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Transforming Education: Flipped Classroom Approaches for Integrating Indian Knowledge Systems

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Abstract

The National Education Policy (NEP) 2020 emphasizes the integration of Indian Knowledge Systems (IKS) into modern education, aiming to create a holistic, multidisciplinary, and value-driven learning ecosystem. While traditional lecture methods often limit engagement, the flipped classroom approach offers a learner-centric model that aligns with NEP's vision. This conceptual paper explores a framework for embedding IKS into teacher education programs through the flipped classroom model. By leveraging digital tools for pre-class exposure to IKS concepts and active, experiential in-class learning, this approach bridges tradition and technology. The paper outlines theoretical foundations, rationale, implementation of strategies, expected outcomes, and challenges, contributing to the discourse on innovative pedagogies for 21st-century education in India.

Keywords: ***NEP 2020, Flipped classroom, IKS***

Introduction

The NEP 2020 marks a paradigm shift in Indian education, seeking to balance global competitiveness with the preservation of cultural heritage. One of its pivotal recommendations is the integration of Indian Knowledge Systems (IKS) into school and higher education curriculum. IKS encompasses India's rich heritage of philosophy, sciences, arts, literature, and environmental wisdom, which hold contemporary relevance in fostering values, critical thinking, and sustainable living.

However, embedding IKS in modern education demands pedagogical innovation. Conventional teacher-centered approaches often fail to ignite deep engagement or foster application-oriented understanding. The flipped classroom a model where students explore learning materials before class and engage in interactive activities during class offers a

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promising pathway. This paper presents a conceptual framework for implementing IKS through the flipped classroom model under the NEP 2020 vision.

Theoretical background

Indian Knowledge System

The Indian Knowledge System (IKS) encompasses the vast and diverse body of indigenous wisdom, practices, and intellectual traditions that have evolved over thousands of years within the Indian subcontinent. Rooted in experiential learning and deep philosophical inquiry. It is connected to the social, cultural, spiritual, and ecological life of India. It promotes a holistic worldview, where the quest for knowledge is balanced with moral values, social responsibility, and care for the environment. For example, Ayurveda highlights the harmony between the human body and nature, Vedic mathematics reflects logical clarity and mental sharpness, and Indian art forms preserve cultural stories while encouraging creativity and aesthetic sensitivity.

IKS also reflects an interdisciplinary and integrative approach to knowledge, wherein science, art, ethics, and spirituality coexist as complementary pathways to understanding reality. This framework nurtures critical thinking, problem-solving, and ethical decision-making while fostering environmental stewardship and respect for biodiversity.

In the context of modern education, IKS offers valuable insights for curriculum design, value-based education, and sustainable living practices. Its integration into contemporary pedagogy aligns seamlessly with the NEP 2020 vision of fostering rootedness in culture while preparing learners for the demands of the global knowledge society.

NEP 2020 Provisions in Relation to Flipped Classroom and Indian Knowledge Systems (IKS)

The National Education Policy (NEP) 2020 lays a strong foundation for adopting innovative and context-based pedagogies such as the flipped classroom, while simultaneously emphasizing the integration of Indian Knowledge Systems (IKS). The policy advocates a shift from rote memorization to experiential, competency-based, and inquiry-driven learning (Ministry of Human Resource Development [MHRD], 2020). This approach resonates with flipped learning, where students engage with learning materials before class and utilize classroom time for deeper engagement, problem-solving, and collaborative exploration—an approach that also allows space for embedding traditional knowledge in meaningful ways.

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NEP 2020 underscores the integration of technology through platforms like DIKSHA, SWAYAM, and SWAYAMPRABHA, which provide digital learning materials accessible to all learners (MHRD, 2020). Such platforms not only enable the pre-class learning central to flipped classrooms but also provide resources for introducing modules on IKS, such as indigenous sciences, cultural traditions, and local knowledge systems (NITI Aayog, 2021). In this way, technology becomes a bridge for combining modern pedagogies with traditional wisdom.

A central provision of NEP 2020 is the professional development of teachers, transforming them into facilitators of learning. Teachers are expected to build digital competencies, curate pre-class content, and design interactive classroom sessions (Gupta & Tiwari, 2022). Equally important, teachers are encouraged to integrate cultural and contextual pedagogy into their practices. In the context of flipped classrooms, this implies assigning IKS-related content as preparatory work and using classroom time to foster critical discussion, collaborative projects, and practical applications of indigenous knowledge (Raval & Singh, 2021).

Furthermore, NEP 2020 emphasizes multidisciplinary and holistic learning and calls for the preservation and promotion of India's cultural heritage. By embedding IKS into flipped classroom frameworks, learners can acquire knowledge of India's rich traditions outside the classroom and then analyze, evaluate, and apply these insights in class through dialogue and problem-solving. This process also supports the development of higher-order thinking skills, in line with Bloom's Taxonomy, by moving foundational knowledge acquisition outside class and dedicating in-class time to analysis, creativity, and contextual application (NCERT, 2021).

Thus, NEP 2020 not only aligns with the pedagogical philosophy of flipped classrooms but also ensures the systematic integration of Indian Knowledge Systems, supported by digital infrastructure, teacher training, and curricular flexibility. Together, these provisions enable a holistic and culturally grounded model of learning for the 21st century.

Flipped Classroom Approach

Flipped classroom is a model of teaching that permits the students to study at home and do their homework at school through using technology multimedia as an educational management tool and examine the student's development. (Trairut, Namon,2015) The Flipped Classroom is a 'pedagogical approach in which direct instruction moves from the group learning space to the individual learning space, resulting in a dynamic, interactive learning environment in which the educator guides students as they apply concepts and

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engage creatively in the subject matter (The Flipped Learning Network, 2014) The flipped network (2012) conducted a study of teachers incorporating the flipped classroom at the junior high and secondary school, The study indicated that 99% of the teachers that incorporated the flipped classroom will continue to use it. 67% reported improvements in student performance and 80% reported improvements in student engagement. 71% of the teachers put 50% or more of their instruction online. Science was the most flipped subject at 46%, math was 32% and ELA was only 12%. 95% of the study consisted of secondary teachers.

In the scientific literature, the flipped classroom approach is typically characterized by its course structure: individualized computer-based instruction outside the classroom and group based interactive learning activities inside the classroom (Bishop & Verleger, 2013; DeLozier & Rhodes, 2016). Broadly speaking, flipped or inverted classroom entails a change of learning activities in space and time. Initially, this new instructional approach was adopted at universities where students watched technology-enhanced lectures either at home or in computer labs and homework assignments were completed in class and in groups (Lage et al., 2000).

The four pillars of F-L-I-P are:

F – Flexible Environment

L – Learning Culture

I – Intentional Content

P – Professional Educator

Flexible Environment - The physical learning space is flexible, allowing for a variety of learning modes. This could include teamwork, self-study, research, performance, and assessment. In Flexible Environments, students can learn when and where they want. Flexible settings are needed for Flipped Learning.

Learning Culture - A shift towards a learner-centric culture where students take responsibility for their learning. Flipped learning requires a change in the way people learn. The only source of providing information in a traditional class is the teacher. Instead of a teacher-centred classroom, students take charge of their learning in the Flipped Learning environment, where class time is used to go deeper into topics and provide students with more meaningful learning experiences.

Intentional Content - Instructional content is provided outside of the class, freeing up class time for more interactive and engaging activities. The Flipped Learning paradigm is constantly being discussed as a way to help students obtain conceptual understanding and

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Procedural fluency at the same time. Here in this method teaching strategies such as active learning, peer tutoring, problem-based learning, or mastery learning can all be implemented with Intentional Content depending on the grades and subject matter.

Professional Educator- It is more important for teachers to be skilled and professional in a Flipped Learning model. During class, teachers keep an eye on their students, give them feedback that is relevant at the time, and keep an eye on their work. In their work, professional educators are reflective, collaborate to develop their skills, take constructive criticism with a positive attitude, and can handle classroom chaos. The role of the teacher is transformed to guide and facilitate active learning.

Rationale for integration

The integration of Indian Knowledge Systems (IKS) with the flipped classroom approach is grounded in both cultural and pedagogical imperatives. IKS represents India's cultural heritage and intellectual traditions; embedding it into modern education promotes cultural preservation and helps learners meaningfully connect with their roots in a globalized context (Ministry of Human Resource Development [MHRD], 2020). The flipped classroom model further ensures active engagement, as it shifts IKS learning from passive reception to participatory exploration—students engage with preparatory resources before class and then apply, discuss, and analyze this knowledge in interactive classroom settings (Gupta & Tiwari, 2022). Additionally, the increasing availability of digital repositories and storytelling platforms, such as DIKSHA and SWAYAM, has made IKS content more accessible, supporting pre-class learning and ensuring equitable access (NITI Aayog, 2021). Finally, this integration fosters critical thinking and application, as learners are encouraged to analyze, compare, and contextualize IKS principles in contemporary situations, thereby enhancing higher-order cognitive skills and reflective learning (NCERT, 2021; Raval & Singh, 2021).

Proposed conceptual framework

The proposed conceptual framework integrates Indian Knowledge Systems (IKS) with the flipped classroom approach under the guiding principles of the National Education Policy (NEP) 2020. The framework is built on four interconnected dimensions: pre-class learning resources, classroom engagement, the teacher's role, and institutional implementation strategies.

In the pre-class learning stage, digital materials such as short videos on topics like ancient Indian mathematics, Ayurveda, architecture, or philosophical traditions are provided to

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learners. Additionally, podcasts with experts and digitized manuscripts made accessible through Learning Management Systems (LMS) encourage students to explore content independently before classroom interaction (MHRD, 2020). This phase ensures that learners come to class with a baseline understanding, ready for higher-order application.

The in-class phase transforms learning into an active, collaborative, and experiential process. Classroom practices include group discussions that link IKS concepts to modern-day issues, debates on ethical and philosophical principles derived from Indian texts, and experiential tasks such as field visits, indigenous art demonstrations, and experiments in traditional sciences (NCERT, 2021). This learner-centered process encourages critical thinking, problem-solving, and cultural appreciation, aligning with NEP 2020's recommendations for holistic education.

Central to the framework is the role of the teacher, who transitions from a knowledge transmitter to a facilitator. Teachers curate authentic IKS resources, design inquiry-based learning tasks, and employ project-based and reflective assessments to evaluate students' understanding (Gupta & Tiwari, 2022). In this way, the teacher acts as both a guide to traditional wisdom and a mentor in modern pedagogical practices.

Finally, successful adoption of this framework requires institutional implementation strategies. These include curriculum mapping to embed IKS into subject-specific areas, the creation of multimedia resources in regional languages, teacher training workshops on digital pedagogy and cultural integration, and innovative assessment techniques such as performance tasks, portfolios, and reflective journals (Raval & Singh, 2021; NITI Aayog, 2021).

This framework provides a structured pathway for embedding IKS in teacher education, transforming the flipped classroom into a culturally grounded and future-ready pedagogy. By connecting ancient wisdom with modern digital learning, it directly responds to the aspirations of NEP 2020 for a multidisciplinary, experiential, and value-oriented education system (MHRD, 2020).

Expected Outcomes

The integration of Indian Knowledge Systems (IKS) through the flipped classroom model is anticipated to yield significant academic and cultural outcomes. First, it is expected to enhance cultural literacy among teacher trainees by fostering a deeper understanding of India's diverse traditions, philosophies, and heritage. Such literacy will empower future

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educators to act as ambassadors of national identity while engaging in modern, learner-centered pedagogy.

This approach is likely to improve student engagement and promote self-directed learning. By shifting instructional delivery to the pre-class phase and dedicating classroom time to active participation, learners are encouraged to take ownership of their educational journey, thereby cultivating intrinsic motivation, independent inquiry, and sustained engagement.

Flipped classroom model supports the development of contextualized pedagogy rooted in national heritage. By drawing on indigenous traditions and aligning them with contemporary challenges, teacher education programs can achieve a balance between global competitiveness and local relevance.

Finally, the framework strengthens the connection between tradition and innovation. By blending digital tools with cultural wisdom, it enables the preparation of future-ready teachers who can integrate modern pedagogical innovations with the continuity of India's knowledge heritage.

Conclusion

The integration of Indian Knowledge Systems (IKS) within a flipped classroom model provides an innovative pathway to realize the transformative goals of NEP 2020. By shifting learning beyond passive reception toward active exploration, this approach makes cultural knowledge both relevant and accessible to modern learners. The proposed framework highlights how digital tools, experiential activities, and inquiry-based teaching can enrich teacher education, ensuring that future educators are equipped to blend tradition with contemporary pedagogical needs. Such a model not only strengthens cultural identity but also nurtures critical thinking, creativity, and lifelong learning skills, thereby preparing teachers who can shape globally aware yet culturally grounded classrooms.

References

Anderson, L. W., Krathwohl, D. R., Airasian, P. W., Cruikshank, K. A., Mayer, R. E., Pintrich, P. R., ... & Wittrock, M. C. (2001). A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives. New York, NY: Longman.

Bergmann, J., & Sams, A. (2012). Flip your classroom: Reach every student in every class every day. Oregon, Washington: ISTE.

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Bishop, J. L., & Verleger, M. A. (2013). The flipped classroom: A survey of the research. *In 120th ASEE national conference and exposition, Atlanta, GA*. American Society for Engineering Education.

Flipped Learning Network. (2012). What do teachers who've flipped their classrooms have to report? *Technology and Learning, p.* 12. https://flippedlearning.org

Flipped Learning Network. (2014). Overview. *Flipped Learning Network*. https://flippedlearning.org

Flipped Learning Network Hub. (2014). What Is Flipped Learning? The Four Pillars of F-L-I-P ™. Flipped Learning Network. https://flippedlearning.org/wpcontent/uploads/2016/07/FLIP_handout_FNL_Web.pdf

Gupta, R., & Tiwari, S. (2022). Flipped classroom pedagogy in teacher education: Opportunities and challenges in the context of NEP 2020. *Journal of Education and Practice, 13*(4), 45– 53. https://doi.org/10.7176/JEP

KPMG. (2021). *The future of education: Technology and NEP 2020*. KPMG in India. https://home.kpmg/in/en/home/insights/2021/06/the-future-of-education-technology-and-nep-2020.html

Ministry of Human Resource Development. (2020). *National education policy 2020*. Government of India. https://www.education.gov.in/nep-2020

NCERT. (2021). *Innovative pedagogies for school education in the light of NEP 2020*. National Council of Educational Research and Training. https://ncert.nic.in

NITI Aayog. (2021). *Reimagining education with NEP 2020: Policy insights and implementation strategies*. Government of India. https://www.niti.gov.in

Raval, B., & Singh, P. (2021). Integrating Indian knowledge systems through innovative pedagogies: A NEP 2020 perspective. *Indian Journal of Educational Research, 10*(2), 88–96.