Context-Specific:**

Solutions are designed for specific situations and may not be generalized to all contexts.

6. **Reflective Practice:**

Encourages self-reflection by practitioners to evaluate the effectiveness of actions and learn from experience.

7. **Collaborative in Nature:**

Often involves teamwork among practitioners, researchers, or stakeholders for shared problem-solving.

8. **Improvement-Focused:**

The primary goal is to bring about positive changes and improvements in practices or outcomes.

9. **Flexible and Adaptive:**

Action research is open to modification based on the results and insights gained during the process.

10. **Combination of Research and Practice:**

It bridges the gap between theory and practice by applying research methods to real-life problems.

Scope of Action research

The scope of action research is very wide. If those who are professionally involved in education are interested in improving any aspect of the education system, this research can be of great help. If a teacher expresses his desire to bring more excellence in his teaching, then he can take the

help of this research. Again, if an education administrator wants to bring about changes in education administration, then he can also take the help of action research.

In short, in certain situations, where knowledge is needed regarding a specific problem or something new is included in the existing system and its impact needs to be known, then the action research method can be used. Another thing to mention here is that while conducting action research, it should be kept in mind that there should be a suitable system to evaluate the progress of the research. The following are some of the areas where active research can be used in schools:

1. **Use of modern methods in education:** Studying the rationality of using modern methods such as project methods, discovery methods, and adaptive teaching methods instead of traditional methods.
2. **Use of teaching materials:** What type of teaching materials are appropriate to use in which situations.
3. **Evaluation methods:** Improving continuous and holistic evaluation.
4. **Attitudes and values:** Encouraging a positive attitude towards work and developing student values.
5. **Teacher professional development:** Developing teaching skills, teaching methods, developing analytical skills, developing self-awareness, etc.
6. **Control and management:** Using behavior modification techniques.
7. **Administration:** Increasing effectiveness at the administrative level of the school.

Need and Importance of Action Research

The unprecedented expansion of education at all levels in our country has led to an increase in the number of students and teachers in schools, which has led to various problems. Teachers are facing various problems, such as overcrowded classrooms, single-teacher schools, etc. Apart from this, problems are arising in the use of new innovations in the field of education, such as program teaching, institutional planning, work experience, computer-assisted learning, team teaching, etc.

Along with the increase in numbers, immediate research is needed to maintain quality. Action research is essential for solving school organization, administration and various administrative problems.

Apart from this, some features of prescriptive research are of special significance in the field of education. For example-

- Immediate or prescriptive research emphasizes the desired decentralization of decision-making and work processes.
- Researchers as well as teachers engaged in the profession express the desire to have more knowledge about their profession.
- This research helps the teacher to gain new interests, motivation and insights which empower and encourage him in the teaching process.

Steps of Action Research

Action research is conducted through the following stages.

In the **first stage**, the problem is identified, evaluated and formulated in the context of everyday learning. The problem should be flexible so that new things can be incorporated into the school as needed.

In the **second stage**, initial discussions are held among the people involved or interested in the research, such as teachers, researchers, advisors, etc., through which a draft project can be written. At this stage, researchers can express their experience in the specific aspect of the research. This stage is important because the success or failure of the research largely depends on the successful implementation of this stage.

In the **third stage**, Review of Literature (study or review of previous studies) whose purpose is to collect information about what methods were used in previous studies similar to the current study, what kind of problems were faced, how they were solved, etc.

In the **fourth level**, the problem as considered in the first level is refined if necessary and the purpose is clearly explained. It is at this level that the hypothesis or project is formulated. Hypotheses relevant to the problem are formulated at this level.

In the **fifth level**, the research methods are specified. Decisions are made about sampling or group selection, determination of data collection methods, implementation methods, financial grants, selection of personnel, etc.

In the **sixth level**, the evaluation method is determined and whether continuous evaluation will be considered.

In the **seventh level**, the research project is implemented (for a specific period of time). This includes various conditions and methods of presenting data. (For example- researcher meeting, data storage, interim report, final report, team evaluation report, follow-up work, feedback to the research team, classification, data analysis, etc.)

The **eighth level** is the final level. At this level, the significance of the analyzed data is explained and the entire project is evaluated. A summary of all the activities in the study is published and recommendations are made after reviewing the results obtained. Necessary measures are taken to inform all interested parties about the recommendations.

Advantages of Action Research

The advantages of action research are mentioned below-

1. If a person is interested in solving a problem, he can take the help of this research from the very beginning.
2. Prescriptive research emphasizes the desired decentralization in the field and in decision-making.
3. This type of research helps in increasing the knowledge of the individual and is able to gain the appreciation of everyone. It opens the door to a new world for the researcher.
4. As an educator, the teacher has to gain knowledge through research in order to give proper guidance to the students. At present, instead of memorization, emphasis is placed on organizing advanced teaching methods and teaching through problem solving. The teacher

will try to help the students acquire skills scientifically. Apart from this, it is necessary to attract highly talented students to research in the future. It is not possible to work in the field of field work without acquiring sufficient knowledge about research. Counter-regulatory research plays an effective role in this regard.

5. Research creates new interests in teachers, creates new motivations, helps in gaining insight and forming perspectives, and arouses suspicion towards traditional processes. Acquiring new knowledge and continuously experiencing professional skills enriches the teacher on the one hand and increases his self-esteem on the other, and he comes forward to apply it in the classroom.

Disadvantages of Action research

It is considered low-quality research. Because most teachers do not have knowledge of research methods and lack training. According to George G. Mauley, Action Research is one blind man leading another blind man. Since teachers are very close to the problem and are not trained in scientific impersonality, the problem is further increased.

Since there is no universal validity, its results cannot be applied to any other class or school. Sometimes this type of research acts as an overburden for teachers.

Example:

- A teacher investigates why students are inattentive in class and tests strategies like interactive games to improve attention.
- A principal studies ways to reduce absenteeism through motivational programs.

Action research empowers educators to take charge of their professional growth and improve the learning environment in real time.

Comparison of the Three Types of Educational Research

Aspect	Fundamental Research	Applied Research	Action Research
Purpose	Develop theories and principles	Solve specific educational	Solve immediate classroom/school problems

		problems	
Nature	Theoretical	Practical	Highly practical and local
Scope	Broad, generalizable	Context-specific but generalizable	Limited to specific classroom or institution
Who Conducts	Professional researchers	Researchers, educators, and institutions	Teachers, principals, or practitioners
Example	Study of cognitive development stages	Comparing traditional vs. e-learning methods	Reducing indiscipline in a particular class

Educational research can be theoretical (fundamental), practical (applied), or problem-solving (action research). All three are interrelated: fundamental research generates theories, applied research uses those theories to solve broader practical problems, and action research tackles immediate classroom challenges. Together, they ensure that educational practices are evidence-based, dynamic, and continuously improving.

Conclusion

Educational research serves as the backbone of progress and innovation in the field of education. It provides a systematic and scientific approach to identifying problems, understanding learner behavior, evaluating programs, and improving the teaching-learning process. Through fundamental, applied, and action research, educators and researchers can develop theories, solve practical classroom problems, and implement immediate improvements in schools and institutions. In the rapidly changing educational landscape, research acts as a guiding light, bridging the gap between theory and practice. It empowers educators to make evidence-based decisions, encourages continuous improvement, and ensures that education remains dynamic, responsive, and aligned with the needs of society. In summary, educational research is not just a scholarly pursuit but a practical necessity. By integrating research into everyday educational practice, we can achieve better learning outcomes, effective teaching strategies, and a more robust and equitable education system for future generations.

Exercise

(I) Very Short Questions

1. Define research in one sentence.
2. What is the primary purpose of educational research?
3. Name the three main types of educational research.
4. Who is considered the pioneer of action research?
5. Write one key characteristic of fundamental research.
6. What does applied research primarily aim to achieve?
7. Mention one advantage of action research for teachers.
8. Give one example of a problem-oriented study in education.
9. What is the ultimate objective of educational research?
10. State one limitation of action research.
11. What is the first step in conducting action research?
12. Name any one characteristic of educational research.
13. Which type of research strictly follows the scientific method?
14. State one characteristic that makes applied research different from fundamental research.
15. Which type of educational research is highly practical and context-specific?

(II) Short Notes

1. Meaning of research with suitable examples
2. Five definitions of research given by different scholars
3. Educational research and its significance in the teaching-learning process
4. Characteristics of educational research
5. Main objectives of educational research
6. Distinguish between fundamental research and applied research in education
7. Characteristics of fundamental research
8. Practical orientation and goal-directed nature of applied research
9. Meaning and characteristics of action research
10. Advantages of action research in education

11. Disadvantages or limitations of action research
12. Compare the three types of educational research

(III) Long Questions

1. Explain the meaning and significance of research in the context of education with suitable examples.
2. Define educational research. Discuss any five key characteristics of educational research with illustrations.
3. Differentiate between fundamental research and applied research in education with suitable examples.
4. Describe the objectives of educational research and explain how they contribute to improving the teaching-learning process.
5. Discuss the steps involved in conducting action research with an example from a school setting.
6. Highlight the advantages and disadvantages of action research in educational practice.
7. Explain the empirical and evidence-based nature of educational research with suitable examples.
8. Compare the three types of educational research (fundamental, applied, and action research) based on purpose, scope, and utility.
9. Discuss the role of educational research in bridging the gap between educational theory and classroom practice.
10. Evaluate the need and importance of action research in solving immediate classroom and school problems.

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