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Pedagogical Principles of Indian Knowledge Systems in Modern Education

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Abstract:

Indian Knowledge Systems (IKS) are an invaluable and varied knowledge system that provides the philosophy, ethics, science, spirituality, arts, environment and life skills. In this paper the pedagogical principles which are inherent to Indian Knowledge Systems are discussed and their implications are explored in contemporary education. The traditional education in India was much more than the acquisition of information, it was more about developing character, wisdom, self-discipline, social responsibility and harmony with nature. Thus, the Guru–Shishya relationship, experiential learning, dialogue-based inquiry, reflective thinking, value-oriented education, and interdisciplinary knowledge provide promising alternatives to exam-centred and fragmentary modern education. The study demonstrates the potential of IKS-based pedagogy in facilitating learner centred education as it fosters critical thinking, ethical consciousness, cultural awareness and lifelong learning amongst learners. It also delves into the importance of incorporating traditional knowledge into modern educational frameworks, including curriculum reform, teacher training, and policy initiatives like India's National Education Policy 2020. The paper also identifies challenges that include the lack of trained educators, the risk of superficial inclusion, curriculum overload, and need for research-based validation. The paper suggests that it is the careful incorporation of the pedagogical principles of IKS that can help to make modern education more holistic, inclusive, ethical and socially relevant. Indian Knowledge Systems cannot then be conceived as only a heritage of the past; it is also a dynamic learning tool that can be used to meet the current and future learning requirements.

Keywords: *Indian Knowledge Systems, Pedagogy, Holistic Education, Experiential Learning, published in the Journal of Pedagogy and Psychology in the Indian context.*

1. Introduction:

Indian Knowledge Systems are the sum of intellectual, philosophical, scientific, artistic, ethical, ecological and practical traditions established in the Indian subcontinent over centuries. These systems encompass knowledge contained in the Vedas, Upanishads, Buddhist and Jain traditions, classical

Indian philosophy, Ayurveda and yoga, mathematics, astronomy, linguistics, arts and architecture, agriculture and social practices. IKS is not restricted to religious and spiritual knowledge but is a broad civilisational knowledge tradition which links learning to life, ethics, society and self-development.

In traditional Indian education, knowledge was seen as a transformative force. The idea of education was not limited to "information" or "work preparation. It was viewed as an exercise in gaining wisdom, character, discipline, self-awareness, social responsibility and harmony with nature. This is related to holistic education which stresses the mental, emotional, moral, social, physical and spiritual growth of learners (Miller & 2007).

With the changes in the world of education, the importance of IKS has grown as the modern educational system is criticized for being too exam-oriented, competitive, fragmented, and remote from morals and customs. Literacy and professional opportunities have grown with the advent of modernity in education and higher education, but the emphasis has not been placed on developing wisdom, values, creativity and social responsibility. Indigenous education scholars believe that local and indigenous traditions should not be ignored by knowledge systems in their current state but should be acknowledged as part of a broader collection of knowledge systems, one of which is dominant (Battiste & 2002; Smith & 2012).

The Indian context brings a resurgence of the National Education Policy 2020 which emphasizes on the holistic and multidisciplinary, value-based and culturally inclusive approach to education (Ministry of Education & 2020). This is an important opportunity to explore the integration of the Indian Knowledge System principles of pedagogy in current education. All this integration, however, should be academic, critical, inclusive, and research based. The use of IKS should not be merely symbolic but should be incorporated into teaching and learning as a meaningful pedagogical resource to enhance the quality of teaching and learning.

The major issue discussed in this paper is the present educational system has separated knowledge from values, theory from practice and learning from life. While IKS offers salient pedagogical concepts like holistic learning, experiential education, dialogue, reflection, ethical behaviour, communal responsibility and ecological consciousness, these are not necessarily part of the teaching-learning process in today's educational environment. So, this paper is an attempt to explore the pedagogical principles of IKS and their implications for contemporary education.

2. Conceptual understanding of Indian Knowledge Systems:

Indian Knowledge Systems can be seen as a wide array of knowledge traditions arising from India's historical and cultural experiences over time. These traditions are expressed through textual, oral, practical, artistic, scientific and community knowledge. IKS encompasses both traditional and contemporary sources. It can be seen in ancient texts, traditions, crafts and rituals, health systems, agricultural practices, practices of the local environment, language tradition and social practices.

IKS has an extensive scope of practice. It comprises of philosophy, ethics, grammar, logic, mathematics, medicine, astronomy, architecture, performing arts, governance, ecology, and education. The Indian intellectual heritage did not regard knowledge as being absolutely divorced from life. Rather, knowledge was associated with health, morality, good of the community, spiritual development and social harmony. This is very pertinent in today's education where volumes of information are delivered to students, but a student might not be morally discerning, reflective or wise.

Indian Education is a diverse historical process. Oral learning, memorisation, reflection, dialogue and spiritual inquiry were the focus of Vedic and Upanishadic traditions. The Upanishads are of special significance because they approach learning by questioning and a dialogue with the teacher. This indicates that there was a system of traditional education that was not only a passive memorisation but also query and understanding.

Another significant education model was the Gurukul system. In this system, the student resided with the teacher and was educated by observing, disciplining, practicing, serving and guiding him personally. Besides being a teacher, the teacher was also a mentor and moral guide. This connection of Guru to Shishya led to the establishment of a unique educational environment where education was related to character formation and life discipline.

The Buddhist and Jain educational traditions also had significant influences on Indian pedagogy. Buddhist institutions like Nalanda and Vikramashila were the places of higher learning where students came from different parts of the world. Here philosophy, medicine, grammar, logic and astronomy and other courses were taught. The Buddhist education was in the emphasis of reasoning, debating, ethical discipline and meditation. Jain traditions helped in the development of logic, non-violence, pluralism, and self-discipline. The traditions indicate Indian education was plural, dialogic, and intellectually rich.

Important knowledge domains of IKS include Ayurveda, Yoga, Mathematics, Astronomy, linguistics, Arts and ecology. According to the ayurveda, there is a relationship between diet, lifestyle, environment and health and disease. Yoga is the union of the body, mind, discipline, concentration and self-awareness. Indian mathematics heavily influenced number systems, calculation and astronomy. In the grammatical tradition of Panini, one will find a very systematic approach to language analysis (Kiparsky & 1994). From these examples, IKS is not just about theory, but also in action.

3. This section includes the core pedagogical principles of Indian Knowledge Systems:

Holistic education is one of the most important pedagogical principles of IKS. Traditional Indian education was to develop the whole person of the student. It was concerned not only with intellectual development, but moral, emotional, physical, social and spiritual development. This is very applicable to students of today as they are under stress, competition, anxiety and social pressures. There can be no single education system that can meet this need entirely if it is based solely on marks and

employment. Learners' holistic education fosters balance, self-awareness, responsibility, and inner discipline (Miller & 2007).

The Guru–Shishya relationship is another pivotal concept of the IKS pedagogy. In this model the teacher is considered as a guide, mentor, facilitator and role model. In addition to learning through instruction, the student learns through observation, practice, conversation, and living it out in a disciplined manner. The importance of social interaction, guidance and scaffolding in learning is also recognized in research on learning theory, a principle that is applicable in modern education (Vygotsky & 1978). This can be done in modern classrooms through mentoring, tutorial support, individual feedback, and teacher-student dialogue.

The participation approach is also an important element of IKS. In traditional Indian education learning was related to practice. Music, medicine, craft, agriculture, yoga and arts were acquired with repeated practice under the guidance of experts. This can be compared to current experiential theory (Dewey & 1938), which states that learning is better when the learner is actively involved with the experiences. This principle can be used in modern education in the field, project, laboratory, at internships, community visits and through practical work.

Dialogue, questioning, and reflective inquiry are also important aspects of IKS. A method of teaching commonly employed in the Upanishads was to pose questions and respond to them, leading the student to an understanding. Debate and reasoning were also encouraged by the Buddhist and Jain traditions. This dialogic method is relevant to the present critical pedagogy that aims at the active participation, a critical consciousness, and reflection that puts an end to the passive learning (Freire & 1970). To create a meaningful inquiry classroom, teachers can use discussion and debate; reflective journals; problem solving; and case studies.

Value based education is yet another key aspect of IKS. Indian education traditions had a focus on values like truth, non-violence, compassion, self-discipline, respect, responsibility, service, and harmony. Neutral education is the education of the modern times which claims that it is neutral; but education always forms values in some way. Education in the sole interest of competition and achievement may fall short in preparing people for their moral responsibilities. Value-based education enables learners to be good citizens and good citizens of the society. In a contemporary society, where corruption, inequality, environmental degradation and social conflict are still serious issues (Nussbaum & 2010), it is particularly crucial.

IKS is also a community-centred learning. There was an association between community life, social duty, local practices and collective welfare with traditional knowledge. Education was not only to achieve success but also be a contributor to the society. The paradigm is applicable to the contemporary situation as education tends to be individualized and career focused. A community-based learning approach can make it easier for students to grasp what the social problems are and to

value the local knowledge. As an example, students might learn about how to manage water in their communities, traditional farming practices, community health practices, or folk arts as part of their coursework.

A second key principle is the harmonisation of nature and sustainability. Among many Indian knowledge systems, the principle of harmonizing human beings and nature is highlighted. Rivers, forests, animals, plants, soil and seasons were known to exist in a larger ecosystem. This ecological thinking is of great relevance in today's climate-changing and environmental-crisis era. Contemporary understanding of sustainability education also focuses on knowledge, values and capacities to sustainable living (UNESCO & 2020). IKS can contribute to the education on sustainability by bringing to the students, traditional practices of water conservation, organic farming, herbal medicine, sacred groves, and local ecological practices.

The interdisciplinary learning is also supported through IKS. Traditional Indian knowledge, philosophy, science, art, health, ethics and ecology were sometimes interwoven. For instance, yoga incorporates philosophy, psychology, physiology, ethics, and health. Ayurveda is medicine, food, environment and lifestyle. Architecture is a bridge between maths, beauty, nature, and people. Such an interdisciplinary approach is very relevant today because complex issues like climate change, public health, poverty, and technological ethics can't be solved by a single discipline.

4. The modern education and the necessity of pedagogical reform:

Mass schooling, standardised curriculum, examinations, technology, professional training and global competition are the hallmarks of modern education systems. These systems have increased access to education and opportunities for employment and social mobility. They have also instituted numerous restrictions. In many frames of reference, the focus of education has been narrowed to the examination, grade, degree, and the ability to get a job. Pupils sometimes remember but don't understand, be creative, have an ethical opinion or be practical.

One of the great shortcomings of modern education is education oriented to examinations. It prompts students to learn for marks and not understanding. Teachers might get stuck on the syllabus and get students ready for exams rather than facilitating curiosity and critical thinking. This is a common issue in South Asian countries where the measure of academic achievement is in terms of marks, rank and certificate. There is a need to address this limitation pedagogically, which can be done with IKS by fostering reflection, practice, ethical learning, and personal development.

Another significant challenge is fragmented learning. In modern education, subjects are usually compartmentalized. Science is taught as a different thing from humanities, arts, ethics, and vocational skills; and students may not realize the relationship between knowledge and life. With IKS, knowledge is linked to values, society, environment and self-development in an integrated way. This may enable modern education to be more meaningful and interdisciplinary.

Modern education should be more learner oriented as well. In a learner-centred education, the individual is recognized as an active learner. It cherishes curiosity, creativity, discussion and problem solving. IKS fosters learning centered on dialogue, questioning, reflection, practice, and tailored support. The student–teacher relationship in the form of a guru–shishya can be adapted democratically to accommodate mentoring and individualised learning.

There's also an urgent need for ethical education. Today there are numerous ethical issues such as corruption, environmental issues, social injustice, violence, misuse of technology, etc. Students should be equipped to make responsible decision making. IKS value education can help to achieve this goal by fostering truthfulness, compassion, discipline, social responsibility, and ecological awareness.

5. Implementation of IKS Pedagogy in Modern Education:

The implementation of IKS pedagogy in contemporary education should be carefully designed. The relevance of IKS should be introduced in the subjects in examples, case studies, texts, projects and practical activities. Examples of this are the incorporation of traditional ecological knowledge and water conservation practices in environmental studies. Indian contributions towards calculation and number systems can be part of mathematics. Yoga and meditation can be incorporated into psychology. Classical/regional literature may be used. Ethical leadership and duty-based decision making can be incorporated in the management education.

Do not use IKS as an additional load in the curriculum. Rather, it needs to be embedded within content in a natural, not forced, way. IKS can be incorporated in a story, local culture, craft, environmental activities, yoga and value education at the school level. At the higher education level, IKS can be incorporated in elective courses, interdisciplinary programmes, research projects, seminars and field-based studies.

IKS-based teaching-learning strategies might be in the form of storytelling, dialogue, writing, reflecting, visiting, apprenticeship, project, community, and arts. For instance, a teacher might present a story from the Jataka tales or the Mahabharata in which a character must make an ethical choice. A science teacher can request students to make a comparison between the traditional knowledge of herbs and scientific research. A geography teacher might give a project to be completed on local water bodies and traditional methods of water conservation.

It is important to include teachers in the integration of IKS. If the teacher is not trained in the proper manner, IKS can be delivered superficially and without critique. Teachers should be made aware of the content and pedagogy of the IKS. The teacher education courses must cover the concepts of Indian educational thought, indigenous knowledge, critical pedagogy, interdisciplinary teaching and research methodology. Teachers also need to be empowered to not overestimate, or bias or exclude.

Technology can also contribute to the education through means of IKS. IKS can be available to students through digital archives, online learning, virtual museums, documentaries, mobile apps,

and open educational resources. The students have access to digitised manuscripts, recordings of traditional music, videos of craft practices, virtual heritage tours and interviews with knowledge holders. But technology should be used for the purpose of supporting direct experience, not replacing it, as pedagogy is important in IKS and puts a premium on practice, observation and human relationship.

The National Education Policy 2020 has set a solid policy framework for the integration of IKS into education. It lays stress on multidimensional development, multi-disciplinary learning, Indian languages, cultural orientation, ethics and reasoning, and flexible curriculum (Ministry of Education & 2020). These objectives are very similar to the IKS pedagogy. But all that can only be realized with trained teachers, good resources, research assistance, and assessment measures.

6. The benefits of IKS-Based Pedagogy are discussed below:

IKS pedagogy has the potential to encourage self-reflection and critical thinking. It fosters discussion, questioning and reflection, enabling students to think through ideas rather than memorise them. Students are taught to compare views, to question and critique assumptions and to relate knowledge to life. This is critical in today's world, where students are faced with complicated information and misinformation.

IKS pedagogy can also contribute to the reinforcement of cultural identity and respect for heritage. When students know their own intellectual heritage, they can have increased confidence and cultural awareness. But cultural education shouldn't be exclusive or limited. It should promote the acceptance of one's own culture and the acceptance of other cultures.

Ethical development is also a benefit. IKS fosters values of truth, non-violence, service, compassion, self-discipline, responsibility and others. Students can be responsible citizens with these values in mind. Ethical judgment is important in business, medical practice, education, politics, the law, science and technology in today's professional world.

IKS can also be used to facilitate sustainability education. TEK can teach students about sustainable human-nature relationships. There are opportunities for students to learn about local farming systems, water conservation, medicinal plants, biodiversity and community resource management. This can help to make environmental education real and relevant to people's culture.

IKS pedagogy also promotes interdisciplinary and life-long learning. It fosters a desire to link up various types of knowledge and to pursue learning outside the classroom. This is a significant part of this because of the need for adaptability, creativity and continuous learning in modern life.

7. Difficulties in the application of the concept of IKS in contemporary education:

Although significant, IKS still faces some challenges regarding its integration into modern education. Lack of trained teachers is the first of the challenges. Many teachers might lack the knowledge of IKS or might not know how to teach it critically. If not well prepared, teachers can give

an incorrect or simplified representation of IKS.

The second challenge is that of superficial inclusion. Institutions can only be represented by IKS in special events, slogans or individual lectures, not by altering teaching and learning. This symbolic inclusion will not lead to meaningful change in education.

The third problem is the overload of the curriculum. There's already so much content in so many educational programmes. Students and teachers may find the additional strain from IKS if it is not planned for properly. Consequently, it is not possible to simply add IKS to a subject – it must be incorporated into the subject matter rather than tacked on.

The fourth challenge is validation of the academic. Study of IKS is to be carried out in a scientific manner. Historic claims must be analyzed by using evidence. Scientific claims should be evaluated using the proper procedures. All cultural practices should be examined in a critical and contextual manner. It's required to assure academic credibility.

The fifth challenge is that balancing the tradition with modern science. Respecting TK doesn't mean rejecting modern science. In the same way, it is not a rejection of indigenous knowledge to accept modern science. A balanced approach should help to establish a dialogue between different knowledge systems with each other. The importance of useful traditional practices should be learned, recorded and researched.

8. Discussion:

The pedagogic principles of IKS are very topical to today's educational demands. Holistic education reacts to the shortcoming of exam-centred learning. Experiential learning answers the question of theory versus practice. Dialogue and questioning are answers to passive teaching methods in class. Value-based education is a reaction to the ethical decay. Community centred learning is addressing social disconnection. Ecological awareness is a reaction to the ecological crisis. Interdisciplinary learning is a reaction to "separate" curriculum.

But it should not be an alternative to the contemporary education system. Rather, it should be incorporated in a balanced fashion. Scientific reasoning, democratic values, equality of the sexes, inclusiveness and global knowledge are the requisites of modern education. Integration of the IKS should be intended to enhance these goals, rather than to detract from them. So, it is not revivalism but critical reconstruction that is the best way.

Implementation of the IKS-based pedagogy is key for future of IKS-based pedagogy. It will only have a measurable effect if it is used as a cultural element of decoration. When it is embedded in curriculum change, teacher preparation, research, and fieldwork and reflective pedagogy, it can make a meaningful difference in education. The emphasis should be on developing learner who is knowledgeable, ethical, creative, culturally sensitive and socially responsible.

9. Recommendations:

The first thing that teacher training programmes should do is to incorporate pedagogy based on IKS. Teacher education must be oriented towards Indian educational philosophy, indigenous knowledge, inter-disciplinary education, moral education and experiential learning.

Second, curriculum designers need to integrate IKS in the meaningful and subject-specific way. The connection between IKS and learning outcomes, classroom activities, projects and methods of assessment.

Third, there is a need for higher education institutions to create interdisciplinary courses on IKS. These can be related to the Indian philosophy, yoga and psychology, Ayurveda and public health, traditional architecture and sustainability, Indian mathematics, classical linguistics and indigenous environmental knowledge.

Fourth, institutions should promote local knowledge documentation. Fourth, local knowledge documentation should be promoted in the institutions. Students need to interact with artisans, farmers, health practitioners, environmental workers, and elders of the community to gain an understanding of living knowledge traditions.

In fifth, research on IKS should be increased. Textual research, field studies, scientific evaluation, translation works, digital archives and interdisciplinary studies should be encouraged at the university level.

10. Conclusion:

The principles applicable to modern education in terms of pedagogies can be gained from Indian Knowledge Systems. The principles are holistic development, personalised mentoring, experiential learning, dialogue, reflection, value-based education, community responsibility, ecological awareness and interdisciplinary thinking. All of these can contribute to overcome many of the drawbacks of the current education such as over-emphasis on exams, lack of continuity in education, lack of moral values, and lack of connection to the society and nature.

IKS should not be considered only as a past heritage. It should be viewed as an evolving resource for learning today, available to enhance the teaching and learning processes. But its incorporation requires to be critical, inclusive, balanced, and research based. With careful application, IKS can contribute to the meaning, morality, cultural and social focus of modern education.

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