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## Interdisciplinary Approach to Research in Teacher Education: Introduction, Importance and Necessity

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### **Abstract**

*NCTE had released a new curriculum framework of teacher education on 2013. It is desirable that new teacher education institutions are located in multi and interdisciplinary environment. This will have significant implications for redesigning of norms and standards of various teacher education courses specifies by the NCTE. In response to this recommendation, NCTE in its action plan asserts formulation of guide lines for establishing new teacher education programmes in colleges with multi and interdisciplinary departments and courses by March 2014. The interdisciplinary approach has become an important and challenging technique in modern curriculum. It utilizes more than one discipline and create term of teachers and students that enrich the overall educational experiences. The research on teacher education deals with policy oriented research, curriculum development, small scale research carried out in particular environment rather than working independently, with interdisciplinary research disciplines interact and work collaboratively.*

### **Introduction:**

There have been continual efforts made at various levels to strengthen teacher education in India. Amongst the various institutions involved in this process, the National Council of Teacher Education (NCTE) is one of the apex bodies, which plays a vital role in designing and implementing the policies for strengthening the teacher education. Accordingly, in 2010, NCTE had released a new curriculum framework of teacher education. Recently, on 09/09/2013, NCTE had published an action plan for review and supervision of implementation of the recommendations by justice J. S. Verma's commission on teacher education. In the context of quality pre-service teacher education, in one of its recommendations, the commission states that “it is desirable that new teacher education

*institutions are located in multi and interdisciplinary environment. This will have significant implications for redesigning of norms and standards of various teacher education courses specifies by the NCTE. This will also have implications for employment and career progression of prospective teachers. The existing teacher education institutions may be encouraged to take necessary steps towards attaining academic parity with new institutions”.*

In response to this recommendation, NCTE in its action plan asserts formulation of guide lines for establishing new teacher education programmes in colleges with multi and interdisciplinary departments and courses by March 2014. Furthermore, regulations of NCTE notify to ensure that new teacher education institutions/programmes are located as a part of colleges/institutions with multi and interdisciplinary departments and courses by December 2014. In similar manner, the University Grant Commission (UGC), a premier higher education agency, in its 12<sup>th</sup> five-year plan mentions that ‘*Defragmentation of the university system as a uni-disciplinary university system shall be checked by encouraging development of comprehensive university system with multi-disciplinary institutional framework*’. (Chapter 2: “Vision, Goals, and Objectives of Higher Education”, Section 2.2.3(e), ‘Preserving the Character of University’).

The aforesaid assertions indicate the need of interdisciplinary approach in teacher education and due measures for its incorporation. The interdisciplinary approach has become an important and challenging technique in modern curriculum. It utilizes more than one discipline and create term of teachers and students that enrich the overall educational experiences. It has been observed that student education has suffered the inferior pedagogy of traditional methodologies that concentrate specifically on only one discipline. The interdisciplinary approach provides many benefits that develop into much needed lifelong learning skills, essential to a student’s future learning. It helps in expanding student understanding and achievement between different disciplines, enhancing communication skills. The interdisciplinary approach is a key concept to the advancement of curriculum at all levels.

The executive directors of **Association for Integrated Studies, William Newell** and **William Green** (1982) defined the interdisciplinary approach as “*inquires which critically draw upon two or more disciplines and which led to an integration of disciplinary in science*”. The interdisciplinary approach is different from multi-disciplinary approach, which deals with the teaching of topics from more than one discipline in parallel, nor a cross-disciplinary approach, where one discipline is crossed with subject matter of another. Interdisciplinary techniques go beyond these two techniques by permitting the students to see

different perspectives, work in groups, and make the synthesizing of discipline's ultimate goal. The interdisciplinary techniques are not only important for a student to learn any one single discipline or solve problem in a synthesized manner, but is also enriches a student's lifelong learning habits, academic skills and personal growth.,

The success of interdisciplinary approach relies mainly on methodology adopted rather than domain of subject material or text books alone. Many disciplinary techniques are developed, not as much with the consideration of team teaching, but more so, they are developed with the consideration of their method of pedagogy. The benefits of interdisciplinary studies are not without their disadvantages. In one of the articles, Rahul Kanakia quotes "*Professors who focus on interdisciplinary studies isolate themselves from the core of their field. In contrast, the interdisciplinary studies focus on the fringes of field which lowers an academic reputation in eyes of his peers and hurts his chances for tenure*" (Kanakia, 2007). The interdisciplinary approach has other disadvantages, such as integration confusion and time consuming curriculum preparation.

Research, being an integral component of every curriculum, significantly contributes in improvement and strengthening of a given curriculum. The research in teacher education is usually categorized in two broad classes namely, "*Research on Teacher Education and Teaching Practices*", and "*Research in Teacher Education and Teacher Practice*". The research on teacher education deals with policy oriented research, curriculum development, small scale research carried out in particular environment, etc. The results of such studies can be applied at three different levels, **(a)** at the macro level for defining policy and supportive decision making, **(b)** at the intermediate level for curriculum development of pre-service and in-service teacher education, and **(c)** at the micro level for practice evaluation purposes conducted in specific settings such as university class rooms, practicing schools, etc. The research in teacher education involves several aspects, such as **(a)** research related to the subject content knowledge, **(b)** research related to the educational sciences, i.e. research related to different variables in educational context, **(c)** interdisciplinary research connecting the subject content and pedagogical knowledge (teaching methodologies), **(d)** evaluation research dealing with use of various research methodologies to evaluate their effectiveness in teaching, how to interpret the obtained data, how to communicate, how to make evidence based decisions, etc., and **(e)** research on oriented attitude and value of life-long learning, i.e., the teacher education should support teachers in development of new aspects of their professional roles. They should perceive themselves as agents of changing society, being analytical, open to new experiences, innovative and committed to life-long learning.

**Importance and Necessity:**

The interdisciplinary research in teacher education has attracted a great deal of attention of educationalist worldwide. It involves researchers, teachers, students in the goals of connecting and integrating several academic disciplines, professions or technologies along with their specific perspectives, in the pursuit of common task. The interdisciplinary approaches typically focus on problems felt by the investigators which are too complex/vast to be dealt with the knowledge and tools of a single discipline. In the global age, it has become increasingly necessary to understand and act upon the issues through the integration of multiple disciplines, i.e. the best form of knowledge and experiences, what is referred to as “*Deep knowledge from different perspectives*”. *Removing disciplinary and academic barriers through interdisciplinary pursuit facilitates the development of fluency and skill required to engage complex issues, to create conditions that enable flashes of understanding from one field to illuminate another, and to utilize and revalorize knowledge that draws upon expertise from and interface with more than one disciplinary perspective*”.

The interdisciplinary research approach has unprecedented advantages over the traditional ones. Although the significance of ‘monodisciplinary’ research cannot be ruled out in today's rapidly growing knowledge age, it can be said that ‘*disciplinary boundaries can be both prisons and safety zones*’. Furthermore, the researchers can say we are not students of some subject matter, but students of problems that may cut right across the broader of any subject matter or discipline. It has been observed that many major breakthroughs in science take place at the boundaries or intersections of various disciplines. The interdisciplinary research allows us to (i) answer complex question, (ii) address broad issues, (iii) explore disciplinary and professional relations, (iv) solve problems that are beyond the scope of any single discipline, and (v) achieve unity of knowledge.

A National Academies report titled Facilitating Interdisciplinary Research, defines interdisciplinary research as, “a mode of research by teams or individuals that integrates information, data, techniques, tools, perspectives, concepts, and/or theories from two or more disciplines or bodies of specialized knowledge to advance fundamental understanding or to solve problems whose solutions are beyond the scope of a single discipline or area of research practice.” In other words, rather than working independently, with interdisciplinary research disciplines interact and work collaboratively.

Klein, one of the front linear educationalist and researcher states, “*Interdisciplinarity has become more important because the needs it serves, although varied and even conflicting*

*are pervasive*” (Klein 2002). In the global age, interdisciplinary is a phenomenon that has delivered much and promises more in terms of initiating critically important human understanding and undertaking that would otherwise be inaccessible or unachievable. The four factors of interdisciplinary are (i) the inherent complexity of the natural and human social world, (ii) the quest to explore problems and issues that are not confined to a single discipline, (iii) the need to solve social problems, and (iv) the generative power of new technology. Although the new technologies have increased the efficiency of processing, storing and transmitting information, which contributed to transforming existing field of study and generating new ones, the interdisciplinarity emphasizes the utilization, not the accumulation of knowledge.

Klein explains that the emergence of interdisciplinary field has altered the landscape of knowledge, spanning newly minted disciplines, inter-disciplines and fields of study, such as international, cultural, and women studies, as well as biochemistry, bioengineering, nanotechnology, neuroeconomics, envirohistory, and of course, interdisciplinary studies. Revolutionary breakthroughs and paradigm-shaking advancement of every contemporary disciplines and field of study attest to knowledge increasingly realized through interdisciplinary human inquiry and expression. Today there are clear indications that interdisciplinarity is growing with no end in sight. As colleges and universities worldwide encounter the ongoing challenges of thinking deeply about how to serve the need of contemporary students and what kinds of learning students ought to achieve to meet the challenges of complex world.

While adopting an interdisciplinary approach to research in education, the methodology should be drafted carefully and critically. The academic system is still very much structured on the concentration of specific measures as disciplines and the integration of interdisciplinary studies have become unusual to the traditional field of studies. Rick Szostak (2007), in his book entitled “*How and Why to Teach Interdisciplinary Practice*” explains that the methodology of interdisciplinary practice is lost when a single interdisciplinary course is considered as a major field of study. Furthermore, he quotes “*Most centrally, faculty members within interdisciplinary programmes generally identify themselves primarily in terms of a particular interdisciplinary theme or a question, rather than with interdisciplinary itself*”. The specialization in an interdisciplinary field thus creates a barrier for further integration. Szostak is also worried that interdisciplinary teachers ‘*may lack both interest and expertise in interdisciplinary research practice*’.

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