

# Preparing Future Teachers for IKS-Based Pedagogy: Perspectives from NEP 2020

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## **Abstract:**

With the introduction of the National Education Policy (NEP) 2020, teachers are at the heart of the educational transformation and at the same time, Indian Knowledge Systems (IKS), Indian languages, local knowledge, arts, culture, values, and contextual learning are being integrated into the formal education system. These two policy directions pose an important question for teacher education – how will future teachers be prepared to implement IKS in curricular content through meaningful, inclusive, evidence-sensitive and learner-centred pedagogy? This conceptual review paper presents a perspective of the preparation of pre-service teachers for pedagogy of IKS based on the vision of NEP 2020 and other policy documents till 2024. The paper relies on the National Curriculum Framework for School Education (NCF 2020), National Curriculum Framework (ICSE 2023), National Professional Standards for Teachers (NPS 2023), University of Grants Commission's guidelines on IKS curriculum and faculty orientation, Integrated Teacher Education Programme (ITEP 2023), literature review of pedagogical content knowledge, culturally relevant pedagogy, teacher professional development, educational technology, and integration of IKS. Analysis reveals that the mere provision of information to future teachers on TK is not enough. To prepare teachers effectively, disciplinary knowledge, source literacy, pedagogical content knowledge, culturally responsive teaching, multilingual competence, experiential learning, critical inquiry, technological competence, ethical sensitivity and classroom practice are required. There are also recently some survey findings that illustrate a mismatch between teachers' positive attitudes towards IKS and their ability to put it into practice. Teacher competency framework and curriculum model for pre-service teacher education based on IKS are proposed in this paper. It states that IKS-based pedagogy should be free from superficial tokenism of culture and its uncritical glorification. Future educators should be prepared to experience the Indian knowledge traditions by authentic sources, through comparative disciplinary analysis, in field experiences, through reflection and through evidence-based teaching. Such development can be helpful in achieving the vision of NEP 2020 that teachers will be professionally competent, culturally rich, scientifically oriented, inclusive and able to connect India's intellectual legacy with the needs of education in the present times.

Abstract: Indian Knowledge Systems are now situated within the framework of the National Education Policy 2020 (NEP 2020). The policy introduces the concept of pre-service teachers and their training through the Indian Teachers Education Programme (ITEP). This policy has brought about a paradigm shift that not only includes the use of Indian Knowledge Systems but also underscores the need for pedagogical content knowledge and culturally responsive teaching.

## 1. Introduction

Teacher professional knowledge, teacher values, pedagogical competence, and teacher autonomy are all closely linked with the quality of an education system. This relationship is acknowledged in the National Education Policy 2020 and placed the teacher preparation at the centre of India's education reform agenda. In NEP2020, it has been suggested that teacher education will be progressively shifted to the multi-disciplinary higher education institutions and by 2030, four-year integrated B.Ed. will be the minimum professional qualification for schoolteachers. B.Ed. programmes also need to integrate robust disciplinary foundation, contemporary pedagogy, learner-focused teaching, education technology, inclusive education, assessment and extensive practicum experience (MoE, 2020).

Concurrently, NEP 2020 aims to build an education system that is grounded in Indian ethos while adhering to the basic values of the Constitution of India, global citizenship, scientific temper, critical thinking, sustainability and quality of learning in disciplines. Indian Knowledge Systems are a part of this vision. The policy promotes the understanding of the rich diversity of knowledge systems and contribution from India and helps build learners' contemporary knowledge, skills, values and dispositions (Ministry of Education, 2020).

The two dimensions (teacher transformation and IKS integration) cannot be considered separately. A curriculum can have very high-quality content for Indian philosophy, math, astronomy, ecology, language, art, agriculture, medicine, architecture or community knowledge but it all depends on the teacher. Content is selected, explained, questioned, contextualized, compared, assessed and related to the learners' experiences at the discretion of the teacher.

This challenge is explicitly recognised by the University Grants Commission. It outlines its faculty orientation guideline, which clearly recommends that the success of integrating IKS is very much dependent on the capability of the teachers, and teachers who are experts in their own field of study may have to be further acquainted with IKS. Teacher orientation is outlined in the guidelines to facilitate teacher understanding of IKS and the identification of strategies to embed it in classroom teaching (University Grants Commission [UGC], 2023b).

The main thesis of this article is that an IKS pedagogy calls for an alternative professional teacher development style. Future teachers require an amount more than cultural awareness. They must be able to know how to find authentic knowledge, how to interpret sources, how to understand historical and local traditions in relation to the present, how to plan learning activities, how to engage responsibly with contested claims, how to teach inclusively in multilingual contexts, how to use technology in an appropriate way, and how to evaluate students' learning beyond mere memorization.

The study aims to answer the following research question: How should the future teachers be prepared for teaching academically rigorous, culturally responsive and learner-centred IKS-based pedagogy in the context of NEP 2020?

## 2. The aims of the study were:

The paper discusses the teacher education reforms as part of NEP 2020 to find the professional competences required for IKS based teaching. Specifically, it seeks to examine the relationship between IKS and teacher education, to identify teacher education competencies, to discuss curricular, practical, technological and assessment aspects of preparing teachers for the age of IKS, to highlight the

challenges faced in the implementation of IKS and to propose a framework for teacher preparation in programmes like the Integrated Teacher Education Programme (ITEP).

### **3. Methodology**

A conceptual review and policy analysis methodology are used in the paper. No original survey or experimental data were collected. The analysis is based on the policy documents and academic publications until the year 2024, as per the scope of this paper.

The major sources of policy are National Education Policy 2020, UGC guidelines on introduction of IKS in higher education curriculum, UGC guidelines for faculty training and orientation in IKS, National Curriculum Framework for School Education 2023, regulations and framework for implementation of Integrated Teacher Education Programme (ITEP) and National Professional Standards for Teachers.

The guiding theories for the conceptual analysis include pedagogical content knowledge, culturally relevant pedagogy, professional teacher learning, technology integration, and cross-cultural education. Indian studies on teachers, teacher educators and implementation of IKS in recent years have been considered. As conceptual recommendations are not yet backed by empirical evidence on the pedagogical aspects of IKS in pre-service teacher education, the paper makes a distinction between the policy prescriptions and the available empirical evidence, and the conceptual recommendations developed here.

### **4. NEP 2020 and Changing identity of Teacher**

The teacher in the NEP 2020 is not just a disseminator of pre-packaged information, but also a professional who can interpret curricula, understand learners, design learning experiences, implement diverse modes of assessment, engage with communities, and make pedagogical judgements. Teaching, therefore, will be expected to be multidisciplinary and practice oriented.

The policy is to have four-year integrated B.Ed. integrated and have major student teaching practice in local schools. The curriculum for the preparation of B.Ed. course must contain the following: Foundation of literacy and numeracy, multilevel teaching, inclusive education, educational technology, learner centred approaches, collaborative learning, environmental awareness and constitutional values (Ministry of Education, 2020).

This is a professional vision directly applicable to IKS. Indian Knowledge Systems is not just about a list of ancient names, texts, dates, discoveries or cultural practices that Indians memorized. The connection teachers make between IKS and age-appropriate disciplinary concepts and learning outcomes is left to the discretion of the teacher.

This competency-based view is reinforced by the National Professional Standards for Teachers. NPST is a public declaration outlining the qualities of a teacher and the skills and knowledge that are expected at various phases of a teacher's life, as outlined by the NCTE. The core values and ethics, knowledge and practice, and professional growth and development are its major areas (National Council for Teacher Education [NCTE], 2024). So, planning to be an IKS teacher must not be seen as a patch at the end of an already planned curriculum but rather as part of professional standards.

### **5. What Does the term Pedagogy Mean?**

Pedagogy informed by Indian knowledge system can be defined as a teaching style that relies on credible Indian knowledge traditions, practices, intellectual histories, languages, literature and material

culture, local knowledge and community expertise that is interwoven with contemporary knowledge of a discipline and how evidence is acknowledged and accepted in that discipline.

This definition is not as limited as teaching about ancient India. There are several domains and traditions in Indian Knowledge Systems. According to the UGC's faculty orientation framework, knowledge includes all the fields of natural sciences, social sciences, humanities, engineering, agriculture, medicine, community knowledge systems and arts, vocational skills and other fields. It calls for direct linkages to be put in place between traditional knowledge spaces and modern topics (UGC, 2023b).

The term IKS is also used by Kumar (2024) to refer to the subject areas of mathematics, astronomy, medicine, philosophy, ecology and others, and the need to make connections that are meaningful between IKS and today's post-secondary education.

But cultural-based instruction does not mean cultural uncritical affirmation. Culturally relevant pedagogy (as envisioned by Ladson-Billings, 1995) is an approach that shows how culture and rigorous academic learning can be mutually supportive when pedagogy is culturally responsive and focuses on learning through identity. In the IKS context, this involves the following: The teacher needs to be able to respect the cultural knowledge as well as teaching students how to make claims through interpretation, comparison and validation.

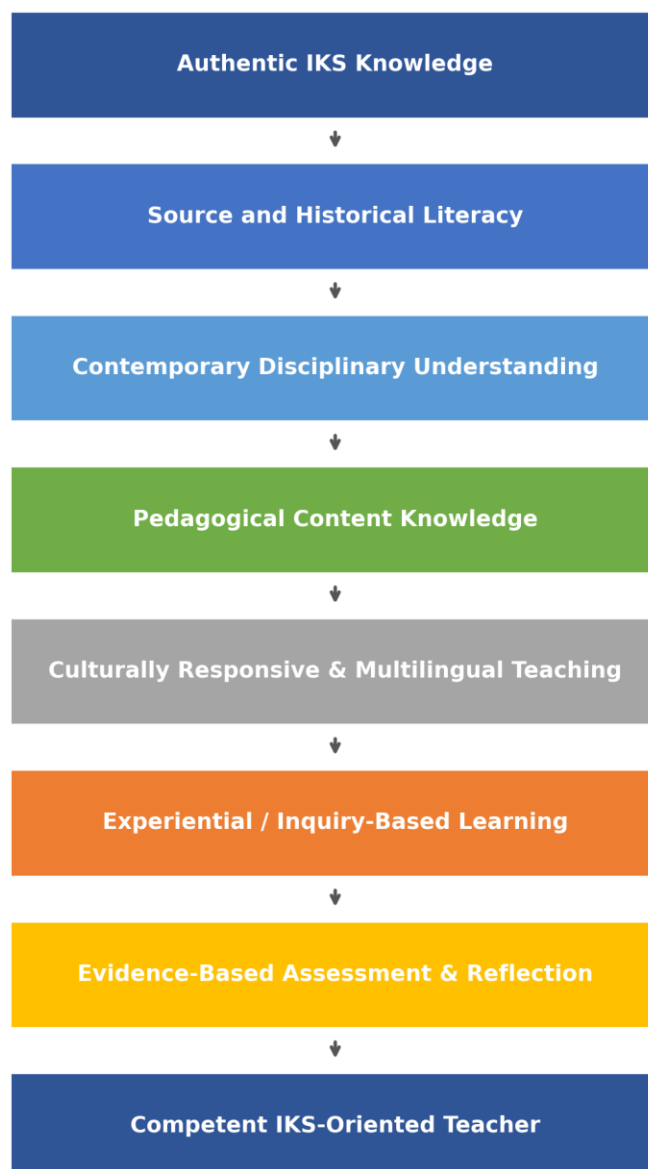
## **6. IKS Teacher and Pedagogical Content Knowledge**

Shulman (1986) came up with the influential notion of pedagogical content knowledge (PCK), which aims to differentiate knowing a subject from knowing how to teach it. It is the responsibility of teachers to convert any disciplinary knowledge into representations, explanations, examples, questions, and learning experiences that students can understand (Shulman, 1986).

This difference is particularly significant for IKS. For a scholar to understand the mathematical texts in Sanskrit does not mean that he knows how to explain mathematical ideas to a middle school student. While a teacher might know about traditional systems of water-harvesting, he or she may need pedagogical skills to relate these to hydrology, sustainability, geography and modern environmental issues.

Thus, an IKS-oriented version of PCK requires three related questions: What is the actual tradition of Indian knowledge? What is an educational concept during modern times that is related to it? What are some ways in which learners can explore, learn, compare, or apply that relationship? The shift from IKS content knowledge to pedagogical content knowledge should be a key focus of teacher education.

Figure 1. Proposed IKS Pedagogical Content Knowledge Model

**Proposed IKS Pedagogical Content Knowledge Model**

*Source: Conceptual framework developed in this study from NEP 2020, Shulman (1986), UGC IKS guidelines, and NPST.*

**7. Evidence of Teacher-Preparation Gap**

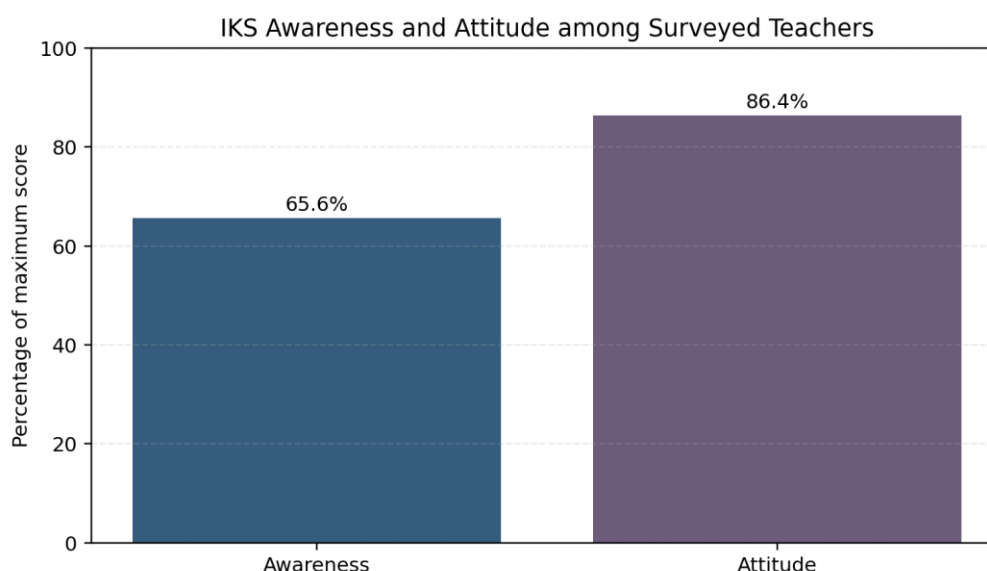
A helpful empirical one is the survey of 200 STEM educators conducted by Joshi and Bansal (2023) on 100 pre-service teachers and 100 in-service teachers from Delhi, Uttar Pradesh, Maharashtra, Tamil Nadu and Assam. The mean scores for IKS awareness (32.8 out of 50) and attitude scores (43.2 out of 50) were obtained for the participants respectively. The mean scores of the participants towards IKS awareness (32.8 out of 50) and attitude (43.2 out of 50) were moderate and high respectively. The study

also revealed a moderate positive correlation between awareness and reported practice, and limited actual classroom practice. Partly, the gap was blamed on the inadequate use of materials and teaching strategies related to the curriculum. The results are only indicative and not representative of the entire country as purposive sampling was used (Joshi & Bansal, 2023).

The difference is significant and relevant to learning. Positive attitudes don't guarantee an effective pedagogy. Future teachers should be provided with organized experiences to transform interest into classroom proficiencies.

A similar study on 30 teacher educators in Delhi yielded the positive outcomes of teacher education reforms considering NEP and revealed challenges and apprehensions (Kaushi et al., 2021). This study was not specifically designed toward the pedagogy of IKS, but the study does validate the general principle that policy reform needs to be complemented by the institutional capacity and teacher training, not policy talk only.

Graph 1. Teacher Awareness and Attitude Toward IKS



*Note. Scores are converted to percentage of the maximum possible score solely for visual comparison.*

*Source: Joshi and Bansal (2023).*

## 8. Core Competencies for Future Teachers

Based on the policy and literature reviewed, IKS-based teacher education should cultivate a multidimensional competency profile. This framework expands the meaning of teacher readiness beyond simple familiarity with traditional knowledge.

Table 1. Competency Framework for Future IKS-Oriented Teachers

| Competency                | What the future teacher should be able to do                        | Example evidence              |
|---------------------------|---------------------------------------------------------------------|-------------------------------|
| IKS foundational literacy | Explain major knowledge traditions and distinguish domains          | Concept map, oral examination |
| Source literacy           | Identify primary, secondary, translated, oral, and material sources | Source-analysis portfolio     |

|                                |                                                                               |                             |
|--------------------------------|-------------------------------------------------------------------------------|-----------------------------|
| Disciplinary mapping           | Connect IKS material with appropriate modern disciplines                      | Curriculum mapping task     |
| Pedagogical content knowledge  | Transform IKS knowledge into age-appropriate instruction                      | Micro-teaching lesson       |
| Historical reasoning           | Place knowledge in historical and intellectual context                        | Comparative source essay    |
| Scientific/evidence reasoning  | Distinguish historical significance from present empirical validity           | Evidence-evaluation task    |
| Culturally responsive pedagogy | Relate learning to learners' languages and cultural contexts                  | Contextualized lesson plan  |
| Multilingual competence        | Use Indian-language terminology accurately and access multilingual resources  | Bilingual teaching resource |
| Experiential pedagogy          | Use field visits, observation, crafts, community knowledge, and projects      | Field-learning portfolio    |
| Inclusive pedagogy             | Represent diverse regional, tribal, folk, classical, and community traditions | Inclusion audit             |
| Digital competence             | Develop or curate reliable digital IKS learning resources                     | Digital repository/project  |
| Assessment literacy            | Assess reasoning, application, investigation, and reflection                  | Competency rubric           |
| Ethical competence             | Obtain consent, respect community knowledge and intellectual ownership        | Ethical fieldwork protocol  |
| Reflective practice            | Critically examine one's own assumptions and teaching decisions               | Reflective journal          |

## 9. Curriculum Design for Pre-Service Teacher Education.

The integrated four-year programme for teacher education could be an appropriate institutional model for this approach to teacher education. Over 2021, norms and standards were introduced and in 2023, pilot recognition and curriculum-development activities for ITEP were implemented. In March 2023, 42 institutions got recognized for the first time and in 2021 and 2023 curriculum-framework development and centralized admissions process (NCTE, 2021, 2023).

Teacher education programmes could implement IKS related learning throughout the programme rather than having it as a single focus paper. The key concept is progression. The learning process should be from awareness to interpretation, to pedagogical transformation, and finally to supervised classroom implementation.

UGC's guidelines for faculty orientation also make a distinction between introduction to orientation and deeper faculty-specific and specialized studies. The refresher programmes can be multidisciplinary, discipline-specific, and intensive study of texts or areas (UGC, 2023b).

Table 2. Proposed IKS Integration Across a Four-Year Teacher-Education Programme

| Stage | Major focus | Illustrative learning experiences |
|-------|-------------|-----------------------------------|
|-------|-------------|-----------------------------------|



|        |                          |                                                                                                                    |
|--------|--------------------------|--------------------------------------------------------------------------------------------------------------------|
| Year 1 | Foundations              | Introduction to IKS, Indian educational thought, diversity of traditions, terminology, sources, Indian languages   |
| Year 2 | Disciplinary connections | IKS in mathematics, science, environment, arts, language, social science, crafts, health and local knowledge       |
| Year 3 | Pedagogy and methods     | IKS lesson design, culturally responsive pedagogy, source-based teaching, multilingual pedagogy, digital resources |

Year 5 Exploration of clinical practice and research Fieldwork in the community, action research, reflective portfolio, school internship, clinical practice

### **10. Source Based and Evidence-Sensitive Preparation**

Teaching whether claims are credible or not is one of the most vital parts of teacher preparation.

This is clear from UGC's guidance in 2023. It suggests that teachers use primary texts and good secondary sources, and that teaching materials be scholarly and authentic. Unverifiable/unverified content should not be used. It also recommends peer reviewed databases of books, articles, videos, and other resources (UGC, 2023b).

The same principles caution against pedagogical traps like exaggeration and glorification, and recommend appreciating field studies, audiovisual materials, activities, exposure to primary source materials, micro-research and innovative ways of assessment instead of the bookish approach to teaching (UGC, 2023b).

This has a significant impact on pre-service teacher education. It is important for a prospective science teacher to understand the difference between historical astronomy models and modern astrophysics. Health educators should not mix up the history and culture of medical systems with the actual clinical efficacy of Ayurveda. If a teacher is using historical procedures, he/she should be able to show their mathematical reasoning, not just the antiquity of the procedures. Thus, evidence sensitivity safeguards scientific integrity and the credibility of IKS education.

### **11. Experiential and Community Based Pedagogy**

Most Indian knowledge can be transmitted in practice and not only in written form. Technologies, architecture, music, oral history, agriculture, and water use and management, as well as crafts, may be learned through experience.

UGC suggests that field visits to places and communities related to the IKS, such as historical sites, arts and crafts communities, traditional educational institutions, observatories and other relevant institutions, are recommended (UGC, 2023b).

Future teachers could thus engage in well-managed community-based projects. A math student could explore patterns of geometry in craft traditions. The student teacher in environmental sciences could record information about a local water management system. A language teacher could learn about oral storytelling and about the vocabulary in a region. A social-science teacher could analyse a historical site using primary and secondary evidence.

There are ethical safeguards required for such learning. Local practitioners should not be used as sources of data only. Informed consent, attribution, respectful documentation and acknowledgement of community intellectual contributions should be taught in teacher education.

### **12. Culturally Responsive and Multilingual Pedagogy**

Another area of pedagogical overlap with culturally responsive education is that pedagogy that is IKS-oriented is also culturally responsive. Students' cultural experiences can be used as educational resources, rather than as barriers to education, was shown by Ladson-Billings (1995).

This is especially crucial in the Indian multi-lingual, multi-cultural classroom. The use of the term "Indian learners" in the context of IKS-based education does not mean that all learners are from the

same cultural background. The knowledge traditions of India encompass great regional, linguistic, tribal, folk, craft, classical, philosophical, religious, secular, artistic and community diversity.

One text-trained teacher might be unaware that a single tradition is not representative of the nation. Future teachers should therefore be taught to question what are the traditions that are represented, which are missing, whose knowledge is being passed on, in what language is it available, does it change when translated and how can the local knowledge of the students be incorporated into the classroom inquiry.

The UGC explicitly suggests that regional language versions of IKS resources be compiled to enable teachers whose main mode of instruction is not in English (UGC, 2023b).

### **13. Inquiry, Dialogue and Comparative Learning**

Questions should be fostered and not suppressed in the context of IKS.

The faculty induction model curriculum from the UGC provides opportunities for faculty to learn about traditions of argumentation, dialogue, debate, modes of reasoning, and the process of constructing and testing claims. It also suggests literature studies from the fields of mathematics, astronomy, metallurgy, medicine, arts, jurisprudence, yoga and others (UGC, 2023b).

This is a good opportunity for inquiry teaching. Students can compare historical calculations with today's mathematical approaches, traditional environmental observations with current ecological models, grammatical structures across languages, philosophies of knowledge, and historical architectural principles with contemporary design that respond to the climate.

Learning is often more challenging when students are presented with knowledge systems that have different cultural origins (Aikenhead & Jegede, 1999), as suggested through cross-cultural science-education research. For teachers, then, the challenge is to make explicit preparations to enable these intellectual transitions without overlooking culture or mixing up standards of knowledge.

### **14. Digital Competence and IKS Resources**

Technological pedagogical competence will also be needed for the future IKS teacher.

The TPACK framework (Mishra & Koehler, 2006) suggests that technology integration is not about technological knowledge, but it is about an interaction of technological, pedagogical and content knowledge.

A similar strategy can be used for the education of IKS. Teachers should be familiar with the use of digitized manuscripts, museum collections, geographic tools, video documentation, virtual tours, archives, multilingual databases, digital timelines and interactive learning platforms.

But with abundance comes the risk of misinformation too. For future teachers, it is important to learn digital source evaluation: authorship, institutional provenance, date, translation quality, evidence, citation chain, peer review, and difference between scholarly material and viral popular claims.

A practical formula for a professional person can thus be represented as:  $\text{IKS-TPACK} = \text{IKS Content Knowledge} + \text{Pedagogical Knowledge} + \text{Technological Knowledge} + \text{Source-Critical Knowledge}$ .

### **15. Future Teachers Assessment. Future Teachers Assessment**

The teacher preparation system based on IKS will not be meaningful if it is based solely on the written recall assessment. Pre-service teachers need to show that they can teach, rather than just give out information.

This can be done using annotated lesson plans, source analysis, micro-teaching, bilingual teaching materials, digital resources, project-based learning designs, fieldwork reports, community documentation, classroom observation, evidence-evaluation exercises, reflective journals, teaching portfolios, and action-research projects.

Factual accuracy, source quality, disciplinary integration, pedagogical appropriateness, cultural sensitivity, inclusiveness, scientific reasoning, learner engagement and reflection are all areas that can be assessed through rubrics.

This is consistent with professional development literature. Desimone (2009) provides that teacher learning is more effective if professional development is substantive, engaging, sequential, of adequate duration, and collaborative. In teacher preparation, therefore, a single awareness raising programme should not be the basis of the preparation. In teacher preparation, then, preparation should be ongoing and practice-based, not dependent on a single awareness raising programme.

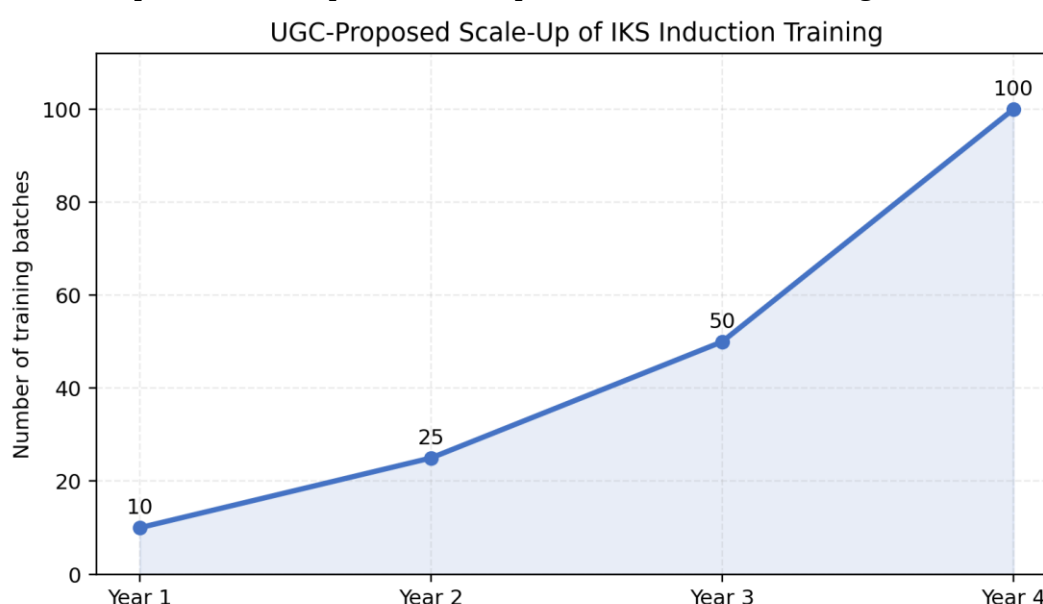
## 16. Faculty Preparation: Preparing the Teacher Educators

Teachers cannot be adequately prepared if teacher educators are not prepared.

This issue was identified and addressed by UGC, which has laid down guidelines for faculty induction and refresher education. The proposed induction model for IKS in its curriculum recommends a 30-hour induction programme comprising three broad components as well as 10% of the total faculty induction time for the IKS, which in a typical induction programme is around 17.5-20 hours (UGC, 2023b).

Guidelines also suggest a phased up-scale training. The UGC's roadmap also suggested raising the number of courses offered for disciplines' refresher from five in Year 1 to ten, twenty, and thirty in Years 2, 3, and 4, respectively (UGC, 2023b). For teacher-education institutions, this scale-up logic can be applied as follows: start with master trainers and expert resource teams, create validated resources, create discipline-specific modules, and expand training to others.

Graph 2. UGC-Proposed Scale-Up of IKS Induction Training Batches



Source: University Grants Commission (2023b).

## 17. Major Challenges

The implementation of teacher preparation is expected to face many obstacles, but it has great potential with the application of IKS. One issue that stands out is the distinction between cultural respect and academic endorsement. Teachers should learn to take a traditional claim seriously, not assuming that it is true or false, a fact or fiction of the present time.

The other is India's diversity in its intellectual history. Teacher education should not narrow the focus of the IKS to one language, region, religion, textual canon or social group.

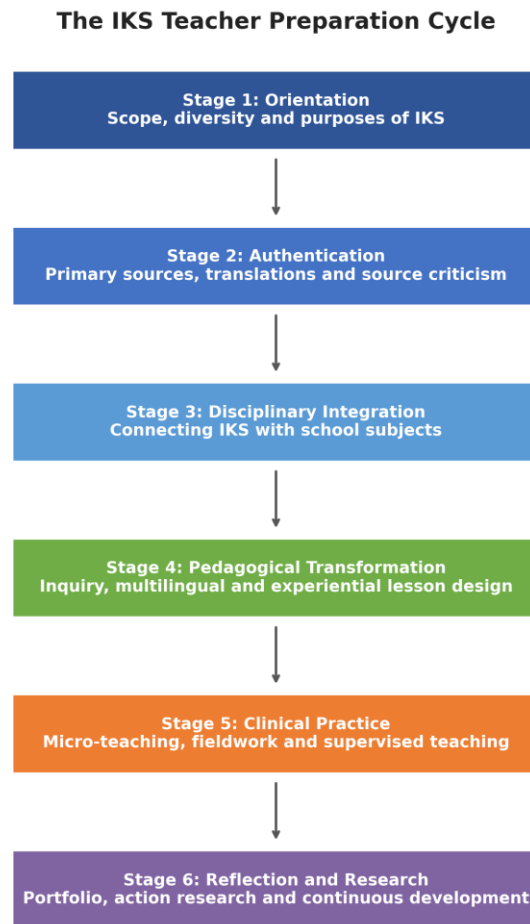
Table 3. Challenges and Safeguards for IKS-Based Teacher Preparation

| Challenge                    | Educational risk                   | Recommended safeguard                           |
|------------------------------|------------------------------------|-------------------------------------------------|
| Inadequate teacher knowledge | Superficial or inaccurate teaching | Structured foundation and advanced modules      |
| Unverified claims            | Misinformation                     | Authentic and peer-reviewed sources             |
| Glorification                | Loss of critical inquiry           | Comparative and evidence-sensitive pedagogy     |
| Curriculum overload          | More rote learning                 | Integrate IKS into existing disciplines         |
| Linguistic barriers          | Dependence on poor translations    | Multilingual resources and terminology training |
| Cultural homogenization      | Exclusion of diverse traditions    | Regional and community representation           |
| Weak pedagogy                | Facts taught without understanding | PCK-based lesson design                         |
| Lack of field exposure       | IKS becomes purely textbook-based  | Practicum and community learning                |
| Weak assessment              | Memorization dominates             | Performance and portfolio assessment            |
| Digital misinformation       | Viral claims replace scholarship   | Digital source-literacy training                |
| Teacher-educator shortage    | Uneven quality                     | Master trainers and expert networks             |
| Ideological polarization     | Classroom debate becomes partisan  | Scholarly neutrality and constitutional values  |

## 18. Proposed Model for Preparing Future Teachers

The findings of this review support a six-stage teacher-preparation model. The model treats IKS pedagogy as professional capability, not simply subject awareness.

Figure 2. The IKS Teacher Preparation Cycle



*Source: Conceptual model developed in this study.*

## 19. Discussion

NEP 2020 presents a great chance to re-think the vision of teacher preparation in India. The policy includes among its commitments: the commitment to Indian ethos and knowledge traditions, critical thinking, scientific temper, multidisciplinary education, learner centred teaching, technology, experiential learning, inclusion, and professional standards. So, these dimensions must be read in combination and not individually.

Current evidence indicates the will to engage in IKS is more pronounced than teachers' ability to do so. However, Joshi and Bansal's (2023) study is significant to highlight that the teachers' positive attitude was significantly higher than the measured awareness and the implementation in the classrooms was limited.

The difference is why teacher preparation is the key link between policy and practice. The same can be found in the professional-development literature. It's not possible to change a teacher's behavior just by teaching or having a quick awareness session. Content-focused learning, active participation, collaboration, modeling, the application of content in the classroom, feedback, and ongoing professional development are essential for teachers (Desimone, 2009).

For IKS, it is a need for future teachers to repeatedly be a part of the pedagogy that they will be using. They should be able to evaluate historical sources, not just to listen to a summary of sources. They should go to the fields and not just read about what goes on locally. They should make comparisons between knowledge systems, not simply repeat assertions about superiority. They should develop lessons, present them, get feedback, make changes, and record student learning.

The best teacher in terms of ISK is not a teacher who knows nothing of India's intellectual heritage nor a teacher who takes everything that has been handed on without question. The best teacher is one who can respect, investigate, interpret, contextualize, teach and question and apply knowledge responsibly.

## 20. Conclusion

The aspect of preparing future teachers for IKS based pedagogy is an important yet challenging aspect of the NEP 2020 reform agenda. Some of the historically important mathematical ideas, linguistic traditions, philosophy, ecological knowledge, arts, crafts, agriculture, architecture, and community practices, as well as the history of science and technology, may be of potential value in enriching the curriculum at Indian Knowledge Systems. But such an objective can only be realized if the curriculum is also included.

It's all in the teacher training. Future teachers must have the foundation knowledge of IKS, but must also have source literacy, pedagogical expertise, culturally responsive teaching, multilingual competence, experiential pedagogy, digital competence, ethical awareness, competence in the assessment of teaching and learning, scientific reasoning, and sustained school practice.

This transformation has been supported by the four-year integrated teacher education vision of NEP 2020; the ITEP (Integrated Teacher Education Programme); the NPST (National Programme on Technology Enabled Education); and the NCF-SE 2023 (National Curriculum Framework) along with the UGC's guidelines for faculty development and curriculum. The importance of the UGC's emphasis on authentic resources, field engagement, pedagogical innovation, primary exposure, and avoiding exaggeration or glorification is particularly noteworthy for its emphasis on the real world.

Therefore, it is important to not view IKS-based pedagogy as a substitute for modern curricular education. A more educationally useful goal is to establish a critical and creative discourse between the knowledge systems of India and the modern fields.

This kind of conversation can help prospective teachers to become culturally competent without being closed off to the world; to value heritage while respecting evidence; to be locally responsive without being lost in the local; to be professionally confident, rather than the unquestioning authority.

The effectiveness and success of the integration of IKS in NEP 2020 will thus be measured not by the number of pages of IKS content that is included in teacher education syllabus but by how well future teachers are able to convert IKS content to accurate, inclusive, engaging, reflective, and intellectually rigorous learning experiences.

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