ISSN No. 2583-357X
Vol.4. Special Issue 1. June 2025

ST. XAVIER'S INSTITUTE OF EDUCATION
(Autonomous)
Mumbai

XAVIERIAN JOURNAL OF EDUCATIONAL PRACTICE

A Peer Reviewed Interdisciplinary Journal

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Title of the Journal: XAVIERIAN JOURNAL OF EDUCATIONAL PRACTICE - A Peer Reviewed Interdisciplinary Journal.
Frequency: Biannual
Subscription: Open Access e-journal
Publisher: St. Xavier's Institute of Education, (Autonomous), Mumbai
Place: 40 A, New Marine Lines, Opp. State Bank of India, Mumbai, Maharashtra, India 400 020
Editor in Chief: Dr. Andrea Coutinho

Starting year: 2022
First Published: March 2022
Subject: Education - Interdisciplinary
Medium of Language: English
Mode of publication: e-journal Biannual
Contact email: sxiejournal@sxie.in
Phone No.: 022 22014666
Website: www.sxie.info
Specific URL to XJEP: https://ww2.sxie.info/xjep-open-access-journal
Cover Design: Sheetal's Design, Goregaon (W), Mumbai 400 104
ISSN No. 2583-357X
Vol. No.3. Issue No. 2 published on 15th November 2024

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Volume No. 4, Special Issue 1, June 2025

ISSN No.: 2583-357X

Published by

St. Xavier's Institute of Education (Autonomous)

Mumbai, India

About the Journal

The e-journal "XAVIERIAN JOURNAL OF EDUCATIONAL PRACTICE", is published by St. Xavier's Institute of Education (Autonomous) is Peer reviewed Open access journal. The name of the journal exuberates the institution's commitment to encouraging innovations in educational practice which can bring transformation and enhance progressive thinking.

The journal aims to corroborate multiple perspectives and innovations in different contexts, leading to collaborative learning and networking. The understanding of how educational practice can be understood for maximising the outcomes of learning is the main thrust of the journal.

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XAVIERIAN JOURNAL OF EDUCATIONAL PRACTICE

Volume 4, Special Issue 1, June 2025

Content

EDITORIAL

St. Xavier Institute of Education, Autonomous takes pride in its Peer-reviewed Interdisciplinary Journal, the Xavierian Journal of Educational Practice (XJEP) to be a vehicle of dissemination of knowledge and skills for enhancing academia-industry connect and encouraging innovative educational practices. The Volume 4, Special Issue 1 of XJEP is unique in its focus on the theme 'Capacity Building for Skill Development: A mission for Empowerment and Positive Change'. This theme is in alignment with the contemporary policies like National Education Policy 2020 and initiatives of the national government like Made in India, Viksit Bharat 2047, NITI Ayog and other schemes towards empowerment of the society.

St. Xavier's Institute of Education (Autonomous) on behalf of the Xavier Journal of Educational Practice (XJEP), Editorial Board is glad to present, XJEP, Volume 4 Special Issue 1. The National Policy of Education 2020 has in its main thrust in the section 4.4 on 'Holistic Development of Learners', states that "The main aim of education will not only be cognitive development but also building character and creating a holistic and well-rounded individuals equipped with the key 21st century skills".

The theme for 'Viksit Bharat' for transformation by 2047 focusses on the quality of life for every citizen and fostering a prosperous, inclusive and resilient nation. NEP 2020 emphasizes on learner development through skilling which is possible through a dynamic learning environment. St. Xavier's Institute of Education (Autonomous) believes that capacity building of teachers thus becomes essential to implement the recommendations of NEP 2020. The areas of capacity building are varied as NEP 2020 expects the teachers to engage in making learning more relevant to life skills and career. This Special issue of XJEP Vol. 4, Special Issue 1, focusses on the theme 'Capacity Building for Skill Development: A mission for Empowerment and Positive Change'.

The subthemes designed for this issue were as follows : Entrepreneurship in Education, Equity and Inclusion in Higher Education for Skill Development, Internationalisation of Higher Education for Skill Development, Developing an Optimal Learning Environment for Skill Development, Vocationalization of Secondary Education, Catalysing Quality Academic Research Skills, Promoting Skill for Indian Knowledge and Culture, Quality Education for All-Developing OERs, Green Technology as a precursor for Skill Development and Innovative Pedagogy for Promoting Creativity and Skill. This special issue received 5 papers in the subthemes: Innovative Pedagogy for Promoting Creativity and Skill, Promoting Skill for Indian Knowledge and Culture, Catalysing Quality Academic Research Skills and Quality Education for All-Developing OERs. These papers provide information on various innovative pedagogies, developing speaking skills, critical thinking skills, indigenous skills, research skills, and skill of using open educational resources.

The Editorial Team presents a brief insight into the papers published in this issue. Pillai, A. S. (2025): Augmenting Speaking Skills among English language learners through Task Based approach, is an experimental study to understand the impact of 'Task Based' approach on English language learning. The findings state that there is a positive impact of this approach in developing critical thinking skills, learning collaboratively and providing learner autonomy. This paper thus enriches the theme of developing skills which are relevant and help the learners to be empowered. Verma, P. (2025): Enhancing Critical Thinking through Indian Knowledge System: An Interdisciplinary Approach. This paper has been compiled with the rich knowledge from document analysis and case studies and explains how various components of Indian Knowledge system enriches students' critical thinking skills.

Gokhe, M. & Agawane, D. (2025): Heritage in Hands: Promoting Indigenous Skills for Cultural Preservation and Growth. Promoting indigenous skills in the curriculum is the main thrusts of this paper which the authors consider as important for preserving cultural heritage and supporting sustainable development. Varre, R.K. (2025): Quality Education for All: Developing Open Educational Resources (OERs) with special reference to India. The paper focuses on global perspectives with principles from South Africa, Brazil, and Philippines for sustainable strategies. The paper also highlights the importance of OERs for promoting inclusivity and achieving SDGs.

Roy, U. (2025): Bridging Silos Enhancing Interdisciplinary Research skills in Indian Higher Education. The author presents ideas of competency-based education and holistic education in the backdrop of Nipun Bharat Mission, zeroing in on upskilling and reskilling where educational institutions can adopt technological innovations for promoting lifelong learning. The XJEP Vol.4, Special issue 1, brings in greater awareness of capacity building and skill development in teachers and students to achieve the mission of 'Viksit Bharat @ 2047' that believes in the profound capabilities of the Indian youth in making India a self-reliant nation

At St. Xavier's Institute of Education (Autonomous), we believe that education beyond the transmission of knowledge, develops capacities, attitudes, and values that enable one to live in a world that is changing with light speed. Skill development encompasses employability as well as it gives the learners the confidence to respond to change, the creativity to drive innovation, and the resilience to make positive change in their communities. As researchers and teachers, we are duty-bound to create practices that make this possible. This special issue of the e-journal is a comprehensive collection of varied insights through concepts and research to support the mission of the journal. It includes a shared commitment to empower individuals through skill-building and educating about change to contribute in the fast-paced changing world.

The Editorial Team

Enhancing Critical Thinking Through the Indian Knowledge System: An Interdisciplinary Approach

Dr. Preeti Verma
Assistant Professor, Education
Gindo Devi Mahila Mahavidyalaya, Budaun.

Abstract
In the evolving global landscape of education, there is a growing need to develop learners who are not only knowledgeable but also critically aware, ethical, and reflective. The Indian Knowledge System (IKS), a body of ancient yet highly sophisticated thought, offers timeless tools to foster such development. Encompassing diverse disciplines—from logic and medicine to philosophy and governance—IKS is deeply rooted in inquiry, reasoning, and experiential learning. With the advent of the National Education Policy (NEP) 2020, there is renewed emphasis on reviving and integrating IKS into mainstream education. This paper investigates how foundational elements of IKS, particularly Nyaya logic, Vedantic reflection, and Gurukul pedagogy, can enhance critical thinking in students. Using document analysis and illustrative case studies, the research highlights how a culturally grounded and interdisciplinary approach to IKS can transform learners into intellectually rigorous and socially conscious individuals.

Key Words: *Indian Knowledge System (IKS), NEP 2020, Critical Thinking, Interdisciplinary Learning, Culturally Relevant Pedagogy.*

1. Introduction

The Indian Knowledge System (IKS) comprises a vast body of intellectual, philosophical, and practical knowledge developed over millennia. It reflects a way of life and learning that harmonizes logic, ethics, metaphysics, science, art, and society. Central to IKS is the cultivation of critical faculties through reasoned inquiry, observation, and moral reflection. The traditional Indian education system, from the Gurukul model to the universities of Nalanda and Takshashila, emphasized deep questioning, analysis of cause-effect relationships, and ethical reasoning. Over time, especially during the colonial period, this indigenous system was overshadowed by Western paradigms focused more on rote memorization and standardization. However, there is now a renewed recognition of the value of IKS in addressing the educational and developmental needs of a diverse, pluralistic society like India. This paper, therefore, seeks not just to compile

interdisciplinary insights, but to systematically explore how the Indian Knowledge System (IKS) fosters critical thinking through logical reasoning, ethical inquiry, and pedagogical practices.

The National Education Policy (NEP) 2020 outlines a transformative vision for education in India, proposing the integration of Indian epistemological frameworks into formal learning. This paper aims to explore how the tools, methodologies, and philosophies of IKS can be applied to enhance critical thinking among students, which is a foundational skill for success in the 21st century. In particular, the study investigates how logical traditions such as Nyaya, contemplative methods like Vedantic inquiry, and experiential pedagogies such as Gurukul education can be harnessed in interdisciplinary and contemporary contexts.

1.1 Research Questions

1. How can Indian Knowledge Systems (IKS) contribute to the development of critical thinking in students?
2. In what ways can interdisciplinary models enhance IKS integration in school and higher education curricula?
3. What are the practical and policy-level implications of implementing IKS in the Indian education system?

1.2 Research Objectives

• To explore the theoretical foundations of critical thinking within IKS traditions such as Nyaya and Vedanta.

• To examine pedagogical practices from the Gurukul system that promote dialogue, analysis, and moral reasoning.

• To analyze how interdisciplinary connections between IKS and modern fields (science, humanities, law, etc.) can foster deep learning.

• To assess the implications of NEP 2020 in enabling policy-level integration of IKS into mainstream curricula.

1.3 Methodology

The document analysis followed a grounded theory approach. Case studies were selected based on cultural relevance and presence of IKS-integrated pedagogy validated by educational reports.

Themes were identified using coding of primary and secondary texts. This research employs a qualitative approach with a focus on document and textual analysis. Primary sources include translations and commentaries on the Nyaya Sutras, Upanishads, Arthashastra, and other classical treatises. Secondary data is drawn from policy documents such as the National Education Policy (2020), research articles, educational white papers, and institutional case studies that document the integration of IKS in formal and informal learning environments.

The methodology involves thematic analysis, identifying key constructs related to critical thinking within these texts, and mapping their relevance to contemporary pedagogical goals. In addition, real-world examples from schools and colleges practicing IKS-integrated education are reviewed to illustrate practical applications.

2. Enhancing Critical Thinking Through Indian Knowledge Systems

Critical thinking, as defined in contemporary education, refers to the ability to think clearly, rationally, reflectively, and independently. It includes the evaluation of arguments, the identification of biases, and the capacity to solve problems logically. In Indian traditions, the notion of 'critical inquiry' has existed for millennia, embedded in philosophical discourses, logic, and spiritual practices. The Indian Knowledge System nurtures critical thinking not merely for intellectual purposes but also for ethical and spiritual development.

Classical Indian philosophy is structured around rigorous debate, dialectics (shastrartha), and logic (tarka). The six schools of Indian philosophy—Nyaya, Vaisheshika, Samkhya, Yoga, Mimamsa, and Vedanta—each stress different dimensions of inquiry and rational examination. Among these, the Nyaya school is the most prominent in laying down a structured system of logic and epistemology, while Vedanta emphasizes introspection and experiential knowledge.

2.1 Nyaya Shastra: The Indian System of Logic

As stated in Nyaya Sutra 1.1.5: 'He who perceives smoke infers fire—this is the foundation of inference.' The Nyaya school developed a formal system of logic that resembles the structure of the scientific method in modern times. It identifies four valid means (pramanas) of acquiring knowledge:

• Pratyaksha (perception)
• Anumana (inference)
• Upamana (comparison)
• Shabda (verbal testimony)

Nyaya logic places emphasis on argumentation, identifying fallacies, and constructing valid inferences. For example, inference (anumana) is structured as

1. There is fire on the hill (conclusion).
2. Because there is smoke (reason).
3. Wherever there is smoke, there is fire (universal rule).
4. The hill has smoke (observation).
5. Therefore, the hill has fire (inference).

This type of structured analysis is remarkably similar to hypothesis testing and deduction in scientific research and legal reasoning. Integrating Nyaya logic into modern education can cultivate logical reasoning, analytical thinking, and clarity in communication.

2.2 Gurukul Pedagogy: Dialogic and Experiential Learning

The Gurukul system of education was not only about acquiring knowledge but also about shaping the learner's character, intellect, and ethical values. Students lived with their teacher (guru) in a close-knit environment and engaged in learning that emphasized listening (shravan), contemplation (manan), and internalization (nididhyasan). This threefold approach encouraged both rational inquiry and personal transformation.

In Vedantic traditions, especially Advaita Vedanta, the learner is encouraged to question the nature of reality, self, and consciousness. The Upanishads, foundational to Vedanta, are filled with dialogues between teacher and student that stimulate critical inquiry through reflective questioning.

This blend of logic and introspection aligns with modern educational approaches that emphasize both cognitive and emotional intelligence. Gurukul pedagogy supports the development of resilience, ethical leadership, and reflective practice—key outcomes in critical thinking education today.

3. Interdisciplinary Applications of IKS

One of the distinctive characteristics of the Indian Knowledge System is its inherent interdisciplinarity. Knowledge was never divided artificially into 'science' and 'humanities.' Instead, disciplines evolved in interaction—mathematics enriched linguistics, philosophy informed governance, and medicine integrated environmental awareness. This integrative model offers a powerful alternative to the compartmentalized education system inherited from colonial frameworks. Modern education can greatly benefit from IKS by demonstrating the organic connections between logic, ethics, aesthetics, and empirical knowledge. In this section, we explore how IKS interacts with diverse fields such as science, mathematics, humanities, governance, and environmental studies.

3.1 Mathematics and Science

Indian mathematicians such as Aryabhata, Bhaskara I, and Brahmagupta pioneered advanced concepts in number theory, algebra, trigonometry, and astronomy. Their works display both computational sophistication and philosophical depth. For instance, Aryabhata's approximation of π and his sine tables were highly accurate, while Brahmagupta's work on zero and negative numbers influenced global mathematics.

The Vedic texts also contain mathematical insights, particularly through Vedic Mathematics, a system of mental calculations based on 16 sutras. Its use of patterns and shortcuts not only enhances arithmetic fluency but also fosters intuitive mathematical reasoning—an important aspect of critical thinking.

Similarly, Ayurveda is an interdisciplinary system that includes biology, chemistry, environmental science, and psychology. It emphasizes balance between body, mind, and environment—a concept now mirrored in psychosomatic medicine and holistic health models.

3.2 Arts, Language, and Aesthetics

Indian aesthetics is rooted in the Rasa Theory of Bharata's Natyashastra, which describes nine rasas (emotional flavors) that govern human perception of art. These include Shringara (love), Veera (courage), Karuna (compassion), and others. Studying these in literature, film, or drama classes develops emotional intelligence and socio-cultural sensitivity.

Linguistically, Panini's Ashtadhyayi is a marvel of ancient grammar, offering a generative model of language that predates modern linguistic theory. Its concise rules and meta-rules form the basis for computational linguistics and even programming logic today.

3.3 Governance, Law, and Ethics

Chanakya's Arthashastra is one of the oldest treatises on political science, economics, and governance. Its ethical pragmatism, use of data in policy making, and emphasis on leadership training have been acknowledged even in contemporary administrative reforms.

Legal principles in texts like Manusmriti or Narada Smriti include restitution, community resolution, and preventive justice. These models are now echoed in alternative dispute resolution (ADR) methods and community legal clinics in India.

3.4 Environmental Sustainability

Indian cosmology emphasizes harmony with nature. Concepts such as Vasudhaiva Kutumbakam (the world is one family) and Pancha Mahabhutas (five elements) reflect ecological interdependence. Practices such as rainwater harvesting, seed preservation, crop rotation, and animal reverence formed an integral part of IKS. These sustainable traditions are now being revived by movements such as Zero Budget Natural Farming (ZBNF) and tribal agroforestry in states like Odisha and Chhattisgarh.

4. Pedagogical Innovations and Case Studies

These case studies were documented by state education departments and NGOs promoting heritage education, demonstrating measurable engagement improvement in students using IKS tools.

In order to operationalize the integration of IKS in education, innovative pedagogical strategies are essential. These strategies must move beyond mere content delivery to creating learning environments that foster inquiry, reflection, and ethical sensitivity. IKS-informed pedagogy draws on oral traditions, storytelling, field-based learning, and contemplative practices.

Some key strategies include using epics like the Ramayana or Mahabharata to discuss leadership and dilemmas, practicing yoga and meditation for self-awareness, employing geometry in folk arts like Mandala or Warli paintings, and linking environmental studies to traditional practices like water conservation or herbal medicine.

4.1 Kerala Case Study

In Kerala, schools under the Sarva Shiksha Abhiyan have integrated IKS through tribal knowledge systems, martial arts, and ecological projects. For example, physics is taught using Kalaripayattu to demonstrate motion and angles. Biology includes the study of local medicinal plants, while geometry uses traditional mural art to explain shapes and proportions.

4.2 Bhopal Tribal School Model

In rural Madhya Pradesh, the Ekal Vidyalaya model in tribal regions around Bhopal incorporates storytelling, forest-based science, and local language instruction to ensure cultural relevance. Teachers use Panchatantra tales to teach ethics and logic, while children learn through observation of flora and fauna in their surroundings.

5. NEP 2020 and Policy Implementation

The National Education Policy 2020 envisions an education system rooted in Indian ethos that contributes directly to transforming India into an equitable and vibrant knowledge society. Chapter 4 of NEP specifically calls for the integration of Indian Knowledge Systems across the curriculum, supported by multilingual access, interdisciplinary learning, and institutional research.

5.1 Institutional Frameworks

NEP proposes the creation of IKS-focused institutions and units within universities, such as the Indian Knowledge System Division under AICTE. These bodies are to document, digitize, and disseminate traditional knowledge, enabling scholarly and public access.

5.2 Implementation Challenges

While the policy is ambitious, challenges include curriculum rigidity, faculty unpreparedness, and resource gaps. Furthermore, skepticism about the scientific validity of IKS persists among some academic communities. To overcome this, universities must invest in interdisciplinary research, translation projects, and collaborative teaching models.

In response to RQ1 and RQ2, the paper demonstrates how logical systems, ethical inquiry, and interdisciplinary applications of IKS support the development of critical thinking. RQ3 is addressed through NEP 2020 recommendations.

5.3 Recommendations

• Establish IKS training modules for teacher education.
• Develop bilingual textbooks that blend modern and traditional concepts.
• Promote experiential learning through crafts, local traditions, and ecological projects.
• Provide research grants for validating indigenous practices using scientific methods.

6. Conclusion

The Indian Knowledge System encompasses the logical, environmental, and scientific realms and is indeed a treasure trove of wisdom. Its interdisciplinary nature and emphasis on critical reflection, ethics, and experiential learning offer a powerful framework for education in the 21st century. By drawing from IKS, educators can nurture more thoughtful, rooted, and resilient learners. The NEP 2020 lays a strong foundation for this transformation, but its success depends on thoughtful implementation, adequate resourcing, and continuous feedback from educators and communities. The present study demonstrates that IKS is not merely a historical curiosity but a living tradition capable of enriching modern education. Integrating it meaningfully can help develop the kind of critical, creative, and culturally grounded thinkers India and the world need today.

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Heritage in Hands: Promoting Indigenous Skills for Cultural Preservation and Growth

Dr. (Mrs.) Megha D. Gokhe
Principal, Thakur Shyamnarayan College of Education and Research
Kandivali (E), Mumbai. mdgokhe1976@gmail.com,

Ms. Deepti Agawane
Assistant Professor, Thakur Shyamnarayan College of Education and Research
Kandivali (E), Mumbai. clockhourwork@gmail.com

Abstract

This study examines the role of indigenous skills in formal education as a pathway to preserving cultural heritage and supporting sustainable development. In many educational settings, traditional knowledge— ranging from folk art and local craftsmanship to oral traditions and ecological practices—is underrepresented, despite its potential to enrich student learning and identity formation. The research, titled

Heritage in Hands: Promoting Indigenous Skills for Cultural Preservation and Growth, draws insights from a survey conducted among 31 educators from various levels of the Indian education system, including schools, junior colleges, degree colleges, and higher education institutions.

Findings show that while most educators (87.1%) are aware of indigenous knowledge systems and all participants recognize their educational value, only a minority (25.8%) have successfully integrated them into classroom practices. A key barrier identified is the lack of formal training, as over 80% of respondents reported having no structured exposure to traditional arts or knowledge systems. Furthermore, the availability of digital or instructional resources for teaching these topics is limited. Nonetheless, there is strong enthusiasm for professional development in this area, and most educators observed high levels of student interest when cultural content is introduced. Although institutional support was reported in many cases, collaboration with local artisans and communities remains relatively low.

The study underscores the need for a more inclusive educational framework that bridges this gap through curriculum reform, capacity-building for teachers, and stronger partnerships with cultural stakeholders. Promoting indigenous skills in education can foster deeper student engagement, preserve cultural identity, and contribute meaningfully to long-term sustainability goals.

Keywords: Indigenous knowledge, cultural education, teacher training, sustainability, heritage preservation, traditional skills

Introduction: Indigenous skills represent centuries of traditional knowledge embedded in cultural practices, arts, crafts, and sustainable living. In today's fast-globalizing world, preserving these skills has become critical for maintaining cultural identity and fostering creativity. Despite their value, indigenous skills are often sidelined in formal education systems. This research aims to assess educators' perceptions, the extent of indigenous practice integration, and the institutional mechanisms supporting heritage-based learning.

Beyond their cultural significance, indigenous skills also contribute to sustainable development and offer alternative ways of understanding the world. These practices reflect deep connections with nature, community, and intergenerational learning, which are often absent in mainstream curricula. As educational systems increasingly seek to promote inclusivity and diversity, there is a growing need to examine how indigenous knowledge can be meaningfully included in teaching and learning processes. By exploring the perspectives of educators and analyzing institutional support structures, this study highlights both the challenges and opportunities in embedding traditional knowledge within modern educational frameworks.

Literature Review

Previous studies emphasize the importance of indigenous knowledge in education as a means of contextualizing learning and enhancing student engagement (Semali & Kincheloe, 1999; Dei, 2000). Battiste (2005) argues for the decolonization of curricula through the inclusion of traditional wisdom. Community involvement and intergenerational learning are also seen as essential for authentic cultural education (Smith, 2012). However, practical barriers such as limited teacher training, lack of resources, and rigid curricula remain persistent challenges.

Additional research highlights the transformative potential of integrating indigenous perspectives into classroom practices. Scholars note that when students see their cultural background reflected in the curriculum, it fosters a sense of belonging and self-worth, which can positively impact academic performance. Moreover, indigenous knowledge systems often promote holistic and experiential learning, which can complement conventional teaching methods. Despite growing recognition of these benefits, implementation often faces institutional resistance or is treated as supplementary rather than integral. Therefore, there is a pressing need for policy-level changes, comprehensive teacher education programs, and collaborative partnerships with indigenous communities to ensure respectful and meaningful integration into mainstream education

Research Objectives

1. To explore educators' awareness and attitudes toward indigenous skills.
2. To analyze the extent of integration of traditional practices in teaching.
3. To evaluate institutional and infrastructural support for cultural education.
4. To identify training and collaboration opportunities to promote indigenous knowledge.

Research Questions

1. How aware are educators of indigenous skills and their educational relevance?
2. To what extent are indigenous practices being used in classrooms?
3. What institutional support is available for heritage-based learning?
4. Are educators equipped with the resources and training to teach traditional skills?
5. How can indigenous education contribute to sustainable development and student identity?

Conceptual Framework

This research is grounded in culturally responsive pedagogy and the framework of sustainable development. It links educational practice with heritage preservation by analyzing the interplay between teacher agency, institutional infrastructure, community engagement, and curriculum design. The framework posits that promoting indigenous skills in education enhances cultural identity, supports sustainability, and enriches student learning experiences.

Methodology

A quantitative descriptive approach was adopted to understand educators' perspectives on the integration of indigenous skills into educational settings. The study utilized a structured survey method to gather first-hand data regarding the level of awareness, current practices, perceived relevance, and the degree of institutional support available for incorporating traditional knowledge into curricula. This approach enabled the collection of measurable insights directly from educators, offering a broader understanding of the existing educational landscape concerning indigenous knowledge.

Research Design

The study employed a cross-sectional survey design, capturing data at a single point in time from a diverse and representative sample of educators working in schools, junior colleges, degree colleges, and higher education institutions. This design was chosen for its effectiveness in highlighting patterns, attitudes, and variations across different educational levels. By using this approach, the research aimed to provide a snapshot of prevailing trends and challenges related to the inclusion of indigenous skills in education, while also identifying opportunities for better integration and support.

Sample

The sample consisted of 31 educators from varying academic levels, including school, junior colleges, undergraduate degree colleges, and institutions of higher education. This variety allowed the study to capture a richer understanding of how indigenous knowledge is perceived and practiced across different educational contexts, as well as the unique challenges and opportunities present at each level.

Sampling Technique

A convenience sampling method was adopted for this study, focusing on educators who were easily accessible and willing to contribute during the research period. This non-probability sampling approach allowed for timely data collection within the constraints of limited resources and availability. While it may not provide full generalizability, it offered valuable insights from practitioners actively engaged in the education system. The sample included educators from diverse academic backgrounds, providing a snapshot of existing perspectives on indigenous skill integration within their respective institutions.

Data Collection Tool

Data was gathered using a structured questionnaire that consisted of a mix of multiple-choice and yes/no questions. The instrument was carefully designed to obtain detailed information on various aspects such as educator awareness, classroom implementation of indigenous skills, institutional support structures, professional training availability, and student responsiveness. The format ensured ease of completion while enabling a comprehensive understanding of the challenges and opportunities related to incorporating indigenous knowledge in teaching practices.

Tools for Analysis

To interpret the survey findings, descriptive statistical methods were employed, including frequency distribution and percentage analysis. These techniques helped in summarizing patterns and drawing clear conclusions from the collected data. Additionally, bar charts and graphical representations were used to visually present key trends, making the results more accessible and understandable. This approach provided a concise overview of the data while highlighting areas requiring further attention or policy intervention.

Data Analysis

The analysis of the survey data provided valuable insights into educators' perspectives and experiences with integrating indigenous skills into education. A significant majority (87.1%) demonstrated awareness of indigenous knowledge systems, indicating a foundational level of understanding among teaching professionals. Encouragingly, all respondents (100%) acknowledged the educational value of these skills, reflecting a collective recognition of their relevance in modern pedagogy. However, a clear gap emerged between awareness and practice—only 25.8% of educators had actively incorporated indigenous practices into their teaching methods. A major barrier appears to be the lack of formal training, with 80.6% of participants reporting that they had not received any professional development related to indigenous knowledge. This gap is further exacerbated by limited curricular support; only 38.7% indicated that their institutions had formally included folk traditions in the curriculum. Furthermore, access to digital teaching resources was scarce, with just 16.1% having such tools at their disposal.

Despite these challenges, the data showed strong positive indicators. A vast majority (93.5%) noticed high levels of student interest in indigenous content, and an equal percentage supported making cultural education a part of teacher training. High confidence levels (87.1%) and moderate community engagement (48.4%) suggest readiness and potential for broader implementation.

Graphical Representation

Fig 1 : Formal Training in art and craft

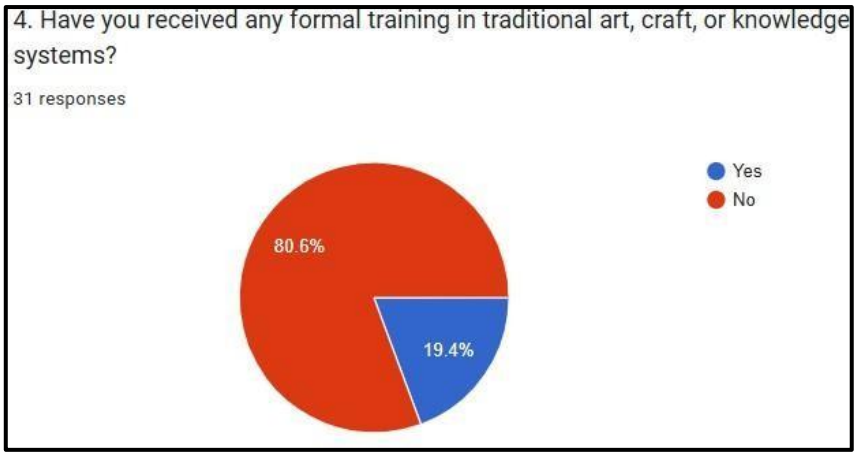
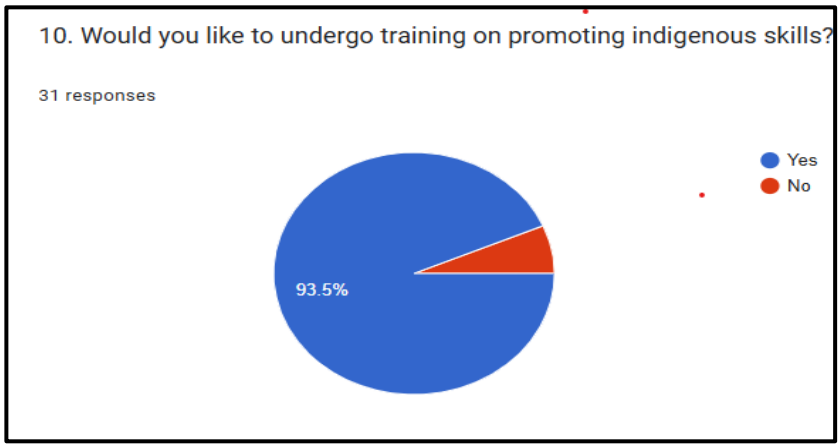


Fig 2 : Need for Training on promoting indigenous skills



Findings and Discussion

The research highlights a strong belief in the value of indigenous knowledge among educators. While there is enthusiasm and confidence, systemic barriers such as lack of training, curricular limitations, and insufficient digital resources hinder practical implementation. Encouragingly, there is institutional support and student interest, indicating fertile ground for policy reforms.

Community collaborations remain underutilized but represent a promising area for enhancing cultural learning. Strengthening partnerships with local artisans, elders, and cultural practitioners could provide students with experiential learning opportunities and help preserve valuable traditions. Additionally, incorporating indigenous content into teacher training programs and

creating accessible digital resources would significantly bridge the gap between awareness and action. Educators' high levels of confidence and their willingness to engage suggest that, with the right support systems, meaningful integration of indigenous knowledge is not only possible but sustainable. This study calls for a more inclusive educational approach that values traditional knowledge alongside mainstream content, recognizing its role in fostering identity, sustainability, and cultural continuity. Future efforts should focus on policy alignment, community engagement, and resource development to ensure that indigenous skills are not just acknowledged but actively practiced within educational environments.

Recommendations

Based on the findings of this study, the following recommendations are proposed to enhance the integration of indigenous skills into the educational framework:

1. Incorporate Indigenous Knowledge in Teacher Training
2. Revise and Enrich Curricula
3. Promote Community Engagement
4. Develop Digital and Print Resources
5. Policy Support and Institutional Backing
6. Encourage Experiential Learning

Conclusion:

Indigenous skills hold transformative potential for education by nurturing identity, creativity, and sustainability. This study reveals a clear gap between awareness and implementation due to infrastructural and curricular challenges. Addressing these through targeted training, curriculum reforms, and community partnerships can lead to more inclusive and culturally rich educational experiences. A strategic approach involving all stakeholders is essential to put heritage truly in the hands of future generations.

Furthermore, educators' positive attitudes and high levels of student interest indicate a strong foundation upon which meaningful change can be built. To ensure long-term impact, policies must prioritize the inclusion of indigenous knowledge in both pre-service and in-service teacher education programs. Digital tools and culturally responsive resources can also play a critical role in bridging traditional wisdom with modern pedagogy.

Recognizing the value of local knowledge systems not only enriches academic content but also strengthens cultural pride and intergenerational bonds. For genuine transformation, collaboration between educational institutions, communities, and policymakers is vital. By embedding indigenous skills into the core of educational practice, we can create learning environments that honor diversity, support sustainability, and empower learners to connect deeply with their cultural roots and heritage.

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Quality Education for All: Developing Open Educational Resources (OERs) with Special Reference to India

Corresponding Author: Dr Ranjith Kumar Varre, Lecturer and HOD of the Department,
Department of History, Government Degree College, Cumbum, Prakasam district, Andhra Pradesh, ranjith.roy1982@gmail.com, 8309216809, 9492925598.

Abstract

The pursuit of quality education for everyone is deeply intertwined with SDG 4's goal to ensure inclusive, equitable quality education and to promote lifelong learning opportunities for all.This paper examines the pivotal role of Open Educational Resources (OERs) in transforming the educational landscape in India while addressing persistent inequities and enhancing access to quality learning materials. Education is recognized as a foundational pillar for human and social development, yet challenges such as socio-economic disparities, geographical diversity, and infrastructural gaps continue to hinder equitable education in the country. The paper explores key initiatives, including SWAYAM, the National Repository of Open Educational Resources (NROER), e-Pathshala, and DIKSHA, all aimed at democratizing education through digital platforms that provide diverse resources aligned with the curricula.

Despite these advancements, several significant barriers impede the effective implementation of OERs, including the digital divide that limits access to technology, linguistic diversity that affects resource usability, and insufficient understanding of intellectual property rights. Additionally, the lack of adequate teacher training further exacerbates the challenge of effectively utilizing OERs in classrooms. The need for creating multilingual resources and fostering community involvement is emphasized as essential in overcoming these hurdles.

The paper draws on global best practices from initiatives in countries such as South Africa, Brazil, and the Philippines to propose strategies focused on localization, sustainability, and enhanced educator engagement. Ultimately, the findings highlight that OERs have the potential to significantly drive educational reform in India, promote inclusivity, and contribute to achieving Sustainable Development Goal 4 by ensuring equitable and quality education for all learners across the nation.

Keywords: Open Educational Resources (OERs), Quality Education, India, Educational Equity, Digital Inclusion, SDG 4

Introduction

Education serves as the backbone of human and social development, facilitating individual empowerment, innovation, and inclusive growth. It is an essential instrument for promoting justice, equality, and sustainability, recognized globally as a fundamental human right that underpins the fulfilment of other rights. Despite past resistance to equality, significant inequalities persist today in access, quality, and equity in education, especially in the Global South. India exemplifies these challenges, where socio-economic disparities, geographical diversity, and infrastructural shortcomings hinder equitable learning outcomes.

One promising solution to address these issues is the development and implementation of Open Educational Resources (OERs). Established by UNESCO in 2002, OERs encompass a wide range of freely accessible teaching, learning, and research materials. They facilitate democratization of knowledge, reduce educational costs, and foster participatory and adaptive learning environments (Hilton, 2016). The COVID-19 pandemic has highlighted the gaps in digital access and education, exacerbating existing disparities.

In India, with over 250 million enrolled students from diverse linguistic, cultural, and socio-economic backgrounds, OERs present a significant opportunity for educational reform. This paper critically reviews the progress, reach, and technological potential of OERs within India's educational framework. By analyzing national initiatives and global best practices, it underscores the importance of inclusive policy frameworks, collaboration among stakeholders, and the need for sustainable digital infrastructure to achieve quality education for all. According to the United Nations' Sustainable Development Goal 4 (SDG 4), it is crucial to address inequities to ensure inclusive, equitable, and quality education globally (UNESCO, 2015).

OERs, as digital materials licensed for free use, adaptation, and distribution, have become vital in the global efforts to democratize education. Although they provide an affordable learning alternative, they contribute significantly to inclusivity in the education sector (Hilton, 2016).

Purpose of the Study

This research intended to study the transformative scope of Open Educational Resources (OERs) in providing inclusive and equitable access to quality education in the Indian context, related to the initiatives of SDG Goal 4 (SDG 4). It focuses on evaluating key national digital education initiatives such as SWAYAM, the National Repository of Open Educational Resources (NROER),

e-Pathshala, and DIKSHA and how they are reducing persistent educational disparities arising from socio-economic, linguistic, and technological challenges. By studying both domestic developments and international models of OER implementation, the study seeks to uncover actionable strategies that improve resource accessibility, support multilingual content creation, ensure long-term viability, and foster meaningful educator involvement. The prime goal is to provide practical recommendations that can inform policymaking, enhance digital learning infrastructure, and promote inclusive educational practices tailored to India's diverse learner population.

Present study is grounded in a combination of critical pedagogy, constructivist learning, and connectivist theories, which collectively underscore the transformative potential of Open Educational Resources (OERs) in achieving equitable and inclusive education. Inspired by Paulo Freire's vision of education as a tool for liberation, OERs challenge traditional hierarchies by democratizing access to knowledge, especially for marginalized learners. From a constructivist view, OERs support study-centric education by making students to actively participate with, adapt, and contextualize learning materials to fit their linguistic, socio-cultural an essential feature for a diverse country like India. The flexibility and adaptability inherent in OERs allow for experiential and collaborative learning, reinforcing the idea that learners construct knowledge through active involvement rather than passive reception.

In the context of an increasingly digital world, present research also draws from connectivist theory, which views learning as a process of forming networks across digital platforms. Indian initiatives like SWAYAM and DIKSHA exemplify this approach by fostering distributed, self-paced learning opportunities. Furthermore, Amartya Sen's capability approach provides a broader developmental lens by highlighting how access to education through OERs enhances learner freedoms and societal participation. Coupled with insights from the Technology Acceptance Model and diffusion theories, the study considers how perceptions of usefulness, accessibility, and institutional support shape the adoption of OERs. These theoretical perspectives collectively offer a robust framework for analyzing how OERs can contribute not only to academic achievement but also to social empowerment and national development.

The OER Landscape in India: Initiatives and Innovations

India has made substantial progress in developing and implementing OER platforms to bridge educational gaps. Various governmental and non-governmental organizations offer opportunities for individuals interested in learning through OER. Key initiatives include:

SWAYAM

Launched in 2017 by the Ministry of Education, SWAYAM (Study Webs of Active Learning for Young Aspiring Minds) is a flagship initiative aimed at democratizing access to quality higher education via digital platforms. It seeks to bridge the educational divide by providing high-quality, curriculum-aligned Massive Open Online Courses (MOOCs) to students, educators, and lifelong learners across the country, particularly in remote and underserved areas.

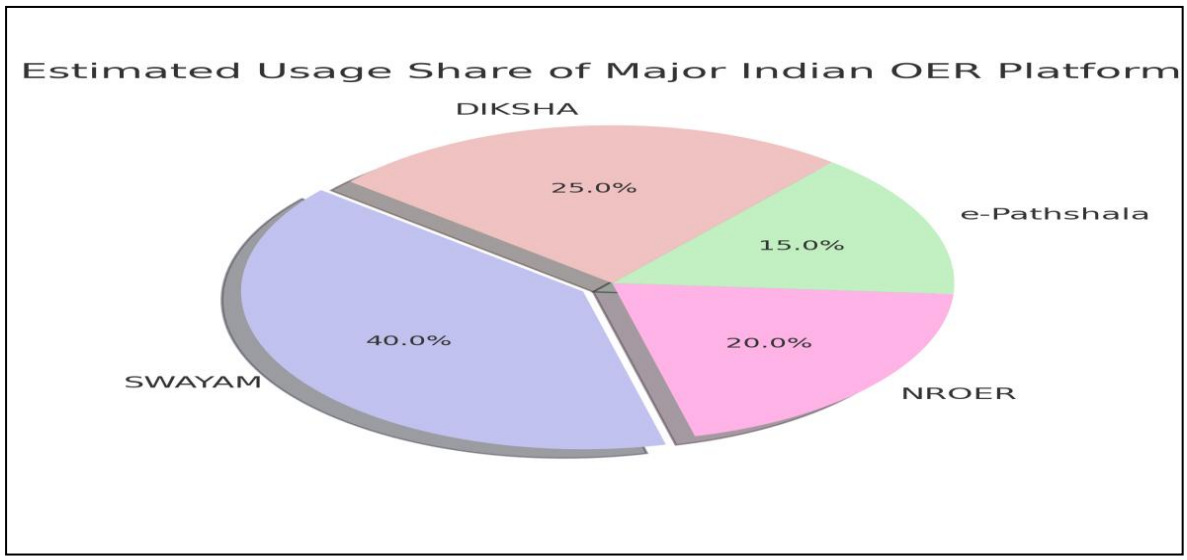
SWAYAM hosts courses from Class 9 to postgraduate levels, structured around four main components: video lectures, downloadable reading materials, self-assessment tests, and online discussion forums. Courses are designed and delivered by faculty from esteemed institutions like the Indian Institutes of Technology (IITs) and the Indian Institutes of Management (IIMs). The platform also includes a credit transfer mechanism, enabling students to earn academic credits upon successful completion (Agarwal & Tiwari, 2020).Aligned with the National Education Policy (NEP) 2020, SWAYAM's relevance is further amplified. With over 2,000 active courses and millions of users, it has emerged as a central digital learning hub that promotes digital inclusion, pedagogical innovation, and self-paced learning.

National Repository of Open Educational Resources (NROER), e-Pathshala, and DIKSHA

The National Repository of Open Educational Resources (NROER), developed by CIET-NCERT, provides a diverse array of resources, including textbooks, videos, audio clips, and interactive modules available in multiple Indian languages. It emphasizes inclusivity by addressing linguistic and cultural contexts (Mishra, 2017).

e-Pathshala, a collaboration between NCERT and the Ministry of Education, offers e-books and supplementary materials through web and mobile platforms. Additionally, DIKSHA (Digital Infrastructure for Knowledge Sharing), launched in 2017, functions as a national digital platform for school education, allowing teachers and students to access interactive content tailored to local curricula.

Fig.1: Estimated usage share of Major Indian OER platform



Challenges in OER Implementation in India

Despite significant policy support, several challenges hinder the widespread adoption and impact of OERs:

Digital Divide

A major barrier to the effective implementation of OERs in India is the digital divide, which refers to disparities in access to modern information and communication technologies (ICT). While urban and affluent areas benefit from stable internet connections, rural and remote regions often struggle with connectivity issues, limiting access to online educational resources. According to the International Telecommunication Union (ITU, 2021), a substantial segment of the Indian population lacks reliable broadband access, leaving many students and teachers in rural areas without the means to leverage digital platforms.

This digital exclusion disproportionately affects marginalized groups, including low-income families, women, and students with disabilities, preventing them from benefiting from OER opportunities. To tackle this issue, India must prioritize enhancing digital infrastructure by extending broadband networks, particularly in underserved regions. Government initiatives like BharatNet, aimed at providing high-speed internet access to rural areas, should be scaled to ensure universal connectivity. Additionally, measures like subsidizing digital devices for students and teachers in remote areas and establishing community-based internet hubs could help foster a more inclusive educational environment.

Linguistic and Cultural Barriers

India's linguistic diversity, with 22 official languages and numerous regional dialects, poses a significant challenge for the effective implementation of OERs. Many resources are primarily available in English or Hindi, limiting accessibility for a substantial portion of the population that speaks languages such as Bengali, Tamil, Telugu, Punjabi, and others. While English is prevalent in urban education, many rural and marginalized individuals encounter language barriers that hinder their engagement with available OERs.

To bridge this divide, the development of multilingual OERs—particularly in regional languages—is essential. Strategies should include translating existing materials, creating new content that reflects local languages and cultures, and encouraging local content development. Government and educational institutions must prioritize linguistic inclusivity by allocating resources to produce high-quality educational materials in multiple languages that are culturally sensitive and contextually appropriate.

Intellectual Property and Licensing Awareness

A significant challenge in the development and dissemination of OERs in India is the limited awareness and understanding of intellectual property (IP) rights and licensing frameworks. While OERs are intended to be freely available for use and adaptation, they are governed by licensing agreements, like those provided by Creative Commons, which ensure that authors retain certain rights while permitting the free exchange of resources.

This knowledge gap can lead to unintentional copyright infringement, discouraging contributions to OER initiatives or the use of available materials. Many educators may hesitate to participate in OER programs due to concerns about potential legal repercussions. Addressing this challenge requires efforts to educate stakeholders about intellectual property rights and the importance of open licensing in education. Implementing training programs that demystify copyright, Creative Commons licenses, and fair use guidelines can foster a culture of sharing and collaboration, enhancing the development and utilization of high-quality OERs.

Teacher Training and Motivation

The successful integration of OERs into India's education system relies heavily on the competence and motivation of teachers. While the availability of OERs is crucial, educators' capacity to

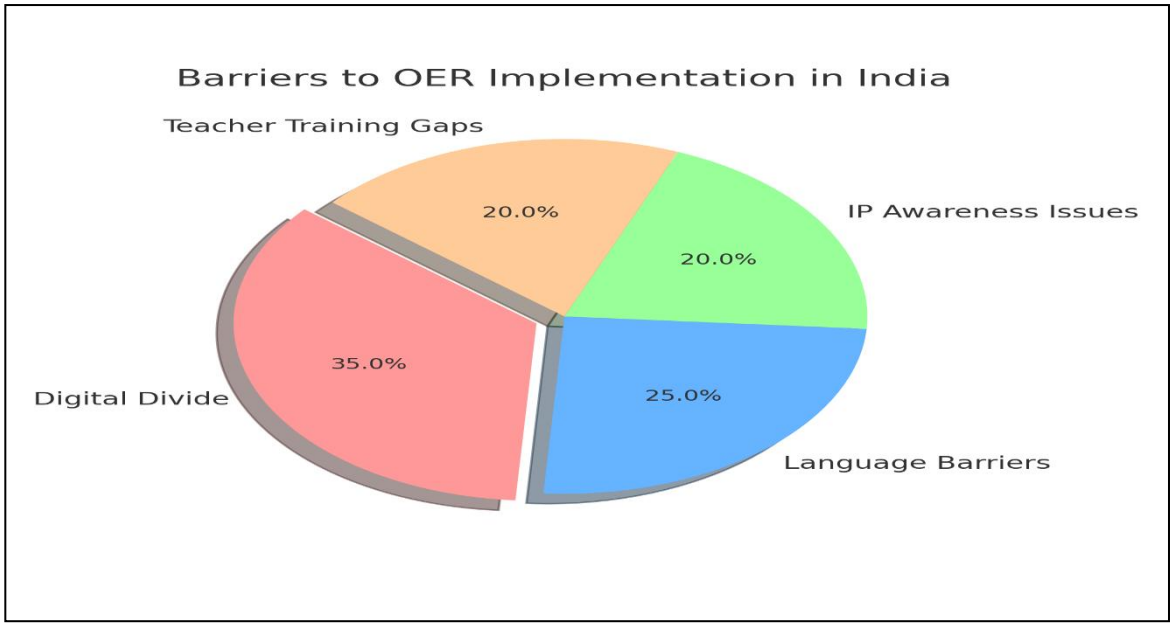
effectively utilize these resources ultimately determines their impact on learners. In many rural and under-resourced areas, teachers often lack digital literacy and adequate training for using OERs effectively.

Teacher training programs should not only emphasize digital skills but also provide targeted pedagogical training on incorporating OERs into diverse classroom settings. Educators need to be equipped to locate, adapt, and integrate OER materials in ways that align with curriculum standards and accommodate the varied needs of students. Training should encourage teachers to view OERs as flexible tools rather than fixed resources, enabling them to modify content to suit their students' abilities and backgrounds.

Continuous professional development through online courses, workshops, and peer learning networks is vital for maintaining teachers' motivation and keeping them abreast of the evolving landscape of open education. Teachers who are initially reluctant to adopt OERs often require sustained support to build confidence in using digital tools. Encouraging collaboration through online communities, peer mentorship programs, and platforms for sharing experiences can help address challenges collectively.

Additionally, the creation of localized content in regional languages can enhance the relatability of OERs. Training should empower teachers to tailor OERs to local contexts, ensuring that materials are culturally appropriate and accessible. Educators should also be trained in evaluating the effectiveness of OERs in improving student outcomes, providing them with the tools to assess learning impacts. By equipping educators with necessary skills and motivations, India can create a sustainable and inclusive educational framework that leverages OERs to improve quality and accessibility for all students.

Fig. 2 : Barriers to OER implementation in India



Global Lessons and Best Practices

India can glean valuable insights from global initiatives that have successfully implemented OERs. These examples highlight the significance of localization, sustainability, and community-driven engagement in ensuring the success of OER programs. Notable international OER practices include:

OER Africa: Founded by the South African Institute for Distance Education (SAIDE), OER Africa emphasizes localized content creation and capacity-building. Collaborating with educational institutions, it has produced materials aligned with local curricula, supporting both teachers and learners (Hodgkinson-Williams & Arinto, 2017).

Brazil's Open Textbook Project: This initiative aims to provide free, high-quality learning materials to public school students. Teachers can adapt textbooks to local contexts, promoting personalized learning experiences. This government-funded program has created a sustainable OER model, ensuring updated educational resources without incurring high costs (Hodgkinson-Williams & Arinto, 2017).

Participatory OER Initiatives in the Philippines: Community-driven content development models have emerged, where local communities and educators collaborate to create and adapt educational resources. These initiatives cater to the unique needs of diverse learning populations, particularly in under-resourced areas. By fostering local educator involvement, these programs ensure that content remains relevant and adaptable (Hodgkinson-Williams & Arinto, 2017).

OpenStax in the United States: This nonprofit initiative creates high-quality, peer-reviewed OER textbooks for higher education, alleviating financial burdens on students while maintaining education quality. OpenStax textbooks cover various subjects and have garnered adoption across numerous colleges and universities. This exemplifies the potential for OERs to scale within formal educational systems (Hilton, 2016).

India's adoption of OERs can be informed by these global examples through several strategies. As highlighted by OER Africa and Brazil, developing culturally relevant and locally appropriate educational content aligned with national curricula is essential. India should also invest in teacher training programs to equip educators with the necessary skills to effectively use and create OERs. By embracing these strategies, India can build a robust OER ecosystem that promotes inclusivity, reduces educational inequalities, and provides high-quality learning resources for all students.

Conclusion

Open Educational Resources (OERs) signify a transformative shift in the educational landscape, offering unprecedented opportunities to enhance access to quality education globally. Given India's unique demographic and educational challenges, OERs can play a crucial role in addressing inequities, resource shortages, and access to high-quality materials. The Indian government's commitment to initiatives like the National Repository of Open Educational Resources (NROER) illustrates a growing recognition of OERs' potential to foster educational equity.

However, successfully implementing these resources necessitates a comprehensive approach that integrates policy support, infrastructure development, and teacher training. Importantly, active community engagement is vital for OER development. Encouraging collaboration among educators, learners, and local communities in the creation and adaptation of OERs can lead to more relevant materials, fostering ownership and pertinence.

In summary, while India faces significant challenges in scaling OER utilization, global experiences provide invaluable insights into navigating these obstacles. By cultivating collaboration, building capacity, and emphasizing sustainability, India can develop a robust OER ecosystem that ensures quality education for all its citizens. Ultimately, OERs have the potential to drive educational reform in India, facilitating lifelong learning and contributing to the country's broader development goals.

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Bridging Silos: Enhancing Interdisciplinary Research Skills in Indian Higher Education

Upasna Roy
Assistant Professor, Clara's College of Education
Email: upasna.education111@gmail.com

Abstract

The evolving educational landscape necessitates a paradigm shift towards competency-based, interdisciplinary, and holistic learning models to meet the objectives of Sustainable Development Goal 4 (SDG 4) and the National Education Policy (NEP) 2020. The integration of these approaches within India's educational framework emphasizes the role of the NIPUN Bharat Mission in achieving foundational literacy and numeracy by 2026–27. Competency-based education (CBE) focuses on the mastery of specific skills and knowledge, promoting personalized learning pathways and continuous assessment. Interdisciplinary learning breaks down traditional subject silos, fostering critical thinking, creativity, and real-world problem-solving abilities. Holistic development addresses cognitive, emotional, social, and physical growth, preparing learners for the complexities of the modern world.

The NIPUN Bharat Mission serves as a cornerstone in this transformative journey, aiming to ensure that every child in India attains foundational literacy and numeracy skills by the end of Grade 3. This initiative aligns with the broader goals of NEP 2020, which advocates for flexible curricula, multilingualism, and the integration of vocational education at all levels. In the context of globalization and rapid technological advancements, the need for upskilling and reskilling becomes paramount. Educational institutions must adapt by fostering innovation, embracing digital tools, and cultivating a culture of lifelong learning. By aligning national educational reforms with global sustainability goals, India can pave the way for an inclusive, equitable, and quality education system that empowers individuals and contributes to sustainable development.

Keywords: Competency, Interdisciplinary, Quality Education, NIPUN Bharat, Holistic Development, Innovation, Upskilling, Reskilling.

Introduction

The contemporary landscape of Indian higher education is witnessing a paradigm shift marked by a growing emphasis on interdisciplinary collaboration, competency-based education, and continuous upskilling. This transformation is strongly guided by the vision of the National Education Policy (NEP) 2020, which calls for breaking down rigid disciplinary boundaries and fostering holistic, learner-centered approaches. The policy promotes a flexible, multidisciplinary model that integrates academic knowledge with practical skills, enabling learners to become competent, adaptable, and socially responsible professionals. In alignment with these national priorities, the initiative titled "Bridging Silos: Enhancing Interdisciplinary Research Skills in Indian Higher Education" seeks to overcome the fragmentation of knowledge within isolated academic departments. It advocates for the development of research competencies and collaborative capacities among faculty and researchers through integrated learning experiences.

At the heart of this initiative is the Capacity Building Programme (CBP) on *"Advanced Research Methods and Effective Teaching Techniques,"* which aims to empower educators with advanced methodological skills, both quantitative and qualitative, and innovative pedagogical tools. By integrating case method teaching, open-source digital tools, and evidence-based instructional strategies, the program not only enhances classroom delivery but also fosters research excellence.

This competency-based training model emphasizes skill development, application, and mastery rather than rote knowledge. It prepares educators to design outcome-oriented learning environments that nurture critical thinking, problem-solving, and real-world engagement—core tenets of 21st-century education.

Moreover, the initiative aligns with the United Nations Sustainable Development Goal 4 (SDG 4), which envisions inclusive, equitable, and quality education that promotes lifelong learning for all. In the context of an evolving global economy and rapid technological disruptions, upskilling and reskilling are no longer optional but essential. Through structured interventions, the program supports the continuous professional development of faculty, enabling them to remain agile, relevant, and impactful. Ultimately, the "Bridging Silos" initiative represents a strategic response to the complex challenges of higher education by nurturing a collaborative academic culture that values interdisciplinary engagement, competency development, and innovation. It aspires to elevate the quality, relevance, and societal impact of Indian higher education in a knowledge-driven global era.

Objectives of the Study

1. To investigate the effectiveness of interdisciplinary research methodologies in enhancing the quality and impact of academic research within Indian higher education institutions.

2. To assess the outcomes of capacity-building programs aimed at equipping faculty members with advanced research skills and pedagogical techniques, fostering a culture of collaborative and innovative teaching and research.

Literature Review

1. **Pramanik (2014)**: Emphasizes the significance of interdisciplinary studies in Indian higher education, noting that traditional disciplinary boundaries often limit the scope of research. By integrating knowledge from various disciplines, students and faculty can develop a more comprehensive understanding of complex issues, leading to innovative solutions.
2. **Patel (2020)**: Discusses the benefits and challenges of interdisciplinary research in India. While acknowledging the potential for innovation, the study also highlights obstacles such as departmental silos and lack of collaborative infrastructure. Addressing these challenges requires institutional support and a shift towards a more collaborative research culture.
3. **University Grants Commission (UGC)**: Launched its Annual Capacity Building Plan to enhance the skills and capacities of its employees, aiming to improve the overall quality of higher education in India. This initiative underscores the importance of continuous professional development for educators to meet the evolving demands of academia.
4. **Kaptan (2014)**: Discusses the role of educational institutions in skill development and capacity building, emphasizing the need for systematic efforts to translate educational inputs into meaningful employable skills. This perspective aligns with the objectives of the National Education Policy (NEP) 2020, which advocates for skill development as a core component of higher education.
5. **Cabral & Dhar (2019)**: Conducted a systematic literature review on skill development research in India, identifying key themes and future research agendas. The study highlights the importance of integrating skill development with secondary education and labor market reforms to enhance employability.
6. **Burnette (2016):**Burnette's review, *"The Renewal of Competency-Based Education: A Review of the Literature"*, examines the resurgence of interest in CBE since the 1970s, particularly in adult

7. education contexts. The study synthesizes definitions and characteristics of modern CBE, explores program models, and highlights key challenges such as student motivation, quality assurance, and institutional readiness. It identifies critical factors in designing CBE frameworks effectively, including robust assessment methods and alignment with learner outcomes.
8. **Examining Competency-Based Education Through the Lens of Implementation Science (2023),**This scoping review analyzes how CBE is implemented across institutions, uncovering that successful programs typically employ implementation science elements, such as team-based leadership and comprehensive faculty training. The findings stress the importance of systematic monitoring, fidelity assessment, and structured support to ensure effectiveness. The study calls for future research on managing student progression, faculty workload, and self-assessment practices.

Gaps Identified through Literature Review

The research study "Bridging Silos: Enhancing Interdisciplinary Research Skills in Indian Higher Education" identifies several critical gaps in the current academic landscape. A significant challenge is the fragmented research ecosystem within Indian higher education institutions, where a lack of coordination between departments, research centers, and industries hinders interdisciplinary collaboration . Additionally, there is a deficiency in faculty expertise and interest in interdisciplinary studies, compounded by inadequate infrastructure and communication barriers between disciplines . These issues are further exacerbated by limited funding and investment in research, which restricts access to advanced tools and resources necessary for conducting high-quality interdisciplinary research . Moreover, the absence of formal interdisciplinary programs and the lack of recognition for cross-disciplinary work contribute to the persistence of academic silos. Addressing these gaps is essential for fostering a collaborative research environment that can tackle complex global challenges effectively.

Need for the Study

In the evolving landscape of Indian higher education, fostering interdisciplinary research is essential to address complex, real-world challenges. Traditional academic silos often hinder collaboration, limiting the potential for innovative solutions. By bridging these silos, institutions can enhance research quality through the integration of diverse perspectives and methodologies. This approach not only promotes creativity and innovation but also aligns with the objectives of the National

Education Policy (NEP) 2020 and the Sustainable Development Goals (SDG) 2030, emphasizing holistic development and quality education.

Interdisciplinary research facilitates the development of comprehensive solutions by combining expertise from various fields, leading to more robust and applicable outcomes. It encourages the upskilling and reskilling of students and faculty, preparing them for a dynamic global job market that values adaptability and continuous learning. Moreover, such collaboration enhances knowledge dissemination, ensuring that insights and discoveries are shared across disciplines, fostering a more cohesive academic community.

Ways to Achieve the Goal:

To effectively bridge academic silos and foster interdisciplinary research within Indian higher education, a multifaceted approach is essential. Implementing interdisciplinary programs and courses can provide students with a comprehensive understanding of various disciplines and their interconnections. Encouraging collaborative research projects through dedicated funding and resources can promote cross-departmental engagement. Establishing interdisciplinary research centers or institutes serves as hubs for such collaboration, facilitating joint research initiatives. Promoting communication among faculty from different departments can break down existing barriers, fostering a culture of collaboration. Additionally, supporting faculty development in interdisciplinary research through training and resources empowers educators to lead and participate in cross-disciplinary initiatives effectively. By embracing these strategies, Indian higher education can cultivate an environment that not only enhances research quality but also contributes to the nation's socio-economic development, aligning academic pursuits with the broader goals of innovation, inclusivity, and global engagement.

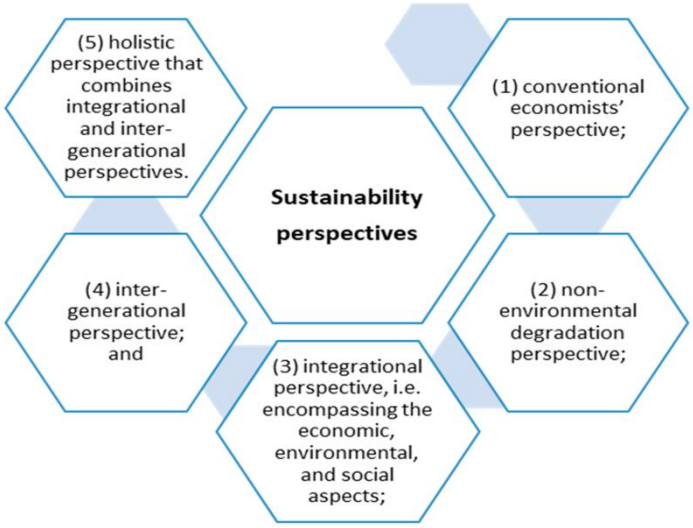
Significance of Competency Building for Skill Development in Indian Higher Education

In the rapidly evolving landscape of Indian higher education, competency building has emerged as a cornerstone for enhancing both teaching efficacy and research capabilities. The "Bridging Silos" initiative underscores the imperative to dismantle traditional academic boundaries, fostering interdisciplinary collaboration that enriches the educational experience. By equipping educators, particularly those newly inducted in the Humanities and Social Sciences, with advanced research methodologies and pedagogical strategies, institutions can cultivate a more dynamic and responsive academic environment.

This approach aligns with the objectives of the National Education Policy (NEP) 2020, which advocates for a holistic and multidisciplinary educational framework. By integrating diverse disciplinary perspectives, educators can develop curricula that are more attuned to real-world complexities, thereby enhancing students' critical thinking and problem-solving skills. Moreover, the emphasis on continuous upskilling and reskilling ensures that faculty members remain abreast of technological advancements and innovative teaching methodologies, which is crucial for maintaining academic excellence in a globalized context.

The Capacity Building Programme (CBP) serves as a pivotal platform for this transformation, offering comprehensive training in advanced research tools, ethical academic writing, and effective teaching techniques. By facilitating interactions among educators from various disciplines, the CBP promotes a culture of knowledge exchange and collaborative learning. This not only enhances individual competencies but also contributes to the collective intellectual capital of the institution.

Fig. 1 : Sustainable Perspectives



Ultimately, competency building through interdisciplinary collaboration and continuous professional development is essential for fostering innovation, inclusivity, and global engagement in Indian higher education. By investing in such initiatives, institutions can better prepare educators to navigate the complexities of modern academia and contribute meaningfully to the nation's socio-economic development.

Conclusion

In conclusion, the evolving educational landscape calls for a shift towards competency-based, interdisciplinary, and holistic learning models to align with the objectives of SDG 4 and the NEP 2020. These approaches not only ensure the mastery of essential skills but also foster critical thinking, creativity, and emotional growth, preparing learners for a dynamic future. The NIPUN Bharat Mission plays a pivotal role in laying the foundation for literacy and numeracy, ensuring that every child in India is equipped with these essential skills by Grade 3. By embracing flexibility, multilingualism, and vocational education, India can address the challenges of globalization and technological advancements while promoting a culture of lifelong learning. In doing so, the country can achieve a more inclusive, equitable, and quality education system that empowers individuals and drives sustainable development, paving the way for a brighter and more resilient future for all.

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Augmenting Speaking Skills among English Second Language Learners through Task Based Learning Approach.

Asha S Pillai,
Research Scholar, Pillai College of Education and Research
ashapillai220@gmail.com
Dr. Sally Enos
Principal, Pillai College of Education and Research
enosally@gmail.com

Abstract

The National Education Policy (NEP) 2020 has very clearly stated that it is essential for every 21st century learner to focus on skill-based education. The demand of the policy is very clear that education when provided should enable leaners to holistic development. In a global and entrepreneurial world, English has developed as a critical skill. It can be noted in several research that the speaking proficiency of the ESL learners have always limited their capacity to lead, collaborate, and innovate. The present study is aligned with the vision which shows how this approach is improving the speaking skills of ESL learners. TBLA is one such approach with involves students in purposeful activities stimulating real -world task which is a key factor for learning. This study investigates the efficacy of TBLA in improving the speaking skills among the ESL learners, employing a Solomen three group design. The sample was divided into three groups with thirty students each, two experimental groups (one with pre-test and one without pre-test), and a control group. The experimental groups were engaged for a period of three months, undertaking the intervention comprising of role-play, debates, collaborative problem- solving, while the control group received the conventional teaching. The pre and post test data was collected using speaking rubric. Results indicated statistical improvement ($p<0.05$) in speaking for both the experimental groups. The findings suggest that TBLA helps learners to think critically and collaboratively, fostering learner autonomy, contributing to a dynamic classroom and boosting their confidence.

Keywords: Solomen three group design, Task-Based Learning Approach, English Second Language Learners, speaking skills, Innovative Pedagogy, Creativity, NEP 2020.

Introduction

In both academic and everyday context speaking is considered a vital skill and core component of language proficiency. For students of second language and foreign languages it is always challenging to master the aspects of language acquisition because it requires them to use language effortlessly and appropriately in actual-life situations (Afifah, 2020). In this dynamic changing global market where learners need to communicate efficiently the traditional classroom teaching doesn't prepare students for this entrepreneurial world. With the National Educational Policy (NEP) 2020 focusing on the core outcomes of education such as collaboration, student centered classrooms, teamwork and critical thinking. In response to this gap, the Task Based Learning Approach (TBLA) offers a strong alternative. Task based learning approach has become popular in second language acquisition, because of the application of real-world tasks to foster language learning (Willis, 1996; Ellis, 2003). The approach promotes learners' autonomy and engagement. Moreover, researchers have shown that Task based learning approach uses meaningful communication over drills which helps students to foster their creativity, critical and problem-solving skills (Fayolle & Gailly, 2015). There have been a few empirical studies evaluating the impact of task-based learning approach using a Solomen three group design. The study attempts to close the gap by finding out how the task-based learning approach improves the English second language learners speaking abilities.

Literature review

Theoretical Foundation of Task Based Learning Approach (TBLA)

The Task-Based Learning Approach falls under the Communicative Language Teaching (CLT) paradigm which prioritizes meaningful communication than on teaching the linguistic aspects separately (Wills, 1996). The core stages of the approach as the key theorists such as Ellis (2003) and Prabhu (1987) have outlined are the pre-task, task and the post-task. These are designed to trigger learner prior knowledge and provide opportunities for reflections. There are studies done which show the task-based learning approach enhances motivation, language application and fluency. Additionally, Willis and Willis (2007), emphasis the role of activities such as role-play, debates, and collaborative problem-solving all help in enhancing productive skills. The approach clearly shifts the focus of the classroom from teacher centered to student centered. The approach believes that learners learn better when they mirror real-world challenges.

A fundamental theoretical component of Task-Based Learning Approach is the Zone of Proximal Development (ZPD) proposed by Vygotsky in 1978. According to his theory, learners can work together with experienced peers or teachers on topics or projects that are slightly above their competency and achieve cognitive development. This idea is very strongly related to the task-based learning approach as it promotes scaffolding through interactive tasks. Additionally, this is also supported by the Interactionist Theories of Second Language Acquisition, especially Long's Interaction Hypothesis (1996) and Swain's Output Hypothesis (1985). According to Long when students negotiate meaning, clarify input and adjust output in response to feedback the students learn the language. As per the Output Hypothesis, when there is meaningful learning, it pushes the learners to identify the gaps that they face during learning. Furthermore, cognitive theories support the fact that task-based learning approach very strongly stresses the importance of recall, focus and problem solving. According to Skehan (1998), task-based learning approach elevates deeper understanding of language and improves skills that are required in a new context.

Empirical Studies on TBLA and Speaking Skills

These theoretical foundations are further validated by empirical studies. In a quasi-experimental study with 36 English foreign language students at Baturaja University, Afifah and Devana (2020) establish that the task-based learning intervention has a significantly improved students speaking scores. Additionally, the intervention also improved motivation, enthusiasm, and enjoyment towards learning a language. Nget et.al (2020) in his study used mixed method to examine the effectiveness of the task-based learning on speaking among grade 9 students in Cambodia. The quantitative results showed that the experimental group showed higher speaking post-test scores. The quasi-experimental study conducted on the impact of task-based learning on fluency and grammatical competence, among grade 8 English second language learners from Karachi, Pakistan showed a significant improvement. Moreover, the study showed that the students improved their confidence and confidence (Majeed and Memom, 2022). In the study focused by Masuram and Sripada (2020), the use of task-based learning materials helped the students to enhance their speaking skills such as fluency, willingness to communicate and enhance interaction skills. The study emphasises the relevance of well-crafted activities that make students encounter real-life situations. In classroom action research undertaken by Pangestu (2024) with 44 students of grade 8 at SMP Negeri 4 Abung Timur supported that the task-based learning has a significant difference

on the speaking ability of the students. Safitri, Rafli, and Dewanti (2019) studied the students' problem in speaking due to the lack of awareness of comprehension, grammar, pronunciation and vocabulary. The data was collected from 15 students who were pursuing their third semester at Pamulang University, South Tangerang, Indonesia. The outcome of the study showed that students improved and benefited from the various tasks that were designed in the classroom.

Afria et al (2019) conducted a quasi-experimental study for two senior high school classes, one taught using experimental and the other taught by the traditional method. The experimental group's mean score (86.94) was considerably higher than the control group mean scores (81.72). Task-based learning significantly improved the opportunities for students to practice, boost confidence and reduced the nervousness of students. Lume & Hisbullah (2022) investigated the efficacy of teaching speaking adopting the task-based learning in SMK NW Darul Abror Kuta in Central Lombok for the academic year 2020/21 using the quasi-experimental design involving 127 students. The mean score of the students in the experimental group taught using task-based learning was 66.38 much above the control group mean scores. The hypothesis that task-based learning is much better than the traditional teaching was proved using t-test which showed a significant difference.

Research Questions

1. Does the Task -based learning approach (TBLA) help in improving the speaking skills of English second language learners?
2. Does the conventional method help in improving the speaking skills of English second language learners?

Objectives of the study

1. To study the impact of Task Based Leaning Approach and conventional method among English Second Language Learners.
2. To compare the pre-test mean scores of self-esteem of experimental group and control 1 group among English second language learners.
3. To compare the post-test mean scores of self-esteem of experimental group, control 1 group and control 2 group among English second language learners.

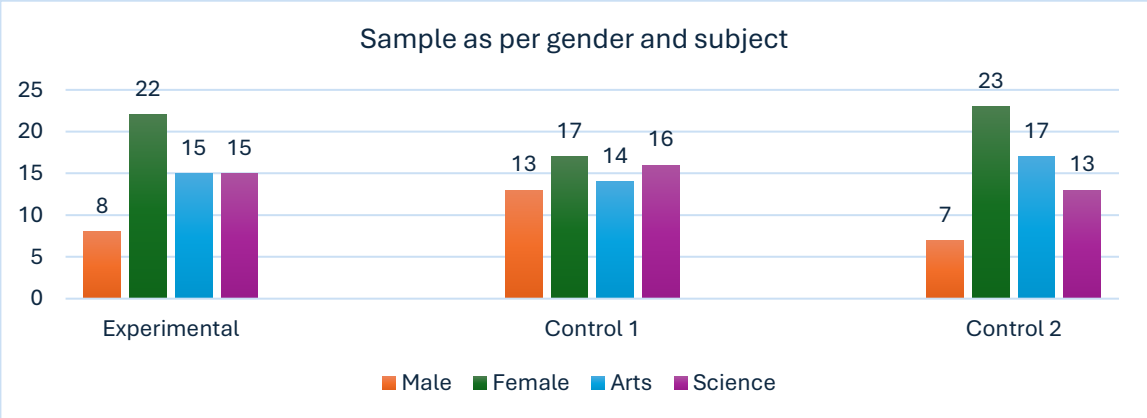
Hypothesis of the study

1. There is no significant difference in the impact of Task Based Learning Approach (TBLA) on speaking skills among English second language learners with reference to their pre-test and post-test scores.
2. There is no significant difference in the impact of conventional method on speaking skills among English second language learners with reference to their pre-test and post-test scores.
3. There is no significant difference in the pre-test scores of speaking skills of experimental group and control 1 group among English second language learners.
4. There is no significant difference in the post-test scores on speaking skills of experimental group, control 1 group and control 2 group among English second language learners.

Research Methodology: Research Design, Sample and Instrument

The researcher has employed Solomen Three -Group Design for this study. Figure 1 provides the sample distribution across three groups: Experimental, Control 1 group and Control 2 group. Three groups of thirty students each, their General Foundation Programme from the Sultanate of Oman were assigned using the cluster sampling method. The first experimental group and control 1 group were given both a pre-test and post-test, the third control 2 group received only the post-test to remove the potential testing bias. The experimental and the control 2 group underwent the intervention. The control 1 group were taught using the conventional method and did not undergo the intervention.

Figure 1: Visual representation of the sample



Note: Figure represents the sample distribution categorized by gender and subject across three groups.

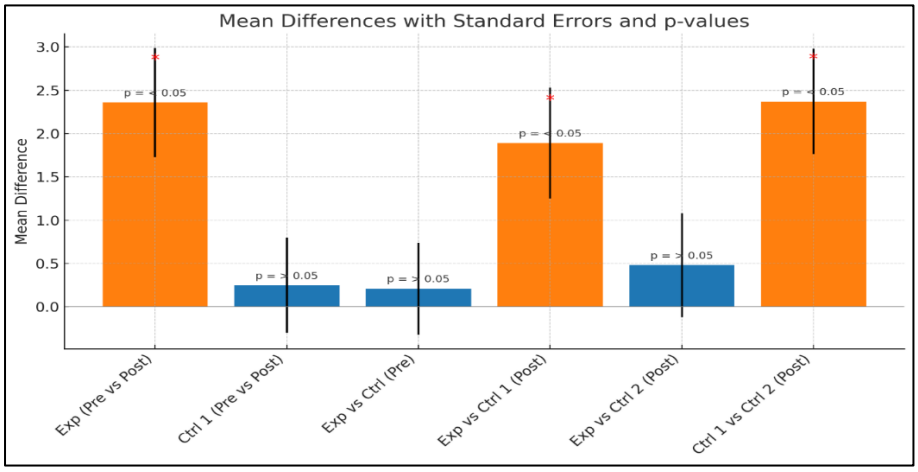
The intervention was guided by a detailed lesson plan that was designed with activities such as role-play, debates, collaborative tasks, presentations which stimulated the real-world usage in the classroom. The intervention lasted for three months. When the experimental groups engaged in the weekly task-based lessons, the control group followed the conventional method.

A researcher made speaking rubric was designed that was validated by 12 experts from the field of English and Education. The rubric evaluated four key areas (1) Sentence Structure and Grammar, assessing the complexity, correctness, and logical sequencing of sentences; (2) Semantic Accuracy, measuring the precision and appropriateness of word use and meaning; (3) Vocabulary and Word Choice, evaluating the richness, diversity, and effectiveness of lexical selection; and (4) Facial Expression and Body Language, examining the use of gestures, eye contact, and expressions to support spoken communication. The rubric provided a complete picture of their performance, preparing them for real-world communication.

Data Analysis

The data was collected and analyzed using t-tests and ANOVA to gauge the effectiveness of the Task-Based Learning Approach (TBLA) in improving the speaking skills of ESL learners.

Figure 2: Visual representation of *t* and F values



Note: Hypothesis testing of three groups (experimental, control 1 and control 2 groups)

The results of the study are summarized below:

Table 1: Summary of Inferential Statistics for Pre- and Post-Test Comparisons

Comparison	**Mean Diff**	**SE**	**t / F Value**	**Df**	**p-value**	**Result**
Exp Group (Pre vs. Post)	2.36	0.63	t=3.74	29	< 0.05	Significant improvement due to TBLA
Control Group (Pre vs. Post)	0.25	0.55	t=0.45	29	> 0.05	No significant improvement
Exp vs. Control 1 (Pre-test)	0.21	0.53	t=0.39	58	> 0.05	Baseline equivalence confirmed
ANOVA (Post-test all groups)	-	-	F=8.00	89	< 0.05	Significant difference among groups
Exp vs. Control 1 (Post-test)	1.89	0.64	t=2.95	58	< 0.05	TBLA is significantly better than conventional method
Exp vs. Control 2 (Post-test)	0.48	0.6	t=0.80	58	> 0.05	No significant difference
Control 1 vs. Control 2 (Post-test)	2.37	0.61	t=3.88	58	< 0.05	Significant difference between the control groups

Results and Findings

The above figure 2 and table 1 are the results of the study from hypothesis tests comparing the impact of TBLA and conventional methods on ESL learners speaking skills and the impact of Task Based Leaning Approach as a pedagogical approach to augment the speaking skill of the English language learners. Students who were given the activities that involved real-world situations did

well than those students who were trained using conventional methods, according to the statistical results from t-tests and ANOVA. A paired t-test comparison of the experimental groups' pre and post test scores indicated a *t* value of 3.74 and *p* value less than 0.05, revealing a significant gain. The scores suggest that there has been a substantial improvement in the students' performance after the intervention. Whereas the students taught by the conventional method demonstrated a *t* value of 0.45 which was not significant. A comparison of the pre-test scores were performed for the experimental and the control 1 group, which displayed t=0.39 a non-significant result which confirmed the baseline equivalence.

A one-way ANOVA on the post-test scores across all groups indicated a significant F value of 8.00 at df =89, which confirmed that the difference in the performance was statistically meaningful. T test was done to clarify these differences. The effectiveness of TBLA was very clear by the experimental group outperforming the control 1 group (t =2.95, df=58). However, when compared to control 2 group the experimental group showed no significant difference**.** Moreover, a significant difference was found between both the control groups (t=3.88) indicating that the group that underwent the intervention performed better that other group.

The finding very clearly indicated that TBLA fosters a better and effective learning environment for the students to achieve their proficiency in speaking. Students were more excited and less stressed about engaging in the tasks as they had an opportunity to collaborate with their peers. The TBLA framework improves students' engagement in language actively rather than being passive learners. The activities further help students to self-rule thus making them responsible for their own decisions.

TBLA as a Pathway for Capacity Building and Skill Development

Task Based Learning Approach (TBLA) as observed in this study, supports its role to foster core competencies for capacity building and holistic skill development. In alignment with the National Education Policy (NEP) 2020, which focuses on shifting teaching and learning to a student-centered classroom, TBLA emerges as a strategic pedagogical model (Pillai & Enos, 2025). A 21st century learner should not only nurture linguistic skills but also nurture communication skills, collaboration, critical thinking to enter the global market.

The fundamentals of the Indian Knowledge System (IKS) as well as the integration of 'jnana' knowledge, and 'karma' (action) is related to the study's outcome. As a result, the study endorses the effectiveness of the approach to improving academic performance and place them as an enabler to achieve the global goals of employability and lifelong learning.

Conclusion

Language is more than just a tool, it binds societies, culture, countries, and shapes the human mind. The use of language in the correct way makes us effective speakers. The design of the intervention provided students with authentic classroom communications such as role-plays, presentations and projects which helped them to improve their speaking abilities. In conclusion, TBLA equips learners with 21st century abilities thus addressing both linguistic and pragmatical dimension of communication. TBLA is a practical example of implementing NEP's vision in today classroom.

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ISSN No. 2583-357X
Volume 4. Special Issue 1. June 2025

Published by:
St. Xavier's Institute of Education (Autonomous)
Mumbai