

Multidisciplinary Approach in Higher Education: A Study on Entry-Exit System

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Abstract

By 2030, one large multidisciplinary college in every district this was a headline that one could not miss when the National Education Policy 2020 was announced. The headline encapsulates the bold reforms that will be implemented in the Indian higher education system. The study focus on making education multidisciplinary is a significant step that will benefit the students, and one that will have far-reaching effects. The Government of India has done a tremendous job in creating an enabling ecosystem for offering multidisciplinary education to flourish and making a difference to students, who in turn will make an impact on the future of our country. The flexibility to choose subjects from sciences and humanities with the ability will also learn fine arts and sports which offers the students a wide range of subjects to choose without the restrictions they were faced earlier. With creative combination of subjects, cutting edge curriculum, flexible options, and multiple entry and exit options during the undergraduate course, students can explore their areas of interest and also choose careers of their choice. In addition, this kind of approach will foster intellectual curiosity, a critical thought process, self-reflection, leadership and teamwork skills, a sense of commitment, professionalism and a heightened sensitivity to one's socio-cultural environment. The introduction of multidisciplinary approaches in the field of humanities, the students would be empowered, augmenting the potentiality of human resources and this paves the way for accelerating the process of social, economic and environmental development and sustainability.

Keywords: Approaches; Interdisciplinary; Multidisciplinary; Societal needs; Strategies.

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INTRODUCTION

This profound concept from the Rigveda illustrates the recognition of limitless learning in the Vedic Period. India has a rich tradition of the multidisciplinary approach since ages, as exemplified by the ancient institutions such as Nalanda and Takshashila. These higher learning centres of ancient India were known for teaching

every branch of knowledge, such as singing, painting, chemistry, mathematics; vocational fields such as carpentry, clothes making; professional fields such as medicine and engineering; and soft skills such as communication, discussion and debate. Over the centuries the broader learning opportunities got narrowed and gradually in recent years the focus moved to specialization in particular subjects resulting in the growth of single stream institutions. The National Education Policy 2020 (NEP 2020), suggests several policy directions for offering multidisciplinary education.

‘Holistic and Multidisciplinary Education’ is the central recommendation of the National Education Policy-2020. It is said to be the architecture of 21st century knowledge economy with a focus on problem solving approach. At the first sight, it may appear to be a simple proposition. A deeper analysis shows that multidisciplinary education as a concept and process is more complex than it looks. The purpose of this unit is to discuss the multidisciplinary education at an introductory level and motivate teachers to probe further and pave the way for multidisciplinary teaching and research in higher education institutions. Another recommendation of NEP-2020 is the introduction of multiple entry-exit in Indian higher education institutions through a flexible and innovative curricular structure with a view to allow learners to get certification at yearly interval and possibly create the scope for joining job market. The system will reduce the drop out and increase the internal efficiency of higher education, besides creating the possibility of life long education. This unit also examines the concept of multiple entry-exit and throws up some issues and challenges associated with it.

The National Education Policy 2020 proposes a “Holistic and Multidisciplinary Education”. It refers to ancient education in India which provides for comprehensive understanding of all fields of knowledge from social sciences, physical sciences, life sciences, humanities, vocational and professional education. NEP-2020 claims that all branches of knowledge are considered ‘arts’, which modern education signifies it in terms of ‘liberal arts’. There is a call to return to holistic and multidisciplinary education in the above sense. The rationale to a holistic and multidisciplinary education is given in terms of increasing the creativity, critical thinking, problem solving abilities and developing capacities of human beings intellectual, aesthetic, social, physical, emotional, and moral.

NEP-2020 in Section 11 refers to holistic education,

multidisciplinary education and liberal education synonymously. Holistic is multidisciplinary, and multidisciplinary is holistic, and furthermore holistic and multidisciplinary is liberal education. Moreover, two different times in history, ancient and modern (21st century), are compared without making distinction of the qualitative differences of two time periods in the evolution of knowledge. This raises few questions: (a) In what way knowledge is arts? (b) How knowledge of all arts lead to holistic education? (c) What does it mean to return to ancient education? (d) Does policy advocate the end to disciplinary basis of specialized knowledge which is still preferred in universities worldwide? (e) Whether policy advocates the move to less theory orientation or more practical orientation or a mix of both. The interpretations of various terms vary in the academic circles and need to be debated to have a clear grasp of holistic, multidisciplinary and liberal, and inter connections between them. For the sake of clarity, not with standing the differences in the academic community. The three terms which are very crucial connected with NEP-2020 are of the following.

HOLISTIC EDUCATION

Holistic education refers to the development of physical, emotional and cognitive capacities. It refers to all round development of personality. It is a more philosophical notion. Normatively speaking, it means what ought to be the conception of good life. Education is valuable in intrinsic terms. However, it also has an instrumental value to realize the good life. In a democratic country, holistic education refers to the citizenship values. It refers to tolerance, secular values, and inclusion as an important value. The purpose of all education, whether disciplinary or multi-disciplinary, is holistic education. Hence, holistic does not necessarily mean multidisciplinary.

LIBERAL EDUCATION

Liberal education is scientific pursuit of knowledge. It develops questioning and critical thinking of knowledge as we all know that knowledge advances when, in the course of progress, the existing knowledge is questioned and, in the process, an alternative hypothesis is presented and examined. New knowledge is established with the questioning of old knowledge. Liberal education does offer the choice to students

to follow the pursuit of knowledge through the choice of a particular discipline. However, students may be offered the opportunity to explore before the choice of a particular discipline is made final by them. For example, an undergraduate liberal education in US allows to explore in early semesters to choose any subjects of choice before a specialized discipline is selected. In this connection in Indian higher education the student will opt core and electives as a major or minor. How does liberal education help achieve holistic education? In my opinion, it is by creating the power of reason that an individual can decide what is good life that he/she values. It means that liberal education may achieve holistic education in particular ways for each and every individual. There cannot be a yardstick of holistic that can be imposed from above. If the criterion of liberal education is reason, then it may happen in both forms of education disciplinary as well as multidisciplinary.

MULTIDISCIPLINARY EDUCATION

The conjointment of various disciplines is multidisciplinary education. The term is used in generic sense to denote that knowledge streams from various disciplines can sometimes give better insight to understand social, economic and natural phenomenon. The interaction of various disciplines can happen in various ways simple and complex. The understanding of such interaction is essential to understand the variable ways of knowledge construction. At the turn of the 20th century, the basic disciplines were limited to, say, Physics, Chemistry, Biology, Mathematics, Economics, Sociology, Political Science, Geography, Psychology, Language and Philosophy. Later, various applied branches of knowledge were introduced, such as Engineering, Law, Medicine, etc. Gradually, multidisciplinary was introduced in teaching even basic disciplines. For example, the teaching of Economics to an undergraduate also required teaching of Mathematics and Statistics. With the conjointment of Economics with Mathematics and Statistics, Economics flourished as it allowed Economics to grow as empirical science and allowed modelling in estimation and forecasting with greater precision. Mathematics and Statistics were of instrumental purpose to develop Economics.

Various subject teachers of higher education institutions may find examples of how their own disciplines advanced with the conjointment of other disciplines. In this simple form, multidisciplinary

grew in the 20th century and syllabi even within a discipline were conceptualized in different universities all over the world. In many instances, the growth of a new discipline was the result of multidisciplinary education. For example, Management as a discipline grew with the conjointment of Management with Economics, Finance, Commerce, Accounting, Psychology, Mathematics. Multidisciplinary is evident in a syllabus in UG programme on Environment Science. There is a conjointment of Physics, Chemistry, Ecology, Bio-technology, Bio-Geography, Economics. In these examples, we find that the growth of new multidisciplinary disciplines is the result of interactions of disciplines as well multidisciplinary disciplines. Therefore, multidisciplinary education which is referred to in NEP-2020 has been a practice which evolved in various ways in syllabuses in the universities with the growing specialization and in an effort to apply knowledge to solve the problems. To sum up, we need to make an analytical distinction between holistic, liberal, and multidisciplinary education mentioned in the NEP-2020. Holistic education is a normative idea that implies empowering people. It provides freedom to choose life as an individual likes to lead, free from coercion. Holistic also means the citizenship values, dignity and treating all individuals equal. The aim of all education disciplinary as well as multidisciplinary education is to lead a holistic life. Liberal education is based on scientific enquiry. Scientific progress takes place through questioning, presenting an alternative hypothesis and testing. Liberal education helps to develop critical mind and capacity to reason. Liberal education began with the disciplinary basis of knowledge till the first quarter of 20th century and afterwards with the disciplinary and multidisciplinary education. In spite of liberal education leading to the power of reason, liberal education may be in conflict with holistic education, as it may lose touch with humanities. Generally, liberal education should question prevailing faith and the reasoned scrutiny should lead to justice in the society. Multidisciplinary education happens with the conjointment of disciplines. Attempts to find solution to problems which cannot be fully understood within a boundary of specific disciplines led to the multidisciplinary education already in 20th century in various forms. No doubt, multidisciplinary education opens new horizons of knowledge. However, there is no guarantee that new horizons of knowledge will be also for holistic education which cares for humanities. After having made the distinctions between holistic, liberal, and

multidisciplinary, which is sometimes confounded to be the same, it is important to understand more closely multidisciplinary education which is further confounded with interdisciplinary and transdisciplinary education. There are other terms such as interdisciplinary and cross disciplinary.

Multidisciplinary, Interdisciplinary and Transdisciplinary Education Multidisciplinary

Multidisciplinary education is the conjointment of disciplines without any integration or synthesis of knowledge from various disciplines. Two or three disciplines come together with ideas and methods from respective disciplines which could be useful to understand a problem under consideration. For example, Economics and Statistics are useful as they help to apply economic theory for empirical testing for which statistical tools are useful. No new knowledge is created. To take another example, students of Management are taught Economics as well as Statistics. Management of a firm is concerned with profit maximization principle derived from Economics, and Statistics helps in market survey research. In this example, Economics and Statistics have instrumental role in Management. The syllabus of Management is an example of multidisciplinary education. The Department of Management hires subject experts of Economics and Statistics in the department or hires from outside the department to teach. Multiple examples can be constructed by the subject experts of different departments. Multidisciplinary in this simple form exists in various departments in teaching.

Interdisciplinary

The meaning of the word interdisciplinary is also the conjointment of disciplines. However, integration or synthesis of knowledge from respective disciplines takes place in order to generate new knowledge which can help to solve problem of a society the problem which cannot be solved from a disciplinary or multidisciplinary basis of knowledge. Few examples will clarify the concept of interdisciplinary education. Take for instance Development Studies as the area of study taught in many universities. Development Studies is interdisciplinary, co-constituted through disciplines such as Law, Anthropology, Sociology, Gender, Economics, Political Science and International Relations, Geography, Critical Historical Studies, Environmental Humanities, Indigenous Studies, and Decolonial and Postcolonial studies as well as some of the technical

and natural sciences. However, the combination of these disciplines adds to the methodological and theoretical rigour of Development Studies. Another example is Women's Studies. This area of knowledge requires the understanding of women's lives from different disciplines like Sociology, Anthropology, Economics, History and Philosophy. Conjointment as well as integration of knowledge from different disciplines can effectively address the problem of women. Policy Studies is an interdisciplinary field of study that integrates knowledge from disciplines such as Economics, Political Science, Public Administration, Sociology and Philosophy. It is a matter of deeper analysis in the field of interdisciplinary education as to how the knowledge from different disciplines develop over a period of time and a synthesis of knowledge develops to understand interdisciplinary field. The process through which interdisciplinary knowledge occurs is a subject matter that subject teachers themselves can explore and update the knowledge.

Transdisciplinary

Transdisciplinary education is extreme interdisciplinary where synthesis of knowledge subordinates individual disciplines. For example, post modernism takes ideas from History, Economics, Sociology, and Philosophy, and is used to explain many social phenomena of identity, voice, control, hierarchy, power where disciplinary identity is fused. Most appropriately NEP-2020 has a strong message to develop an interdisciplinary education architecture in Indian universities. Hence, it would be appropriate to understand ways of invoking interdisciplinary through curriculum restructuring.

Practicing Interdisciplinary Education

As noted above, multidisciplinary education is conjointment of many disciplines and when interdisciplinary is added, the conjointment adds to the synthesis of knowledge, and generation of a new knowledge which cannot be seen from the lens of a particular discipline. In substantive terms, synthesis of knowledge from two or more disciplines gives us a new light to the problem and solution. Disciplines are after all artificial boundaries in relation to a complex problem which are inherently inter dependent. Dropout of poor girls in rural area is a complex problem that needs lens from Economics, Sociology, Geography, Psychology as well as from Women's Studies and Social Work perspective. Therefore, the question is: how can universities equip themselves to

understand such a complex problem? Some of the following approaches may be useful.

- i. **Choice of a research project:** The research project should be chosen around an important problem that cuts across different disciplines. Problems of global warming, pollution, ethnic conflict, area research, neurosciences, natural disaster, migration etc. are areas of interdisciplinary approach.
- ii. **Building collaboration:** The lead department which is planning a research project around a complex problem should identify the team members and collaborate with them in discussing the problem and developing research proposal. The research team should work closely in conceptualizing proposal, defending it before funding agency and finally work in a team during entire period of research.
- iii. **Joint research:** Joint research should be a process of close interaction of ideas during which each member experiences the idea and method applied across the group members of different disciplines. The joint research develops an entirely new perspective and participative culture for all group members that goes beyond the boundary of a discipline.
- iv. **Joint teaching:** Collaborative research experience should then be built into a teaching programme of a university. The curriculum restructuring should be done in which complex problem could be introduced and joint teaching of a course can be initiated. Joint teaching can provide an opportunity among teachers of different disciplines to reflect back on understanding a problem from new interdisciplinary perspective.
- v. **Joint review of teaching:** At the end of a course, joint review with teachers and students is an excellent opportunity to extend research and teaching in interdisciplinary areas.
- vi. **Joint publication:** The joint experience of research and teaching provides ample opportunity for a group of teachers to publish papers. After many interactions with group research and teaching interdisciplinary may be intensified by the faculty.

Needless to say, the above schematic design is neither unique nor necessary to follow. There may be various ways of doing them. In fact, joint teaching may begin first, and joint research and publication may follow thereafter. Interdisciplinary can be initiated even with the joint publication. A culture

of collaboration in higher education is the prerequisite of new environment of interdisciplinary education. It is equally important to note that developing interdisciplinary architecture is not a short run phenomenon. It may take long years to integrate interdisciplinary education in universities. There are many challenges of higher education, namely, shortage of teachers, research funding, infrastructure, etc. Hence, curriculum restructuring to promote interdisciplinary education requires support of universities on various counts, chiefly, higher degree of autonomy, less bureaucratic hassle and funding support without which interdisciplinary education shall remain a dream only.

Multiple Entry-Exit

NEP-2020, Section 11.5 proposes multiple entry-exit in higher education institutions. It refers to rigid boundaries which implies that there are three-year undergraduate (UG) level and two year postgraduate (PG) level programme. A student has to complete three-year UG programme successfully in three years in which a successful transition from the first to the second year and from the second to the third year in a given time has to take place. In a choice based credit system, there has been some flexibility as the transition from first to second year and from second to third year is allowed if a student completes some minimum number of credits in a semester/year. Hence, UG programme completion is possible in extended year or two. After successfully completing UG programme of specified credit, a student is granted a degree to make a transition to job market or higher studies at PG level. There is simply one entry and exit point at both the levels of programme UG as well as PG. Between one entry and exit point, if a student fails to make successful transition from one semester/year to another then a student has no option but to drop out. The personal loss to a student is that he is denied of any credential for the course successfully completed and credit earned. As a result, he is never able to make a return to higher education institutions unless he begins from a scratch. From the point of higher education system as a whole, technically speaking, it is considered as wastage (lower efficiency) of the system. The NEP-2020 proposes that if multiple entry and exit points are created at UG and PG level then students may get credentials for the part of the course completed. On the other hand, the efficiency of higher education system will go up as the dropout rate will be reduced. The rationale of multiple entry-exit is extended if the imaginative and flexible curricular

structure is offered and further multidisciplinary curriculum is added to it widening the scope of the choice of course to the students. The policy notes that it increases the opportunities of work in job market as exposure of students to multiple disciplines is favoured in the job market. The policy explicitly mentions that multiple entry-exit option enlarges the opportunities for life long education, provided that credit earned is recognised at every exit point, it is stored and it is accumulated over a life cycle of an individual.

UGC guidelines for multiple entry-exit

'Guidelines for Multiple Entry and Exit in Academic Programmes offered in Higher Education Institutions' (UGC, 2021) is important in considering implementation of multiple entry-exit proposal of NEP-2020. Section 6 on operational details explicitly defines 5 entry and 5 exit points for a three year/four-year UG level programme and one year/two-year PG level programme, along with credit requirements for each level. A simplified table is presented below for understanding the

possibility of multiple entry-exit options.

Table 1 entry 1 at level 5 is possible after successful completion of grade 12 of schooling. Exit 1 is possible after earning 36-40 credit in a year. A student can earn a certificate at exit 1 and possibly try to explore opportunities in the job market. Entry 2 at level 6 is possible after completing the UG certificate. Hence the institution must reserve certain seat for the lateral entry of UG certified student at level 6. Exit 2 at level 6 is possible if in two years a total credit of 72-80 credits is earned. It means a grade 12 level student earns 72-80 credit in 2 years and a UG certified student earns in a single year 36-40 credit. An UG Diploma may be awarded at the second exit point, if student is willing to exit and try luck in the job market. In a similar way, at level 7 entry and exit may take place. At the exit the Bachelor degree shall be granted. Student, thereafter, may join job market or continue studies. Either student may join postgraduate programme or continue with four-year bachelor honors. In the former case at the 4th exit point he receives PG Diploma and in the latter case receives Bachelor honors. Similarly, 5th entry and exit at level 9 takes

Table 1: Multiple entry-exit options

Level	Entry	Semester/year	Course	Exit requirement during year	Credit	Total credit
5	1	2/1	UG certificate	1	36-40	36-40
6	2	4/2	UG diploma	2	36-40	72-80
7	3	6/3	Bachelor	3	36-40	108-120
8	4	8/4	PG Diploma	4	36-40	144-160
9	5	10/5	PG Degree	5	36-40	180-200

Source: Constructed by author based on the inputs from UGC Regulation 2021a.

place, if required number of credits are earned.

ACADEMIC BANK OF CREDIT

In a gazette notification issued by government of India on 28th July 2021, a regulation on Academic Bank of Credit was issued by UGC. (UGC, 2021a) Section 3 of the regulation notes that "Academic Bank of Credits, shall be a national level facility to promote flexibility of curriculum framework and interdisciplinary or multidisciplinary academic mobility of students across Higher Education Institutions in the country with appropriate credit transfer mechanism created through these regulations and shall facilitate students to choose their own learning path to attain a Degree or

Diploma or Post Graduate diploma or academic qualification, working on the principle of multiple entry multiple exit as well as any time, any where, and any level learning." (UGC, 2021a, p.10) Regulation on Academic Bank of Credit specifies the objectives, organizational structure, functions, eligibility criteria for approval of Higher Education Institutions to register with Academic Bank of Credits.

National Credit Transfer

The Government of India constituted a committee on a Framework of National Credit Transfer between higher education institutions in January 2021. The framework of National Credit Transfer would enable student mobility between institutions at different exit points.

Implementation of Multiple Entry-Exit: Issues and Challenges

As noted above, there are guidelines on Multiple Entry-Exit, regulation on Academic Bank of Credits and attempts at creating a framework for National Credit Transfer. However, an institution head and teachers of higher education should note some of the issues and challenges in the implementation of multiple entry-exit system.

(i) New UGC Regulation

Under the Gazette notification of 'Specification of Degrees' by UGC, specification of degrees, entry qualification and minimum duration is

(ii) Curricular Restructuring for Multiple Entry-Exit

NEP-2020, Guidelines on Multiple Entry-Exit (UGC, 2021) and Academic Bank of Credits Regulation (UGC, 2021a) talk of innovative multidisciplinary curricula in the context of multiple entry-exit system. In terms of guidelines, suggested that syllabus and arrangement of courses should be framed in such a manner that competencies are achieved in the first year of UG leading to certificate, second year of UG leading to diploma, third year of UG leading to Bachelor and fourth year of UG leading to Bachelor Hons, allowing entry and exit every year in lateral manner. I call this a single pathway model emerging from NEP-2020 and guidelines of Multiple Entry-Exit. If we carefully examine the model, first and second year is completely related to general understanding of the given discipline, other disciplines, skill, communication, etc., and the third and fourth year is related to deep specialization of subject in a given discipline.

(iii) Miscellaneous Issues

There is also a question of deciding the time period of entry after the exit. Besides, what percent of intake should be for the lateral entry at different entry points? What will be the implication if all lateral entry positions are not filled up? There is also an issue if a student does not complete required credit successfully in a given year. Will an exit be permitted at the end of the year?

CONCLUSION

The study focusses on the distinction between the holistic, liberal and multidisciplinary education. Holistic education is a normative idea. It concerns with education that allows higher capabilities of

student: higher opportunities to live a life that he chooses. The aim of liberal education is to develop the capacity of mind to reason. Multidisciplinary education is the conjointment of disciplines and interdisciplinary allows a synthesis of knowledge emerging from the conjointment of disciplines with a view to solve the problems of society. Teachers of higher education should be encouraged to have joint research, teaching and publication to promote interdisciplinary. The paper discusses the guidelines of multiple entry-exit, regulation on ABCs that opens the possibilities for multiple entry-exit. However, there are challenges of a single pathway through which curricular restructuring is suggested. The ungraduated curricular restructuring should not be reduced to vocationalization of education sacrificing the specialization. New roles are being carved out with the changing times and in an era of exponential change and development, an undiscovered future awaits young India. Even recruits are on the lookout for hiring multidisciplinary talent. Narrow training is giving way to transferrable and dynamic skills. Through a multidisciplinary approach, a student gains an arsenal of skills problem solving, critical thinking, time management, self-management, communication and writing, analysis and research methodologies, team work, and much more that are easily transferable across work environments. Youngsters can now find very interesting careers in new and emerging fields as a result of a vibrant multidisciplinary background. It gives them the exposure, education and experience to branch out into different directions and expands their avenues.

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