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Aspects of Educational Research And Its Implications for the Global Development of Human Resources

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Abstract:

Educational research plays a vital role in shaping the quality, accessibility, and effectiveness of education systems across the world. It provides a scientific and systematic approach to understanding educational processes, teaching–learning practices, curriculum development, and policy formulation. The various aspects of educational research—such as theoretical inquiry, empirical investigation, evaluation studies, and policy-oriented research—help identify challenges and opportunities within education systems. In the context of globalization, educational research contributes significantly to the development of human resources by promoting innovation, critical thinking, skill development, and inclusive education. It also supports evidence-based decision-making in educational planning and management, thereby improving the quality of human capital required for sustainable economic and social development. Furthermore, educational research encourages the integration of technology, interdisciplinary learning, and culturally responsive pedagogy, which are essential for preparing individuals to meet the demands of the global knowledge economy. Thus, the findings and applications of educational research have far-reaching implications for strengthening human resource development, enhancing workforce competencies, and fostering global cooperation and development.

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Introduction:

Any kind of Research means to find a new way to look any subject content or concept or process in innovative manner so that it may differ from the old one for the betterment of knowledge and human practices. The burning example in this regard is chronological development of Cell Phone to Smart Phone for each individual by using satellite and extensive research in this field throughout the world happened in this millennium since the year 2000. Research and Development in the field of Science and Technology,

Mathematics and Statistics help much to do Research Activities in Social Science and Language Science. By using computer software, internet and many other technologies helps much to carry out a research work in social science field at present after the corona pandemic. We all are very much familiar with modern technologies to make convenient research work in educational field using a hybrid mode of both offline face to face mode and online virtual mode using smart mobile phone or tab or laptop or desktop.

Educational research is a kind of social science research which comprises of different educational aspects viz. framing curriculum and syllabus, content sequencing according to chronological age and psychological age, framing text books with printing quality and designing, learning environment, teaching methodology according to content nature and learners' level, learning achievement level and feedback analysis in every field from kindergarten to university level.

All these researches in different educational field will help much the future learners for the betterment of livelihood, lifestyle and quality living on the earth as human being and to convert the human children to a human resource for every nation throughout the world for a sustainable developmental existence.

Discussion:

What do we understand about systematic scientific research?

Research conducted for the purpose of contributing towards science of any field by the systematic collection, interpretation and evaluation of data and that also in a planned way and without any biasness is called Scientific research.

In the medical field, the results obtained from a small group through scientific studies are socialized, and new information is revealed with respect to diagnosis, treatment and reliability of applications. The purpose of this review is to provide information about the definition, classification and methodology of scientific research. Before beginning the scientific research, the researcher should determine the subject, do planning and specify the methodology.

What are the different kinds of research?

Scientific research can be classified in several ways. Classification can be made according to the data collection techniques based on causality, relationship with time and the medium through which they are applied.

1. **According to data collection techniques:**
    - Observational
    - Experimental
2. **According to causality relationships:**
    - Descriptive
    - Analytical
3. **According to relationships with time:**
    - Retrospective
    - Prospective

- Cross-sectional

4. According to the medium through which they are applied:

- Clinical
- Laboratory
- Social descriptive research

Another method is to classify the research according to its descriptive or analytical features:

I. Descriptive research

a. Case series

b. Surveillance studies

II. Analytical research

a. Observational studies: cohort, case control and cross- sectional research

b. Interventional research: quasi-experimental and clinical research

Descriptive Research: In this type of research, the participant examines the distribution of Problems according to their place and time in society. It includes case reports, case series and surveillance studies.

Case Report: It is the most common type of descriptive study. It is the examination of a single case having a different quality in the society,

Case Series: It is the description of repetitive cases having common features.

Surveillance Studies: These are the results obtained from the databases that follow and record a educational problem for a certain time.

Analytical Scientific Research: the most important difference of this and the descriptive research is the presence of a comparison group. They are categorized as observational and interventional research.

Observational Research: The participants are grouped and evaluated according to a research plan or protocol. Observational research is more attractive than other studies: as necessary clinical data is available, concluding is fast and they incur low costs. In observational studies, the factors and events examined by the researcher are not under the researcher's control. They cannot be changed when requested. All the variables, except for the examined factor or event, cannot be kept constant.

Randomization can be restrictedly used in some cases. It might not be always possible to apparently and completely detect a cause and effect relationship. The results are considerably similar to real-life situations since the events are examined as they are and special conditions are not created. Since the repetition of the observed cases is impossible most of the times, it may not be possible to recreate the same conditions.

Moreover, some studies may be experimental. After the researcher intervenes, the researcher waits for the result, observes and obtains data. Experimental studies are, more often, in the form of clinical trials or laboratory animal trials.

Analytical observational research can be classified as cohort, case-control and cross-sectional studies.

- **Cohort Studies (Prospective, Retrospective and Ambidirectional):** A cohort is a group formed by sample having common characteristics. A cohort study is the one in which a group of samples is followed-up in time, e.g. comparison of academic performances of children in their adolescence.

Cohort research may be observational and experimental. The follow-up of students prospectively is called a *prospective cohort study*. The results are obtained after the research starts. The researcher's following-up of cohort subjects from a certain point towards the past is called a *retrospective cohort study*. Prospective cohort studies are more valuable than retrospective cohort studies: this is because in the former, the researcher observes and records the data. The researcher plans the study before the research and determines what data will be used. On the other hand, in retrospective studies, the research is made on recorded data: no new data can be added.

In fact, retrospective and prospective studies are not observational. They determine the relationship between the date on which the researcher has begun the study and the disease development period. The most critical disadvantage of this type of research is that if the follow-up period is long, participants may leave the study at their own behest or due to physical conditions. Cohort studies that begin after exposure and before disease development are called *ambidirectional studies*. Public healthcare studies generally fall within this group, e.g. lung cancer development in smokers.

- **Case-Control Studies:** these studies are retrospective cohort studies. They examine the cause and effect relationship from the effect to the cause. The detection or determination of data depends on the information recorded in the past. The researcher has no control over the data.

- **Cross-Sectional Studies:** in cross- sectional studies, the patients or events are examined at a particular point in time. Prevalence studies (the percentage of a population having a disease at a certain time) are the ones in which the diagnosis and disease mechanism are detected and the cause and effect relationship is examined at the same level.

Cross-sectional studies are advantageous since they can be concluded relatively quickly. It may be difficult to obtain a reliable result from such studies for rare diseases.

Cross-sectional studies are characterized by timing. In such studies, the exposure and result are simultaneously evaluated. While cross-sectional studies are restrictedly used in studies involving anaesthesia (since the process of exposure is limited), they can be used in studies conducted in intensive care units.

Interventional Research (Experimental Studies): in this type of research, there is a control group aimed to be tested. The researcher decides upon which effect the participant will be exposed to in this study. Post-intervention, the researcher waits for the result, observes and obtains the data. Interventional studies are divided into two: quasi-experimental and clinical research.

- **Quasi-Experimental Research:** they are conducted in cases in which a quick result is requested and the participants or research areas cannot be randomised, e.g. giving hand-wash training and comparing the frequency of nosocomial infections before and after hand wash.

- **Clinical Research:** they are prospective studies carried out with a control group for the purpose of comparing the effect and value of an intervention in a clinical case. Clinical study and research have the same meaning. Drugs, invasive interventions, medical devices and operations, diets, physical therapy and diagnostic tools are relevant in this context.

Clinical studies are conducted by a responsible researcher, generally a physician. In the research team, there may be other healthcare staff besides physicians. Clinical studies may be financed by healthcare institutes,

drug companies, academic medical centers, volunteer groups, physicians, healthcare service providers and other individuals. They may be conducted in several places including hospitals, universities, physicians' offices and community clinics based on the researcher's requirements. The participants are made aware of the duration of the study before their inclusion. Clinical studies should include the evaluation of recommendations (drug, device and surgical) for the treatment of a disease, syndrome or a comparison of one or more applications; finding different ways for recognition of a disease or case and prevention of their recurrence.

What is the difference between research in natural science and research in social science?

The natural sciences thus focus on investigating the laws governing observable natural phenomenon while the social sciences focus on investigating the drivers of collective human behavior.

Pure science is characterized by control, exactness, rationality, controlled variables, and predictability, while social science is the opposite to it as it is spontaneous, with unpredictable or uncontrollable variables, and it deals with human emotions and behaviors.

What is the nature of social science research?

Social science research is a systematic method of exploring, analyzing and conceptualizing human life in order to extend, correct or verify knowledge of human behaviour and social life. Social research seeks to find explanations to unexplained phenomena, to clarify that.

Social Science nowadays is considered a combination of both art and science because its content is social but the way of its study is scientific. It is dynamic. Traditionally it is considered a detailed account of social matters but today it is accepted as a scientific process.

Social research is the study of social trends, dynamics and principles that exist between individuals and within societies. Professionals perform social research in order to better understand the social factors that motivate and influence human beings and to analyze how and why humans interact with each other.

It identifies the variables, collects and analyses data on such variables to find answers to certain crucial questions. These answers contribute further to increase human knowledge. Orderliness is the hallmark of research.

What is the position of educational research in social science research?

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.

As the founder of Progressive education and father of research in education, John Dewey: emphasizes to enhance skills and understanding of the learners by engaging with the contents and experiences.

The primary goal of educational research is to add to the existing body of knowledge by offering solutions to various pedagogical problems and improving teaching and Learning Management System practices.

What are the different aspects of educational research?

Educational research refers to the systematic collection and analysis of evidence and data related to the field of education. Research may involve a variety of methods and various aspects of education including student learning, interaction, teaching methods, teacher training, and classroom dynamics.

Research methodology may vary in form from one project to another, but should always incorporate the following four elements.

- Measurement Objectives.
- Data Collection Processes.
- Recommended Survey.
- Reporting Plan.

What are the major types of educational research?

General Types of Educational Research

- **Descriptive** — survey, historical, content analysis, qualitative (ethnographic, narrative, phenomenological, grounded theory, and case study)
- **Associational** — correlational, causal-comparative.
- **Intervention** — experimental, quasi-experimental, action research (sort of)

Among the most important elements to be considered are variables, associations, sampling, random selection, random assignment, and blinding. For a more detailed explanation of other research concepts, please see the list of references provided at the end of this curriculum.

Aspects of content:

Active engagement, motivation, cognitive development, emotional well-being, feedback and assessment, and collaboration are key aspects that facilitate student learning.

What are the aspects of the research process?

Steps of the research process

- Step 1: Identify the Problem
- Step 2: Review the Literature
- Step 3: Clarify the Problem
- Step 4: Clearly Define Terms and Concepts
- Step 5: Define the Population
- Step 6: Develop the Instrumentation Plan
- Step 7: Collect Data
- Step 8: Analyze the Data
- Step 9: Interpret the result

The factors that contribute for the determination of educational aims are philosophy of life, views about human nature, religious factors, political ideologies, socio- economic problems, cultural factors and exploration of knowledge.

Why does such educational research is important?

The primary purpose of educational research is to expand the existing body of knowledge by providing solutions to different problems in pedagogy while improving teaching and learning practices. Educational researchers also seek answers to questions bothering on learner motivation, development, and classroom management.

Educational research is collecting and systematically analyzing information on education methods to explain them better. It should be viewed as a critical, reflexive, and professional activity that adopts rigorous methods to gather data, analyze it, and solve educational challenges to help advance knowledge.

How does such educational research be helpful in developing human resources for global development?

Increase Productivity: It enables people to use their skills and talent in more productive ways. Education plays a vital role in shaping the thought process of a person. The right perspective, as well as mindset, can be instilled in people's minds so it helps to make an advanced society in the future.

It facilitates prediction of future events and behavioural patterns. Evaluation of current programmes, practices and policies are possible through HR research. It prepares objective base for revision of current organisational programmes, practices and policies.

Human resources development is important because it is an investment in one's employees that will ultimately result in a stronger and more effective workforce. When an organization develops their employees, they are strengthening their assets and making these employees even more valuable.

Conclusion:

Educational research and research in educational field comprises a wide range from Kinder Garten to Post graduate level related to framing curriculum, teaching learning process, evaluation process and other related psychological traits and social aspects. Identifying the problem, framing the research design, performing the research work and publishing the research article are another important aspect of educational research. But all these aspects of educational research are not only for research shake.

Every research in educational field must have educational, social and economic implication. The ultimate research output must help to develop new ways of framing contents, teaching learning process, using ICT for both teaching learning and evaluation and solving social problems. These gradually develop children to be more productive for the ensuing days and will make the global society as a part and parcel each individual.

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