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Exploring Interdisciplinarity in Educational and Various Forms of Research

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Abstract

Interdisciplinarity in research is important in addressing the research problems by using knowledge, techniques and perspectives of multiple disciplines and yielding effective outcomes through holistic understanding of the problem. It breaks the disciplinary silos and promotes more integrated approach towards knowledge development and creation. The present paper explores the interdisciplinarity not only in Education as a discipline and Educational Research but also in various forms of research viz. Fundamental, Applied and Action Research to foster 21st century skills and address educational challenges by gaining comprehensive and deeper comprehension of the complex issues. It has been evident that all the research forms thrive on an interdisciplinary approach and are useful in respect of arriving at truth, formulation of reliable generalizations and advancement of meaningful solutions.

Introduction

The interdisciplinary research plays a pivotal role in addressing the solutions of complex problems, promoting innovation and enhancing research quality. This type of research involves integration of knowledge, methods, techniques and practices from two or more than two disciplines for exploring new ideas and advancing solutions of the research problem. In other words, it addresses complex real problems by integrating knowledge and methods from multiple disciplines. It is evident that this approach promotes innovation, broaden perspectives and leads to more comprehensive solutions when it is compared to single discipline specific research. NEP 2020 also encourages the integration of knowledge and methods of various disciplines and aims to promote 21st century skills such as critical thinking, creativity, collaboration and communication through interdisciplinary learning. The objective of this policy is to create a conducive environment which supports and promotes such approach as the enabler to build and strengthen the research eco-system in Higher Education Institutions across the country. Education is an area of interdisciplinary research which tests theories, determines analytical relations and evaluates the worth of

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educational practices. The fields of educational research are too complex and fluid. The researchers have tried to explore and conceptualise them in multiple ways depending upon the activities and resources, ways of assessing and evaluating the outcomes and levels of education. The present paper explores the interdisciplinarity in Education as a discipline, Educational Research as well as in various forms of research such as Foundational, Applied and Action Research.

Interdisciplinarity in Educational as a Discipline

The discipline of Education provides a concrete exemplar of a firm yet fluid confluence of varying strands of conceptualizations in respect of socio-educational reality where formation of educational goals, determination of educational content and process; evolving of valid approaches to knowledge and understanding and identification of socio-educational issues of contemporaneous relevance, the traditional branches of philosophy such as metaphysics, epistemology and axiology have a significant role. This has also resulted in the emergence of a new discipline of education under the rubric Philosophy of Education which is no longer construed as a unilateral application of philosophy to education. Education is essentially a social process with its vicissitudes conditioned and even caused by political and social events. Thus, the study of this process requires a holistic and participative approach. In the Indian context the accepted frame of reference in respect of the goal of education as envisaged by the New Policy of Education (1986) and further assented to by the committee for review of NPE (1992) is in terms of Gandhiji's oft-cited articulation which says that purpose of education is 'to establish a non-violent and non-exploitative social and economic order. The National Education Policy (NEP) 2020 aims to transform the education system by focusing on holistic development and 21st century skills viz. Critical thinking, Creative problem solving, Communication and Collaboration. As a process, the goals and roles of education visualized are providing a 'techno-informative' base empowering the person with knowledge and on which one can build later; creating opportunities to acquire skills such as foundational skills in communication; computational social skills and manual skills.

Building a climate for nurturing the values as personalized set of values forming one's character including social, cultural and national values so as to have a context and meaning to actions and decisions and in order to enable the persons to act with conviction and commitment and playing an interventionist and catalytic role too for promoting national cohesion and unity by empowering the students to become agents of social change. Needless to observe that to properly assimilate and develop a realistic strategy for the realization of these stipulated goals and

roles of education, a true interdisciplinary perspective will have to be evolved with the help of studies on Indian Philosophy, History and Culture, Democracy, Constitutional Framework, Economy, its constraints and possible thrust areas, plurality of Indian social order with its known disparities arising from regional, sectoral, cultural, economic, religious and gender characteristics.

The newly formed discipline of Sociology of Education, Anthropology of Education, Politics of Education, Economics of Education, History of Education, Management of Education and others with their distinctive approaches have evidently shown a curious concern for and interpreting the socio-educational reality in a wholesome way. The process of social change and its relationship with education, the issues connected with equalization of educational opportunities, the cultural and value frame of educational interactions, process and content, the political determinants of policies and programmes of education; the approaches and techniques of educational and manpower planning, relating education to productivity, employment and economic growth and developing education as investment, formulating unbiased estimates of historical forces shaping education in its national milieu; planning, organizing, controlling; monitoring and evaluating the various forms of teaching and learning systems, application of educational technology approach for bringing about the prespecified learning outcomes in the most expeditious, efficient and economical ways are the prime thrust areas of these disciplines.

Interdisciplinarity in Educational Research

Educational research because of the very nature of the discipline of Education has an interdisciplinary character which gets further accentuated by the concern for its application to the understanding, evaluation and explication of social reality at various levels of its conceptualization. The educational reality deriving from both formal and non - formal set up is primarily social, interactional and dynamic and as such, it is truly comprehended from the application of manifold theoretical approaches. In the past three decades, a systematic drive has been launched to emphasize the study and application of concepts relating to education in a patently interdisciplinary frame of reference.It may be interesting to observe that such a perspective than gained popularity in almost all Sciences including Social and Behavioural Sciences. They have made a tremendous headway regarding the increase in the accumulation of the fund of knowledge, techniques of data collection & analysis and evaluation strategies by augmenting support from several cognate disciplines. Such a collaboration has now assumed the form of a constantly evolving dynamic methodological approach in developing and extending the corpus of knowledge to their respective fields. In germane each

discipline, there is now manifestation of a level of interaction which ensures a desired degree of integration, assimilation and congruence of divergent sets of concepts, strategies and approaches.

Educational research has borrowed methodologies which were developed originally in the disciplines of the Behavioural and Social Science. Psychology traditionally has dominated educational research and continues to exert a strong influence. The research has valued methodologies used in their social sciences, such as sociological survey research, anthropological participation observation, historical and philosophical research. Some of these approaches are applied directly to education while other approaches are modified to study an educational problem. The use of different concepts and methodologies from various disciplines enriches and extends research-based knowledge in education. The researcher can study any topic with variety of methods. For example, any topic of Science Education can be studied by a survey of curriculum needs, an experiment comparing student achievements, an observation classrooms interaction etc. Each of these approaches adds to knowledge about Science Education. Thus, in an interdisciplinary field, all research methodologies are valued for their potential usefulness in developing knowledge.

Interdisciplinarity in various forms of Research viz. Fundamental, Applied and Action Research

In the planning and conducting educational research relating to crucial questions derived from these domains of enquiries, one must adopt three forms of research; Basic or Fundamental Research, Applied Research and Action Research. In the first form of research, the educational questions identified are of a. relatively abstract and theoretical nature. While in the second form of research, a systematic concern is shown for the application of concepts and, principles to the actual conditions of socio-educational reality. The third form of research addresses itself to the grass root level reality pertaining to teaching-learning processes and systems, their management and administration. The main concern here is with amelioration or improvement of the quality of decisions and actions in these domains and ensuring professional growth of the practitioners of education.

Fundamental/Basic Research: In this educational research, the issues examined are basically of theoretical nature. The main goal in this research is, therefore, theory building and its focus is on development and extension of the corpus of educational knowledge pertaining to formal and non-formal arrangements of education, teaching and learning, the processes and the content, the learner, the agents and dynamics of organization, management and evaluation. The educational knowledge is a wide term, and it encompasses all that occurs in

the name of teaching and learning in these contexts and also those who provide and benefit from these activities. It is worth mentioning in this regard that the current theories of education in general and that of teaching in particular are the outcome of a multiplicity of approaches-philosophical, psychological, sociological, anthropological and so on both in respect of their empirical as well as logical structures and frame of reference. Thus, the main constructs which become the basis of Fundamental Research form in education are conceptualised from multipronged strategic moves in a multidisciplinary or interdisciplinary frame facilitating development of new perspectives, approaches and impactful findings.

Applied Research: In this research form, the accent is on systematically exploring the possibilities of use and application of the educational truths, principles and generalizations to the specific educational situations. In such, research, both trans-disciplinary as well as intra and inter-disciplinary perspectives are adopted depending upon the pragmatic exigencies. Thus, most of the recent concepts in the areas of Teaching Behaviour, Classroom Interactional Strategy building, Educational Technology, Programmed Instructional Procedures, Cybernetic Monitoring, Computer Aided, or Computer assisted learning and teaching for example are the result of Applied Research endeavours planned and implemented with either trans-disciplinary or inter-disciplinary or both trans and interdisciplinary perspectives.

Action Research: In this research form the questions pertain to the most concrete educational reality context. The concern here is highly pragmatic. As Louis Cohen and Lawrence Manion (1980) rightly observe, Action Research is small scale intervention in the functioning of the real world and a close examination of the effects of such intervention". This research form is 'situational' in as much as it is concerned with diagnosing a problem in a specific context and attempting to solve it in that context; it is usually (though not inevitably) collaborative-teams of researchers and practitioners work together on a project; it is participatory - team members themselves take part directly or indirectly in implementing the research; it is self-evaluative modification which is continuously evaluated within the ongoing situation and the ultimate objective being to improve practice in some way or other. According to Blum, the use of Action Research in the Social Sciences including the discipline of Education, may be described in two stages: a diagnostic stage in which the problems are analysed and the action hypotheses are developed; and a therapeutic stage in which the hypotheses are tested by a consciously directed change experiment, preferably in typical socio-educational situations.

In the educational contexts the use of Action Research strategy has been stressed as a means of remedying problems diagnosed in specific situation, or of improving in some way a given set circumstances as a means of in-service training, thereby equipping the teacher with new skills and methods, sharpening his analytical powers and heightening his self-awareness as a means of injecting additional or innovatory approaches to teaching and learning into an ongoing system which normally inhibits innovative changes as a means of improving the normally poor communications between the practising teacher and the academic researcher, and of remedying the failure of traditional research to give clear prescriptions and finally as a means of providing a preferable alternative to the more subjective impressionistic approach to problem solving in the classroom "despite the fact that the strategy lacks the rigor of true scientific research" (Cohen and Manion, 1980).

Relationship Between Applied and Action Research

The common point between Applied and Action Research forms is that both follow scientific method but the former is 'concerned mainly with establishing relationships and testing theories and is quite rigorous in the application of the conditions of this method'. Accordingly the Applied Research form insists on studying a large number of cases; establishing as much control as possible over variables, precise sampling techniques; and a serious concern to generalise its findings to comparable situations. It does not claim to contribute directly to the solutions of problems. On the other hand, in the Action Research form, the scientific method is used much more loosely owing to its focus on finding out a solution to a specific problem in a specific situation. Here the emphasis is, not so much on obtaining generalisable scientific knowledge as on precise knowledge for a particular situation and purpose. It may be noted that as Action Research projects become more extensive in their coverage, the boundary between the two research forms become less easy to define.

It is apparent from the foregoing analysis that Action Research represents quite unmistakably a strategy for improving a given educational situation while the Applied Research is directed chiefly on putting to use the various principles and generalizations with an intent to explore the possibility of application in various educational contexts. Thus, both the research forms thrive on an interdisciplinary perspective as an integral to employment and wider usage of techniques, devices and tools for collection of facts or evidence, analysis and synthesis of results and problem solving in specific contexts of educational realities.

In all the above mentioned three forms of research, the interdisciplinary perspective is undoubtedly useful in respect of a safe arrival at truth, formulation

of reliable and valid generalizations and effective problem solving. It is probably from this angle that use of triangulation has become quite popular and acceptable as a strategy of educational research in the context of Fundamental, Applied and Action Research forms.

Conclusion

In the nutshell, it can be concluded that promoting interdisciplinarity in educational research and various forms of research will pave the way for advancing solutions of the complex issues and problems in a comprehensive and innovative manner. The research in the field of education pertaining to teaching, learning, assessment, multimedia approaches, educational testing, administration, planning and management, ICT and use of digital skills must be investigated from the interdisciplinary framework so that it leads to the creation of novel findings that would help in revolutionize the social development and transform higher education. In addition to this, when three forms of educational researchviz. Fundamental, Applied andAction Research are carried out the interdisciplinary approach then the production of knowledge or theory, testing of the theory and improvement in the work situation of the practitioner respectively takes place in a more comprehensive and multidimensional perspective which facilitates in building a strong base for promoting research culture. Thus, exploring and promoting interdisciplinary research in educational research and various forms of research will allow to effectively address the complex research problems by advancing innovative and meaningful solution. These forms complement each other, often blurring boundaries, and together enhance the overall quality and applicability of educational inquiry. As the educational landscape continues to evolve, embracing interdisciplinarity will be key to developing innovative solutions, advancing educational equity, and strengthening the research ecosystem in higher education institutions across the country.

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