



CHALLENGES AND OPPORTUNITIES IN INTEGRATING INDIGENOUS KNOWLEDGE INTO GEOGRAPHY EDUCATION: A FOCUS ON NEP 2020

Dr Anindya Mondal

Assistant Professor in Geography

Kazi Nazrul Islam Mahavidyalaya, West Bengal, India

Abstract : The well-being of people across the planet have fallen during the last several decades, although overall wealth and capacity have increased. Excluding indigenous knowledge from solving critical issues such as sustainable development might be the reason behind this dilemma. In this paper, employing the existing and desired geographical education methods outlined in NEP-2020, the potential for integrating indigenous knowledge with geography education is examined. Given the focus, the people of India explore the significance of effectively integrating indigenous people's knowledge to contribute to contextualize the National Education Policy (NEP) 2020. The methodological approach involves a qualitative narrative that is based on an analysis of available geospatial education methods in the NEP to assess the level of indigenous knowledge integration in its method appendix.

IndexTerms – Indigenous knowledge, Sustainable development, Geographical education, NEP 2020.

Introduction

Indigenous knowledge is the knowledge base of the rich global diversity and is the heritage of India. But the country is rampant with monolithic Western knowledge. Our failure to tap into the reservoir of indigenous knowledge potential has resulted in the loss of thousands of products, techniques, practices, etc. These knowledge systems have been tried and used over generations. They draw upon experience gained in a local context, yet are often sophisticated in their creation and interpretation of everyday phenomena, which symbolize the foundation of industrial societies. Yet another manifestation is religion, which contains the preserver and business week. Religion sees the surrounding jungle, air, water, and earth as objects of worship. They emphasize moral and ethical values, regeneration and energy, and discourage over-harvesting of bio resources to ensure procreation and sustainability. However, they have received less attention than agro-ecological aspects of indigenous knowledge in relation to crop production. However, plant genetic resources management, interactions of traditional ecological knowledge with the management of ancient forests, indigenous visionary knowledge are gaining increased recognition.

The concept of indigenous knowledge, historically as well as in contemporary life experiences, is very diverse and may have different meanings. It would include a body of knowledge because of the long association of some groups with a region or region-based experimental learning in the form of practices, skills, designs, techniques, rituals, philosophies, and assumptions about the use and functions of objects produced. This knowledge is transmitted orally and includes behaviour in relation to the environment and scientifically honed knowledge through experiences, traditions, and practices. The indigenous knowledge system is an organic form of science involving a broad section of human society in the production, distribution, and use of food, fibre, energy, and non-material needs, such as knowledge regarding the health and well-being of humankind. It consists of practical learning passed on orally, through perspective married to rational thought and intuition. The indigenous knowledge system is context-specific and adaptable to varying local eco-culture conditions. It is also flexible and linked with spiritual growth.

Background

It is essential for the Indian curriculum to be adaptable and inclusive of its diverse cultural contexts, especially in its geography curriculum, which has an explicit goal of educating future guardians of the Earth. The importance of including Indigenous Knowledge (IK) in science subjects has been underscored in various literature. This literature further suggests that IK is one of the crucial linkages between school sciences and students' local communities. There are opportunities in the National Education Policy 2020 for addressing IK in the Indian education system.

Scope and Objectives

Political, pedagogical, and philosophical considerations have tended to provide important justifications for the need to integrate indigenous knowledge in contemporary environmental decision-making. The locus of knowledge production and consumption has tended to inculcate cognitive tilting or dominance in favour of scientific knowledge, making it differentiate advanced, scientific societies from those described as having low levels of traditional knowledge-based cultures. Integration of indigenous knowledge with that of western science structures, curriculum, and methodologies has also received strong educational portending

based on a basis premised within the assumption that knowledge is an instrument of economic, political, and social change. These also have implications for the formation and reorganization of the educational system, perhaps necessitating research and policy intervention. In the case of leaves used for thatching, a plant free from pests is identified in the forest resource that provides a biotic repellent product with a volatile odor that interferes with the chemical mechanisms that trigger the search for food by parasitic insects, deterring the growth of pests.

Elements related to the environment are taught in subjects such as environmental studies, environmental science, and geography. Apart from conventional geographical content, instructional programs also include the value systems, sciences, environmental awareness, and ecological thinking congruent to the values of a society and support their continuity. The theoretical premise of the inclusion of indigenous knowledge in the classroom flows from the emphasis to recapture the key role of the local environment and landscape in the shaping of social life, origin, and human contact with the environment. The analysis reveals that while science recognizes objective reality, traditional knowledge incorporated in modern society describes the emotive reality of natural life, landscapes, and collective memory that arouses a sense of local identity, destiny, and belongingness.

Understanding Indigenous Knowledge

The term "Indigenous Knowledge" or "Traditional Knowledge" has been used frequently in discussions related to education, particularly to curriculum development at various levels of education. The distinctiveness of Indigenous Knowledge is reflected through the sustained understanding and the utilization of natural resources and environment from time immemorial. UNESCO elaborates it as the cornerstone of the identity of indigenous peoples, expressing a deep knowledge of nature and a sense of responsibility for the environment. It is the result of a long-standing, historically rooted and enriched experience of a group or an individual. It is dynamic and based on a combination of autonomous adaptation and learning processes. It should not be confused with mere accumulated craftsmanship or experience, nor should it be equated with traditional products of a society. Indigenous knowledge has spiritual, environmental, and directional components which are reflected through living in harmony with nature or a particular environment, behaviour, customs and experience, social institutions, and a worldview. Through these components, people maintain the unique knowledge of the society which eventually guides practice, action, and process.

UNESCO says indigenous knowledge is "a system of knowledge and beliefs on and relationships with the environment that is handed down orally from generation to the next, is predicated on systemic observation, and which contains a perceived element of truth in and by the society which possess it" (UNESCO, 2006). Contained is the word "knowledge" itself tells a much about what it is. It is something known. Indigenous knowledge is the collection of what a group of people know about their local environment, about their place in society and about how they perceive things.

2.1. Definition and Characteristics

There are several characteristics of indigenous knowledge that differentiate it from another form of knowledge, and they are: it is place-specific and dynamic; it is not artificially compartmentalized; it is holistic; it is typically oral and ceremonial in nature; it is socially determined; and it uses names and terms different from those used in Western science. It has been contended that though indigenous knowledge is different from Western science, it nonetheless displays characteristics that recommend it for teaching and learning science as an integral part of contemporary students' curriculum experiences.

Indigenous knowledge refers to the insights, understandings, and interpretations of the natural environment gathered from first-hand experiences by specific groups of people with longstanding associations with a particular region of the world. Essentially, it is experiential, learned through engagement with the ecosystem. Thus, notions of "innovation" in the indigenous domain are typically products that forward the cause of community well-being through their use of traditional ecological knowledge. They could involve improvements of established technologies, introduction of new technologies, systems, or organizations. However, the innovation must have characteristics distinctive of that community and must be "local".

2.2. Overview of Geography education goals under NEP 2020

It should also inculcate a deep respect for ecosystems and concern for the environment, balance to be achieved with technological advances and global development, the importance of interaction between society and the environment, and encourage the development of responsible decision-making necessary for tomorrow's world. Concluding this view, geography should also play a lead role in whatever direction the future takes, empowering the geospatial voice and awareness, and study. The geography education at different stages of school education developed as per the new educational policy reflects a departure in curricular thinking where cognitive development of learners is the engine of learning processes.

The NEP 2020 has made several bold initiatives/plans in the country to channelize the diverse potential, abilities of the geographical landscape, and the vast human population to enhance peace, security, wealth, environmental system, and better happiness of country people. Hence, geography as a field of study and curriculum should help us understand geographical concepts, knowledge, and skills necessary for planning, policy, and decision-making in national development. The main purpose, of course, includes the imbibing values central to sustainable development - following principles of equity, social justice, and democracy, for promoting a peaceful and tolerant world society, and for appreciating other cultures and people.

Key Features and Implications

The implications drawn from the NEP 2020 call for reconsideration of the foundational principles underlying the education of the youth, and the fact that the educational project is fundamental to all individuals in society. The principles call for an examination of the degree of understanding and embracement of these ideas, the values that guide the pedagogical practice, the model of society we are trying to build for the future, and the desired subject orientation. This means rethinking the process of co-constructing concepts in collaboration with learners, to write alternative narratives about the world, or to help people understand the various dimensions of reality based on the demands of our locomotive post-truth era. They also raise questions about the most important competence for young people to develop. This means examining the culture of assessment and evaluating the standards of the various modern curricula, and the expectations and autonomy of the educational communities. This principle also involves the training of teachers and educators, and offers an opportunity to propose a new culture of education to encourage sociolinguistic and sociocultural openness through linguistic and cultural mediation.

The NEP 2020 promotes the idea of a dynamic, multi-disciplinary, and holistic education, with the holistic nature of qualifications themselves acknowledged and assessed. The learner develops flexibility, strength, adaptability, and resilience to meet the rapidly changing challenges and uncertainties. The need to expand the meaning of school quality and foster diversity is highlighted. Cognizance should be taken of the broader development of the individual and related to the full development of human attributes

and values. The success should not be evaluated based on narrow and ill-conceived indicators. The fundamental roles of teachers are emphasized, and how key they are to be professionally prepared and supported. Another important principle highlighted is the development of new and more effective models. This principle includes the recognition and proper inclusion of the many different ways in which individuals learn best. Learners understand that there might be practical limits to the blocking and separation of knowledge. They need to develop broad comprehensive thinking and creativity in problem-solving.

Integrating Indigenous Knowledge into Geography Education

The indigenous knowledge about geographical phenomena is vast. The presence of indigenous knowledge in the geography curriculum apart from the mention of landforms, water bodies, climate zones, and natural resources remains unexplored. As recommended by the NEP 2020, global citizenship and knowledge on sustainable development goals are the objectives of education. Recognizing that knowledge of facts, processes, and phenomena is of utmost importance for sustainable development, indigenous knowledge is expected to contribute strongly to reaching the objectives. Furthermore, sustainable development cannot be achieved without the engagement of local wisdom and indigenous knowledge. In other words, the teaching of geography in India is a matter of pride with respect to that subject, and it is necessary for us to learn the positive aspects of indigenous knowledge with a purpose to equip learners to become global citizens.

India, with its diverse geographic settings and insights on the complexity of nature-society interaction from ancient to modern texts, is one of the most suitable geographies where the diverse indigenous knowledge of the country can be integrated into education. This discussion on integrating indigenous knowledge into geography education does not attempt to develop new or entirely indigenous geographical knowledge. Instead, it aims to respect indigenous knowledge in teaching, research, and policy. Developing the ability to analyse the social, physical, economic, and cultural elements of human systems over space is a common notion about the geography discipline. Similarly, the National Education Policy (NEP) (2020) reinforces that geographic education across all stages of schooling should equip learners with various skills to understand the physical, political, and cultural diversity of India.

Theoretical Frameworks

Indigenous knowledge helps in understanding how landscapes are formed and managed and what is required to achieve and maintain balanced relationships between society and the environment. Incorporating indigenous knowledge into geography education can enrich the geographic content of the subject and challenge the predominant westernized scientific knowledge that it transmits. Despite the acknowledged benefits of integrating indigenous knowledge into geography education, its full integration into the formal geographical curriculum is a far cry, as the current curriculum continues to prioritize aspects of natural and traditional sciences instead of cultural components.

The review of theoretical and conceptual literature confirmed that there are divergent views on the conceptualization of indigenous knowledge. It also emphasized that indigenous knowledge exists within a cultural and spatial context and is used by communities it belongs to. This study, therefore, relies on the concept of indigenous knowledge described as practical and theoretical knowledge and skills that individuals and communities have, having learned these through experience, observation, and inherited knowledge without having relied on formal education and modern technology.

Challenges in Integration

Another major challenge is the training of teacher educators and the actual necessity of groundwork for curriculum development. In the case of elements of indigenous knowledge, particularly in the case of the environment, recommendations are made for groundwork. The usefulness of indigenous use in the disciplines of humanities has been in the case and establishment of several faculties in the west. For the knowledge and proliferation of local knowledge of cultures, the implications for teacher training in general should be the same. Forest and other government departments should not be the sole training institution, although they can be useful secondary supporters. They should register the knowledge of the soil, a knowledge school should conduct research and register the knowledge of the people, and through national and international networking at the definite, policy, implementation, and organization stages spread the gathered knowledge through certification processes preferably. The application of expertise in various fields and sectors must also be integrated in a way that aligns with the scholarly instruction provided by educators and/or the education department.

Cultural Sensitivity and Appropriation

Culturally sensitive management of geographic education and, for that matter, any other stream should help prevent culturally abusive or non-reciprocal use of indigenous knowledge. As geography educators, we must recognize that dialogue is the key to breaking these cycles. We must earnestly respect indigenous worldviews about their places. Using their concepts selectively and carelessly without giving it the due respect can lead to further conflict and domination. We have a responsibility to encourage the participation of native communities and respect the intellectual authority of the knowledge holders. Only with such a shared, two-way dialogue can we truly project our sincere desire to achieve a respectful coalition on our planet, our relations with the Earth, and our genuine immersion in place.

Opportunities and Benefits

Integrating IK into geography education will create a sense of respect and a deep understanding of the surrounding natural environment, as well as respect for the knowledge and participation of marginalized populations. The ongoing challenge for the geo-education community is to identify effective strategies and actions that significantly increase the impact of integrating IK into geography education. The suggested paths focus on integrating indigenous knowledge into thematic skills, teaching, and assessment that should be context-specific and involve both traditional and formal sources. These paths address current and future challenges and contribute to the conservation, sustainable use, and development of the world's natural resources, while simultaneously improving standards and equity in geographic education. The geography education community must include the integration of indigenous knowledge as a major component of its international agenda to address its key social responsibility policies. Additionally, it needs some flexibility to adapt to the range of circumstances in different countries.

Indigenous knowledge (IK) focuses on the local management of natural resources and the perception of integrity of the land and its inhabitants. The world has changed with the advent of modern scientific knowledge, tools, and technologies. Research has rekindled the understanding and exploration of indigenous knowledge that has been overshadowed by the rise of modern science. There has been a proposal to integrate indigenous knowledge and modern science into the school curriculum for science education. The advent of the curriculum in India, particularly in the new National Education Policy 2020 (NEP), provides

opportunities and benefits for integrating indigenous knowledge into different subjects, including geography, at different educational levels through a flexible curriculum and investor-based education. It emphasizes education, focuses on family and community participation, and includes educational reforms such as languages, assessment, and public-private partnerships.

Enhanced Learning Outcomes

Specific immediate cognitive outcomes can be derived for each activity, which are aimed at the specific objects of student action in institutionalized learning experiences that are provided by different classrooms, teachers, and environmental settings. These object-instrumented outcomes are enhanced knowledge and understanding, which are contained in any outcome statement. The psychomotor and affective outcomes are the development of desirable behaviour patterns, the general strengthening of affective function, and the ability of many individuals to cope meaningfully with the complexities of the human environment.

The enhanced learning outcomes will facilitate the learner's understanding of any concept. The learning outcomes are combined with cognitive, emotional, and psychomotor. Cognitive outcomes are concerned with the acquisition of knowledge and development of intellectual skills. Affective outcomes are concerned with the development of the social and emotional dimensions of the individual. Psychomotor outcomes are concerned with the development of motor skills and the control of movement.

Teacher Training and Professional Development

The NEP-2020 requires the coverage of 'knowledge of local community-specific oral traditions, local crafts, art, tools, stories, traditional practices, and local knowledge and practices that are related to the local natural and physical environment. Given the pre-service teachers' heavy school curriculum and financial burden of the teacher education system, there is an urgent need to expose future and in-service teachers to opportunities of immersion in local oral traditions, local crafts, art, tools, stories, traditional practices, and the local natural and physical environment through school collaboration and community linkage activities. The teacher educators and teacher-training institutions should take active steps to plan for such activities that enable them to realize their constitutional responsibility in their day-to-day governance of the classroom and issues of social justice in and beyond the classroom. Without sensitizing teachers, the key empowerment dimensions at an individual and collective level in the National Education Policy seem to be difficult to attain.

In order to facilitate indigenous knowledge integration into school textbooks and classroom teaching-learning process, the framework mandates inclusion of NEP-2020 in teachers' training and continuing professional development (CPD) activities. It is the preservice education programs of teachers that determine their commitment to fostering children's learning and development in the early years. A teacher's quality and impact have great potential for shaping students' life chances, producing a more equal society and developing skills and, in turn, the productivity of societies. This professional pride comes from rigorous education and professional development programs for teachers that truly establish them as professionals.

Curriculum Development and Implementation

Curriculum development and implementation: "The National Curriculum Framework, 2005 prioritized the need for integrating indigenous knowledge and integrating it in all subject areas. Curriculum development needs to be contextualized so as to reflect concerns emanating from the field such as "what is to be taught, where and when" and alignment of the processes of out-of-class learning in the classroom learning environment. Curriculum and learning materials should depict the truth of the children's environment through informed selection. The components of the local environment should match the conceptual understanding derived from learning materials. Local geography, which starts with the study of the local environment of the child and providing opportunities to explore and understand the physical and societal components, would be the right entry point. The teacher can use the children's immediate environment to introduce concepts in the form of local case.

Geographical concepts can be developed in the classroom with the help of indigenous knowledge. This would bring out local content and local issues. Developing geographical concepts using local indigenous knowledge will help a teacher to explain and make students understand geographical concepts effectively and sensibly. Local to global connections could be developed through teaching geography. Integration of indigenous knowledge with the present geography text requires content mapping, knowledge enhancement, methodological improvement, and familiarity with the context. Geography teachers should be familiar with such local experiences and the associated local knowledge-contexts.

Assessment and Evaluation

The examiners may also need to sit down again and brainstorm ways in which they could cooperate and work in students' assessment and evaluation. This necessity stems from the assumption that, despite the presence, nature, or level of involvement, responsibilities, or job, most markers have not been trained on how to assess Indigenous Knowledge. They need an understanding that Indigenous Knowledge and Traditional Ecological Knowledge are unique and thus are important as other means. They need to understand that Indigenous Knowledge reveals the wondrous things that have happened and that are unique to many indigenous peoples and ethnic groups in different parts of the country, and these events may not be in textbooks, encyclopedias, or novels. It is within doing things differently, like developing land systems without displacing people or spoiling nature, feeling gratitude for the place that we belong and the interconnectedness between people, powers of nature, plants, animals, and non-living objects, and portraying the land as home, that bring unity and points of comparison with other global belief systems.

After the syllabus and curriculum have integrated the content of Indigenous Knowledge, the question remains: how will teachers assess what they taught the students? When it comes to Indigenous Knowledge, teachers do not have the skills and attention in how to do this, assuming already the content is taken care of in the curriculum and syllabus. Furthermore, when considering the examination bodies, when the teachers are not aware of how to carry out assessment and evaluation on the basis of Indigenous Knowledge, where can the examination bodies know and understand? This section thus provides suggestions for effective methods to assess and document students' growth, as well as their understanding, using Indigenous Knowledge as a yardstick. This exercise will make certain that the infusion of Indigenous Knowledge is not watered down.

Policy Recommendations and Advocacy

Policy recommendations need to be influenced by the involvement of indigenous peoples, who have the right to decide their priorities. Often, indigenous peoples' value systems are different and encompass concepts, values, beliefs, and regulations that are not solely driven by money but are related to the soul of the ecosystems in which they have evolved and harmonized. Their self-tailored thinking concerns the collective well-being in their settled landscapes. Their spiritual connections in their settlements create the strength where they invest in the tenure of landscapes that benefit both the environment and humanity. However, due to

this fact, the real commitment to their self-developed thinking, which has brought added value to development processes, is very weak. Therefore, taking actions regarding the development landscape is a crucial concern for both the welfare of the people and the survival of valued local knowledge forms that are still important in contemporary development.

The best way to address this issue is through collective efforts that involve all possible stakeholders from different institutions and perspectives. While global organizations such as the UN and World Bank are doing their best, efforts at the regional, national, and even local levels are lacking in engagement with indigenous communities. This ignorance at lower levels of jurisdiction presents great threats and challenges. To counter these threats, the first and foremost duty is to engage in advocacy work, which can transform governmental attitudes, values, and beliefs. Such arguments and discussions need to be based on solid and conceptual treatises so that policymakers do not dismiss them as mere bluff. There should also be a willingness to invest resources in capacity-building initiatives that are sustainable in the long term. Unfortunately, this kind of thinking is still missing in most indigenous states. Due to the lack of policy prioritization, we have realized that most efforts are project-based, and when the projects end, all the outcomes and support seem to disappear, leaving the people alone.

Despite this great progress made at the global policy arena, the people of indigenous communities in developing countries are not yet properly exposed and do not have better opportunities regarding their traditional knowledge systems in the process of building their own future world and that of future generations. This mismatch between the global level understanding of IKS and the lived realities is mainly due to two factors: 1) the connectivity gap of indigenous communities and 2) sometimes restrictive government policies and strategies. It is therefore an urgent duty for scholars and policymakers to work towards bridging the gap that exists between the highly perceived global level of IKS and the lived realities at the local level.

For the past two decades, we have witnessed scores of research and publications aimed at bringing indigenous knowledge systems (IKS) into mainstream global discussions regarding development and education. Significant progress has been achieved. Recently, we have noticed that influential development agencies such as the World Bank and UNESCO are heavily engaged not only in understanding traditional knowledge systems but also in considering them and forming alliances for the sustainable development of the globe. This demonstrates a growing global acceptance of traditional knowledge systems and the importance they hold in fulfilling global mandates, such as the Sustainable Development Goals.

Conclusion and Future Directions

We cannot afford to throw away such a "window of opportunity" to reorient society and reduce the humanitarian and existential challenges undermining our collective human development. This calls for re-examining our beliefs and how we understand development and the pedagogical models that must be promulgated. There are several areas that our various disciplines, their pedagogical methods, and theories have to address to promote holistic development and relevance in the context of NEP 2020. Development and Inclusion is not just an economic term; it goes beyond that and concerns culture, values, and identities. It is these softer aspects that have consequences for growth and the realization of human potential. As the youth embark on developing themselves for the future, success will be ascertained by borrowing elements from ancestral knowledge and insights and assimilating contemporary technological developments so as to absorb international knowledge and benefits. Such an exercise is not easy, nor automatic. It requires support from citizens, educators, and the political economy.

References:

- Brondízio, E. S., Aumeeruddy-Thomas, Y., Bates, P., Carino, J., Fernández-Llamazares, Á., Ferrari, M. F., ... & Shrestha, U. B. (2021). Locally based, regionally manifested, and globally relevant: Indigenous and local knowledge, values, and practices for nature. *Annual Review of Environment and Resources*, 46(1), 481-509.
- Doyon, A., Boron, J., & Williams, S. (2021). Unsettling transitions: Representing Indigenous peoples and knowledge in transitions research. *Energy Research & Social Science*.
- Dudgeon, P., Boe, M., & Walker, R. (2020). Addressing inequities in Indigenous mental health and wellbeing through transformative and decolonising research and practice. *Research in Health Science*, 5(3).
- Fernández-Llamazares, Á., Lepofsky, D., Lertzman, K., Armstrong, C. G., Brondízio, E. S., Gavin, M. C., ... & Vaughan, M. B. (2021). Scientists' warning to humanity on threats to indigenous and local knowledge systems. *Journal of Ethnobiology*, 41(2), 144-169.
- Mazzocchi, F. (2020). A deeper meaning of sustainability: Insights from indigenous knowledge. *The Anthropocene Review*. [sagepub.com](https://www.sagepub.com)
- Sterling, E. J., Pascua, P., Sigouin, A., Gazit, N., Mandle, L., Betley, E., ... & McCarter, J. (2020). Creating a space for place and multidimensional well-being: lessons learned from localizing the SDGs. *Sustainability Science*, 15, 1129-1147.
- Tengö, M., Austin, B. J., Danielsen, F., & Fernández-Llamazares, Á. (2021). Creating synergies between citizen science and Indigenous and local knowledge. *BioScience*, 71(5), 503-518.
- Turner, N. J., Cuerrier, A., & Joseph, L. (2022). Well grounded: Indigenous Peoples' knowledge, ethnobiology and sustainability. *People and Nature*.
- Viscogliosi, C., Asselin, H., Basile, S., Borwick, K., Couturier, Y., Drolet, M. J., ... & Levasseur, M. (2020). Importance of Indigenous elders' contributions to individual and community wellness: results from a scoping review on social participation and intergenerational solidarity. *Canadian Journal of Public Health*, 111, 667-681. [springer.com](https://www.springer.com)