

# Reorienting Undergraduate Geography Curricula

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## Abstract

*At undergraduate stage geography is opted as an optional subject by both science and arts stream students for B.A. and B.Sc. degrees. However, it has been observed that undergraduate geography departments in India are failing to attract first rate students. Students, who have studied arts and social science subjects at intermediate stage, electing geography as an optional subject at undergraduate stage, are found wanting in the basic 'vocabulary' and 'grammar' of geography (phrases have been taken from Jackson, Peter, 2006: 199-2004). On the other hand, students, who have studied science subjects at intermediate stage, electing geography as an optional subject at undergraduate stage, are those who have failed to get admission in other science and technology oriented subjects. These have implications for the teaching transaction and the overall image of the discipline and department.*

*This paper endeavours to diagnose the underlying causes behind these trends. It, then, goes on to argue that the undergraduate geography curriculum modernization could be the single most effective means of dealing with this crisis. The subject could be made intellectually appealing and rewarding for students, teachers and society through curriculum innovation. Though curriculum development is a comprehensive process this paper focuses on few aspects only.*

**Key Words:** *Geography, Curricula, vocabulary, grammar, curriculum development*

## Introduction

There is a growing concern among policy makers and the teaching and research community in India regarding the inability of the undergraduate departments of universities and colleges to attract first grade students. The Prime Minister of India has also voiced his concern:

"I share the concern being expressed by many of our scientists that our best minds are not turning to science, and those who do, do not remain in science. I am told that less

than 3% of school children want to pursue a career in science. We must find ways of making these disciplines more attractive to children. We have to improve the quality of teaching of science and mathematics at the school level. Countries like China and South Korea are far ahead of us in investing in science and technology. We need to do much more in this vital area if we have to keep pace with the evolving global economy of the future." (Dr. Manmohan Singh, 2006)

As a geography teacher, my apprehension is that the discipline of geography is not an exception to this trend. My experience has been that, of late, the lot that come to geography are mostly those who have failed to get admission in technical and professional courses. This concern has been earlier articulated by Lahiri-Dutt (2005: 691):

It is well known that the best students go for medical and engineering studies, followed by those who go in for 'hard' sciences like mathematics and physics, then comes the 'bio-sciences' (those who have been lucky ever since 'environmental science' now offers them a place of pride within academia), and finally, there are those intelligent students wanting to study arts who opt for either economics or geography.

Students usually opt for those subjects that are either directly rewarding (e.g., professional certificate/diploma/degree courses) or have the potential to fetch them a good career in the long run. From the point of view of career, geography in India has remained largely an unrewarding subject except for in teaching. This failure

could partly be linked to the content and method of geography teaching in schools and colleges. Therefore, many geographers in India are now realizing the importance of changing geography curricula at different stages of formal education. This is amply evident by the kind of themes recently undertaken in a series seminars/symposia organized in different universities/institutes located in different parts of India.<sup>1</sup> Concerns raised in these meetings prompted me to share my views through this paper on the need to reorient geography curricula at undergraduate level.

This paper starts with two pertinent questions concerning problems of geography at undergraduate level. First, *why intermediate passed arts and social science students, electing geography as an optional subject at undergraduate level, are weak in the vocabulary and grammar of geography?* Second, *why geography departments (those located in science faculties) are failing to attract good quality science students?* The article, then, goes on to propose a few suggestions that could possibly enhance the profile of the discipline at undergraduate level.

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1. Shri A. M. Khwaja Chair (located in the Department of Geography, Jamia Millia Islamia, New Delhi) organized a two-day *National Symposium on Paradigm Shift in Geography* (on November 28 and 29, 2011); the Chair once again organized a two day *National Seminar on Revisiting Geography as a Sustainable Discipline* at Jamia from February 20 to 21, 2013. Centre for Earth Science Studies (CESS), Trivandrum, organized a two-day national workshop on *Philosophy and Research Methodology of Geography* (during December 7 and 8, 2011); CESS again organized a one-day Symposium on the same theme on the occasion of the Indian Geographers Meet and National Conference on Natural Resource Management and Decentralized Planning on December 12, 2012; the Department of Geography, Banaras Hindu University (BHU), Varanasi organized a three-day national seminar on *Re-orienting Geography to Meet Present and Future Challenges* (from March 14 to March 16, 2012). Another three-day national seminar was organized by the Department of Geography, BHU on the theme of "Reorienting Geography Education and Training for Sustainable Development in India" from October 29 to October 31, 2012.

### **Why are the students taking geography at undergraduate of subject?**

It is being generally observed that students electing geography at undergraduate level in arts/social science faculties come with weak foundations in the vocabulary and grammar of geography. The knowledge and intelligence level of students taking admission in geography departments depends to a certain extent on the nature of geography teaching at the school level. In recent years, qualitative transformations have taken place in the geography curriculum of school of NCERT (for details refer to Alam, Sarfaraz, 2010). First, there is an effort to integrate geography with either social science or environmental studies in the secondary school curricula. In an integrated teaching the focus is not on the discipline of geography per say. Instead, the syllabi are organized around certain themes. These themes are studied through different disciplinary lenses. As a result students do not get opportunities to acquire knowledge of essential facts and understanding of fundamental concepts specific to disciplines including geography. As a result when they enrol in geography departments for undergraduate degree they are often found wanting in their knowledge and understanding of concepts very basic to geography such as latitude, longitude, absolute locations, relative location, site, space, place, distribution, spatial interaction, areal association, region, map and scale.

In August 2012, a questionnaire-based survey was conducted among newly enrolled B.A./B.Sc. students of the Department of Geography of Banaras Hindu University (Varanasi) to assess their level

of understanding of basic geographical concepts. It was found that there is a general lack of understanding of fundamental concepts of geography among them. The result of the survey is presented in Table 1.

Table - 1 : Understanding of fundamental concepts of geography

Terms	Do not Know	Incorrect	Parially Correct	Fully Correct
Latitude	9	22	25	43
Longitude	15	21	25	39
Globe	11	7	26	56
Scale	7	21	27	45
Map	2	10	34	54
Location	15	19	43	23
Region	19	36	17	28

It is needless to emphasize that students taking admission at undergraduate level are expected to know these concepts. Complex concepts of geography are built on these basic concepts. Lack of understanding of these concepts among students hampers the teaching of complex concepts of geography (e.g., spatial pattern, process, organization, association, autocorrelation and change).

The second debilitating change in the school curricula is related to the neglect of world regional geography. Previously the study of the world regions was an integral component of school geography syllabus. School children had opportunity to travel in their imagination to different places and regions of the world. This led to development of some kind of mental maps/picture of the world in them. So whenever a teacher used to name a place, region or a geographical feature in his/her lectures, students could mentally as well as visually 'locate' them. Presently world regional geography is not

taught in schools using textbook published by the National Council of Educational Research and Training (NCERT), several State Council of Educational Research and Training (SCERT) and State Institutes of Educational Research and Training (SIERT) (for details refer to NCFSE, 2000 and NCF, 2005, both reports prepared by the NCERT). As a result students are getting limited opportunities of acquiring knowledge of the world or developing a global perspective.

The undergraduate geography departments are now receiving students who lack even the basic knowledge of world geography (i.e. locations of places, regions and peoples, landforms, climate and so on). In the same survey, the newly admitted undergraduate students were asked to write names of one country from different geographical regions of the world. Their knowledge of world geography was found to be awfully deficient. The distribution of their responses is presented in Table 2.

Table - 2 : Knowledge of names of countries by geographical regions

Name of Region	Correct	Incorrect	Do not know
West Asia	22	41	37
South Asia	56	10	32
South America	42	18	40
West Indies	10	21	69
West Europe	49	8	43
East Africa	17	24	59
North America	25	14	61
East Asia	44	19	37
Central Asia	20	41	39

The current state of geographical illiteracy hampers the teaching of physical and human geography and their sub-

branches. For example, geomorphology teachers teach various kinds of physical features on the earth as well as the underlying processes which create those features. The teachers impart knowledge of patterns of location and distribution of all the processes and the resulting features on the earth to students. Similarly human-created phenomena and processes are unevenly distributed on the earth's surface. A human geography teacher imparts knowledge about the unevenly distributed socio-spatial patterns and processes on the earth's surface. Under these conditions those students who are ignorant of the regional geography of the world find it difficult to properly realize class lectures.

It is also worth noting that the study of geography at senior secondary stage is not mandatory for opting geography as an optional subject at undergraduate level. As a result undergraduate geography departments are also receiving a substantial proportion of students who have not studied geography at higher secondary stage. These students have studied geography as a compulsory subject at secondary school level. When they take admission at the undergraduate level, two years have already passed when they had studied geography at secondary school level. In these two years, students generally forget whatever they have studied at school level.

### **Why are geography departments failing to attract good quality students?**

There is a steady decline in the popularity of geography among school students. There are both extrinsic and intrinsic reasons for this. Extrinsic reasons are related to the nature

of the society in which geography is taught and learnt. The contemporary Indian Society is swayed by philosophy of neo-liberal regime. The whole purpose of education has undergone complete makeover. The focus of education is to create a pool of competent labour force who can contribute to the growth of corporate economy. Students usually opt for those subjects at intermediate and college stages which have maximum possibilities of developing a suitable career. Therefore, not surprisingly, the most intelligent students often take admission in subject combinations which get them admissions in medical and engineering courses after intermediate. Those who join B. Sc. course give preference to those combinations which have potential to shape their career. They usually give first preference to combinations which have such subjects as mathematics, physics, chemistry, computer science and geology. Geography is usually the last option for science students. The weaker students are 'forcefully' given geography as an option due to their lower ranks in entrance examination or poor marks at intermediate examination. The position of geography is somewhat similar when it comes to choice of subject for honours. Geography is usually not the favourite subject for honours for science stream students. These students, who are ineligible (because of low marks in previous examination) to opt other science subjects from their subject combination, are forced to take geography. The remaining students who intentionally choose geography for honours are those who do not opt for other science subjects for fear of failure.

The preferred position of geography as a social science/art subject, however, is comparatively better. Geography has traditionally been a favoured subject for undergraduate and post-graduate degrees in social science and arts faculties. But in recent years, it is facing competition from subjects such as Economics, English, Hindi and Sociology (or Social Work). The prospect of getting a job after obtaining graduation/post graduation degrees in these subjects is brighter.

The intrinsic factors are equally to be blamed for the unpopularity of geography among students. These are related to the institutional framework within which geography is practised. Most of the geography departments in India do not revise their undergraduate and postgraduate curricula on a regular basis. Curriculum development should be seen as a continuous process. It should reflect the changing contours of the society and the scholastic tradition. The National Council of Educational Research and Training (NCERT) advocates for revision in school curricula after every five years. But a majority of universities and colleges fail to revise their curricula for decades.

The content of syllabi is a major concern of undergraduate geography. Undergraduate geography syllabi in many universities are full of obsolete themes with an emphasis on distributional aspects of physical, biotic and socio-cultural phenomena. Students just cram these facts without bothering to learn about the underlying structures and processes which determine their distribution, and social consequences of

prevailing distribution patterns. There is lack of elements of critical thought. This is possibly one of the most fundamental problems of geography in India. These syllabi present low level of intellectual challenge to both teacher and the learner. Kuntala Lahiri-Dutt (2005: 691) questions the absence of critical thinking in geography syllabi in undergraduate and post graduate stages:

I have often wondered in my teaching life why excellent students who are selected to study geography honours due to their very high marks in higher secondary examination turn to unquestioningly accepting memory exercise of repetitive material that has little relevance. What does our syllabus do to them that they never develop a significant measure of critical thinking.

The conventional data collection and representation techniques dominate the cartography papers at undergraduate level. Many geography departments are ill-equipped to incorporate the latest data collection and representation techniques such as remote sensing and geographical information systems. In many departments where these papers have been incorporated in syllabi, poor infrastructure and untrained teachers impede their teaching.

Lots of efforts are directed at the sequencing of papers at undergraduate levels in the syllabi development. However, in many geography departments there is a lack of proper sequencing of papers. For example, paper titled *regional planning and development* is taught in third year (in 5<sup>th</sup> or 6<sup>th</sup> semesters where semester system is followed) without teaching *agricultural* and

*industrial geography, political geography and social geography*.

There are plenty of examples of repetitions and overlaps of papers and themes at undergraduate level in many geography departments. For example, in a number of universities *Economic Geography* and *Geography of Developed and Developing Countries, Resource Geography* are taught as three separate papers in the undergraduate course. A more reasonable idea would be to combine these papers in view of their similarities.

There is hardly any undergraduate geography department which offers sufficient number of optional papers in the third year for students to choose from. In universities and colleges where there are provisions of optional papers in the third year (fifth and sixth semesters), but due to insufficient numbers of teachers or their unwillingness to teach, these optional papers are not offered. One of the optional papers becomes de facto compulsory paper as students are not allowed to choose from the list of optional papers. Instead students are given a pre-determined optional paper even though they would have chosen some other optional paper.

Perhaps no geography department in India offer specialization in geography at undergraduate level. It is possible that students from natural science stream may be more interested in physical and biotic aspects of the earth. On the other hand, students from arts and social science streams may be more interested in the study of the earth as human habitat. However, both the streams of students are forced to study the same papers. This hinders the development

of interests in specific sub-field of geography among students at undergraduate level.

The subject combination of geography with other disciplines does not always follow a rational principle. Though geography is an inclusive subject which could be made to stand as a bridge among subjects of arts, science and social sciences, it is important to create combinations of subjects keeping in view the societal demands. The value of a particular subject keeps on changing owing to changes in the society and academic. Therefore, there is a need to identify disciplines with which geography can have most productive combination at undergraduate level. For example, combination of geography with languages (English, Hindi, Urdu, Persian, Sanskrit, etc.) is no longer a relevant combination only except in exceptional cases where a student wants to pursue literary geography. This is not at all to argue against the students of geography studying languages. But when majority of students are forced to study geography with these subjects then it certainly does not augur well for them.

The syllabi and teaching methods of geography are also important issues of concern. A poor and out-dated syllabus and boring and unimaginative teaching kill students' interests in the discipline. Similarly, the teaching of socially useless and intellectually unexciting subjects does not inspire the students. This decreases the confidence of students in the discipline. They get disconnected with the subject. As a result students do not opt for geography as an optional or honours subject at undergraduate level. This necessitates innovative ways of changing undergraduate geography curricula.

### **What needs to be done?**

Given these conditions the only option is to modernize the geography curricula at both school and undergraduate levels. The innovation of geography curricula at school would supply students with good knowledge of geography undergraduate levels. However, it should be noted that change in school geography curricula is not in hands of individual geography departments. It would mean that undergraduate geography departments would continue to get students with poor knowledge and understanding of basic geographical facts, concepts and skills. Therefore, individual geography departments would have to take their own initiatives of modernizing undergraduate geography curriculum. The modernization of undergraduate geography curricula should be based on two criteria. First, the curricula should be so changed to make the discipline more useful and responsive to the present-day needs of the society. Second, interests of students with poor knowledge and understanding of geography should be taken into account.

Curriculum development at any level should be seen as a continuing process. It should reflect the changing requirements of the academic world and society. The qualitative and quantitative transformations in the geographies of the world necessitate the development of new theories, models, methods, techniques and technologies to understand these transformations. Geography departments would be required to intellectually and technically equip their students so that they feel updated and relevant in the dynamic world of academia

and the society. Curriculum modernization could be one of the key elements. Geography curriculum development constitutes many aspects; this paper focuses on reorientation of geography syllabus.

### **Reorienting geography syllabus**

Syllabus development is a dynamic process. An up-to-date syllabus is critical for the health of not only the discipline of geography but also its teachers and students. It also tells whether the state of the teaching activity in the department is vibrant or stagnant. "There is a need to update syllabi regularly keeping in view the changes taking place in nature, society, and polity. This need of changing the syllabi is more demanding than what it was in the past" (Singh, Sachinder, 2009: 113).

It is not that there is absence of efforts. Attempts have been made at individual departmental level as well at the UGC level. But these efforts have brought only a limited attainment in few university departments. 'Although many attempts have been made to restructure the geography syllabi at the national level, the results are not up to the mark' (Singh, Sachinder, 2009: 113). The reason for limited success is that the syllabus development is a complex and contested exercise. Syllabus development depends on many factors including the current research in the discipline and allied disciplines, the societal contexts, the availability of infrastructure, the focus of the departments, the specialization and competence of teaching staff and the level of understanding/talent of students. Consequently, a syllabus developed without taking into considerations these factors, even an evidently progressive syllabus becomes

a burden on students and teachers. It is not an easy task to strike a balance between all these aspects.

It is, therefore, proposed that the following principles for curriculum development may be taken into consideration for reorienting undergraduate geography curriculum.

1. An effective curriculum should be able to fill the gap between syllabi of different stages of formal education (i.e. if an essential paper is not taught at higher secondary school level, then it should be taught in the college).
2. A syllabus should be regularly revised to up-to-date its content. The content should be derived preferably from the current research trends in the discipline.
3. The syllabus should be relevant to the contemporary needs of all sections of the society.
4. All papers should be sequentially arranged so as to make their learning process rational.
5. The syllabus should move from general situations to specific cases. For example, physical geography may be offered in third or fourth semester and geomorphology during fifth or sixth semester at undergraduate stage. At PG level any one paper from fluvial, glacial, coastal or desert geomorphology papers may be offered. And at M. Phil./Ph. D. level still more specialised papers such as flood plain geomorphology or deltaic geomorphology paper may be offered.
6. The syllabus should be able to stimulate sufficient interests of students. An

obsolete and fact-based syllabus would not attract students. The focus should not be on the location and distribution of terrestrial phenomena, but on the underlying principles which govern them. This means there is a need to teach them concepts, skills, theories, models and laws of geography and allied disciplines.

7. Equal emphasis should be placed on physical and human aspects of the earth as students from both science and arts (and social science) streams study geography at undergraduate stage. However, the emphasis could be given more on human geography when it is taught to arts and social science students and to physical aspects when it is taught to science students. At the same time, there should be sufficient scope for development of specialization in the third year (fifth and sixth semesters) of undergraduate.

In accordance with these principles the following specific suggestions for reorienting geography curriculum are proposed. For the first year (first two semesters) of three year (six semesters) undergraduate degree course, two new papers are proposed. These papers are *Fundamental of Geography* and *World (Regional) Geography*. In the paper *Fundamentals of Geography*, the distinct nature of geography as a scholarly discipline should be focussed. This can be done by teaching them a brief historical evolution of geography, its distinct philosophical foundations, concepts, methodologies, approaches, perspectives, tools and techniques should be taught. The

basic idea behind introducing this paper in the very first semester/year is that students opting geography papers at undergraduate level without any background knowledge of geography would be trained in the basics of geography and therefore would develop a good foundation in the discipline. The basic reason for introducing *World (Regional) Geography* is that students would develop a mental picture of the world patterns and processes. As all geographical patterns and processes are found and operate on the earth's surface and therefore, to understand these patterns and processes, one should have knowledge of places and regions where they are found and operate. These two papers would help students built a solid background in the fundamental ideas of geography as a discipline as well as the empirical knowledge of the world geography. This would make them comfortable with papers to be taught in subsequent semesters.

In the second year (third and fourth semesters), two papers *Physical Geography* and *Human Geography* should be taught. In these papers also the emphasis should not be on the factual aspects of location, distribution, interactions but on the principles which influence their spatial characteristics.

By third year students start thinking of specialization of geography. However, there is no specialization in the third year. Branches of physical, human and cartography are equally emphasized. It is proposed that the number of compulsory papers should be restricted while those of optional papers should be increased. The compulsory papers should be chosen in such a way that it is equally useful to both the

groups of students i.e., students interested in physical as well as human geography. For example, *Geography of India*, *Environmental Geography* and *Cartography* could be of interests to both groups of students. The optional papers should be oriented to either physical geography or human geography. The following papers are proposed – *Geomorphology*, *Climatology*, *Hydrology*, *Pedology*, *Oceanography*, *Biogeography*, *Economic Geography*, *Political Geography*, *Social Geography*, *Population Geography* and *Settlement Geography*.

An important component of undergraduate syllabus is practical geography, which incorporates many aspects. The emphasis on traditional surveying techniques like chain and tape survey, plane table survey, prismatic compass, dumpy levels should be reduced. On the contrary, new techniques like GPS, RS imageries, schedule and questionnaire-based surveys need to be emphasized. Already the NCERT has incorporated remote sensing and GIS in the geography syllabus of higher secondary school. Therefore, corresponding to the theory papers of geography at the undergraduate stage, the sequencing of geography practical papers/topics should be rationally organized.

In the new circumstance there is a pressing need to make new combinations of geography with such disciplines as computer sciences, political science, economics, mathematics, statistics, botany, environmental sciences and education. “The sub-branches of geography cannot flourish without knowledge of their related social science disciplines. Teaching and learning of economic geography without

basic knowledge of economics, social geography without sociology, and political geography without politics will always remain incomplete” (Singh, Sachinder, 2009: 117-118).

The inclusion of elements of critical thought in geography syllabi would help students to see the contemporary issues with much better insight. In this context Banerjee-Guha (2004:78) says that: ‘one of the important intellectual tasks in geography in the present day, therefore, is to construct and appropriate language and a theoretical understanding of such contemporary issues of space society convergence’. As a result, ‘the new geographer in the making should spend his/her energies not on trivialities but on the significant social problems which can acquire new meaning, if analyzed with the tools of geographical analysis’ (Ahmed, Aijazuddin, 1997: 368).

## Conclusion

Geography departments in India are facing two important challenges. First, *arts and social science students opting for geography as an optional paper at undergraduate stage are found to be wanting in both the vocabulary and grammar of geography. Second, geography departments are unable to attract good quality science students for admission in B. Sc. course.* These challenges could be met by reorienting geography curricula at undergraduate stage. The incorporation of relevant and useful themes in syllabi together with their rational sequencing and adoption of innovative teaching techniques could make the subject intellectually appealing and rewarding for students, teachers and society. However,

the process of curricular modernization should take into account the availability of infrastructure, priorities of departments, specialization and competency of teaching staff and the general quality of students.

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