
FROM GURUKUL TO GOOGLE CLASSROOM: MEASURING THE EFFECTIVENESS OF IKS-INSPIRED PEDAGOGY IN MODERN UNIVERSITIES

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ABSTRACT

Purpose: *The present study aims to examine the impact of innovative pedagogical approaches on students' perceived academic performance in Indian Knowledge Systems (IKS), with a specific focus on the mediating role of learning efficacy. The study seeks to understand not only whether innovative pedagogy enhances academic outcomes but also the underlying mechanism through which this influence occurs.*

Methodology: *A quantitative research design was adopted using a cross-sectional survey method. Primary data were collected from 311 undergraduate students enrolled in autonomous colleges offering IKS courses. Standardised Likert-scale instruments were used to measure innovative pedagogical approaches, learning efficacy, and perceived academic performance. Data were analysed using descriptive statistics, correlation analysis, regression analysis, and mediation analysis.*

Findings: *The results indicate that innovative pedagogical approaches have a significant positive impact on both students' learning efficacy and perceived academic performance. Learning efficacy was also found to significantly influence academic performance. Mediation analysis revealed that learning efficacy partially mediates the relationship between innovative pedagogical approaches and academic performance, suggesting both direct and indirect effects.*

Practical implications: *The findings highlight the importance of adopting experiential, learner-centric pedagogies in IKS education. Enhancing students' learning efficacy can significantly improve academic outcomes, thereby supporting the effective implementation of NEP 2020.*

Originality: *This study contributes to the limited empirical literature on IKS pedagogy by introducing a mediation framework that explains how innovative teaching methods influence academic performance through learning efficacy.*

Keywords: *Innovative Pedagogy, Indian Knowledge Systems (IKS), Learning Efficacy, Academic Performance*

1. INTRODUCTION

The integration of Indian Knowledge Systems (IKS) into higher education has gained significant momentum following the National Education Policy (NEP) 2020, which emphasises the inclusion of India's indigenous knowledge traditions in academic curricula. IKS encompasses diverse domains such as philosophy, ethics, science, and sustainability, offering holistic perspectives relevant to contemporary challenges. However, despite its growing presence in curricula, the effective teaching of IKS remains a concern, largely due to the continued reliance on traditional lecture-based methods that often fail to capture its experiential and interdisciplinary nature.

This pedagogical limitation frequently leads students to perceive IKS as abstract and disconnected from real-world applications, thereby affecting their engagement and academic performance. In response, innovative pedagogical approaches—such as experiential learning, collaborative activities, storytelling, and technology-enabled instruction—have emerged as effective strategies to enhance student participation and learning outcomes. These approaches are particularly relevant to IKS, as they align with its foundational emphasis on experiential and reflective learning.

While prior research suggests that innovative pedagogy positively influences student outcomes, there is limited empirical understanding of the underlying mechanism through which this occurs, especially in the context of IKS. Learning efficacy, derived from Social Cognitive Theory, represents a key psychological factor influencing students' motivation and academic success. It is likely that innovative pedagogical approaches enhance students' confidence in their learning abilities, which in turn contributes to improved academic performance.

Against this backdrop, the present study examines the impact of innovative pedagogical approaches on students' perceived academic performance in IKS, with a specific focus on the mediating role of learning efficacy. The

study proposes that innovative pedagogy not only directly influences academic performance but also indirectly affects it by strengthening students' learning efficacy.

2. LITERATURE REVIEW

2.1 Indian Knowledge Systems: Conceptual Foundations

Indian Knowledge Systems (IKS) encompass a broad spectrum of indigenous intellectual traditions that have evolved over centuries in the Indian subcontinent. These systems include knowledge related to philosophy, science, mathematics, medicine, governance, ethics, linguistics, ecology, and social organisation. Unlike modern disciplinary approaches, IKS is characterised by its holistic, integrative, and contextual nature, emphasising harmony between human beings, society, and the natural environment (Mandavkar, 2023).

Scholars have highlighted that Indian Knowledge Systems are not merely historical artefacts but living traditions that continue to offer valuable insights for addressing contemporary challenges such as sustainability, ethical leadership, and human development (Mishra & Aithal, 2023). The epistemological foundations of IKS stress experiential learning, observation, reflection, and practice, making them inherently learner-centred (MAHADEVAN et al., 2022).

Recent policy-driven scholarship has drawn attention to the role of IKS in reshaping higher education in India. The National Education Policy formally recognises indigenous knowledge as a legitimate and essential component of academic curricula. Scholars argue that this policy marks a paradigm shift toward cultural rootedness, interdisciplinary learning, and holistic education (Vageeshan & Kamalakar, 2025).

However, despite growing academic interest, most existing studies remain descriptive and philosophical in nature. Empirical investigations examining how IKS is taught and learned in classroom settings remain limited (Lal et al., 2024). This gap suggests the need for research that explores pedagogical practices capable of effectively transmitting IKS to contemporary learners.

2.2 Integration of Indian Knowledge Systems in Higher Education

The integration of Indian Knowledge Systems into higher education has gained momentum following policy interventions by regulatory bodies such as the University Grants Commission (MHRD, 2020). Several studies document the introduction of IKS-based courses and interdisciplinary modules across universities and autonomous colleges (Lal et al., 2024; Vageeshan & Kamalakar, 2025).

Autonomous institutions possess greater flexibility in curriculum design and pedagogy, enabling experimentation with innovative teaching approaches (Varghese & Malik, 2025). However, implementation challenges persist, particularly in terms of faculty preparedness and assessment mechanisms (Echeverri-Gent & Sadiq, 2020).

Research indicates that although faculty members may receive content training, they often lack structured pedagogical strategies to make IKS engaging (Hontarenko & Kovalenko, 2024). These findings suggest that the success of IKS integration depends not merely on curriculum inclusion but on the adoption of experiential, contextual, and application-oriented teaching strategies.

2.3 Innovative Pedagogical Approaches in Higher Education

Innovative pedagogical approaches in higher education have been widely studied for their potential to enhance student engagement, learning efficiency, and academic performance. These approaches shift the focus from teacher-centred instruction to learner-centred practices that actively involve students in the learning process (Förster et al., 2022). Commonly studied innovative pedagogies include experiential learning, project-based learning, collaborative learning, flipped classrooms, and technology-enhanced instruction.

Experiential learning theory (Kolb et al., 2014) posits that learning is enhanced through concrete experience and reflective observation. Project-based learning has been shown to promote interdisciplinary understanding and critical thinking (Xia et al., 2022). Meta-analytical evidence suggests that active learning improves student achievement compared to traditional lectures (Förster et al., 2022; McKenzie et al., 2013). Similarly, technology-driven pedagogies such as digital simulations, multimedia content, and virtual learning environments have been found to improve learner engagement and conceptual clarity (Alegre, 2023; Förster et al., 2022).

Several studies also caution that innovation in pedagogy must be purposeful rather than symbolic (Halder, 2023). Scholars argue that the superficial adoption of innovative methods without adequate planning and alignment with learning objectives may result in reduced academic rigour (Zhu, 2023). Effective pedagogical

innovation requires careful instructional design, faculty training, and continuous evaluation of learning outcomes (Grigali et al., 2025).

Despite the extensive literature on innovative pedagogy, relatively few studies examine its application in the context of indigenous or traditional knowledge systems. This gap becomes particularly significant in the case of Indian Knowledge Systems, where the epistemological foundations differ from those of Western knowledge frameworks. As such, there is a need to explore pedagogical models that integrate innovative teaching methods while respecting the philosophical depth of IKS. Therefore, the present study proposes the following hypothesis related to outcomes of innovative pedagogies implemented while teaching IKS:

H1: Innovative Pedagogies in IKS positively influence the Perception of Academic Performance of the students.

H2: Innovative Pedagogies in IKS positively influence students' Learning Efficacy.

H3: Learning Efficacy positively influences the Perception of Academic Performance of the students.

H4: Learning Efficacy mediates the association between Innovative Pedagogies and students' Perception of Academic Performance.

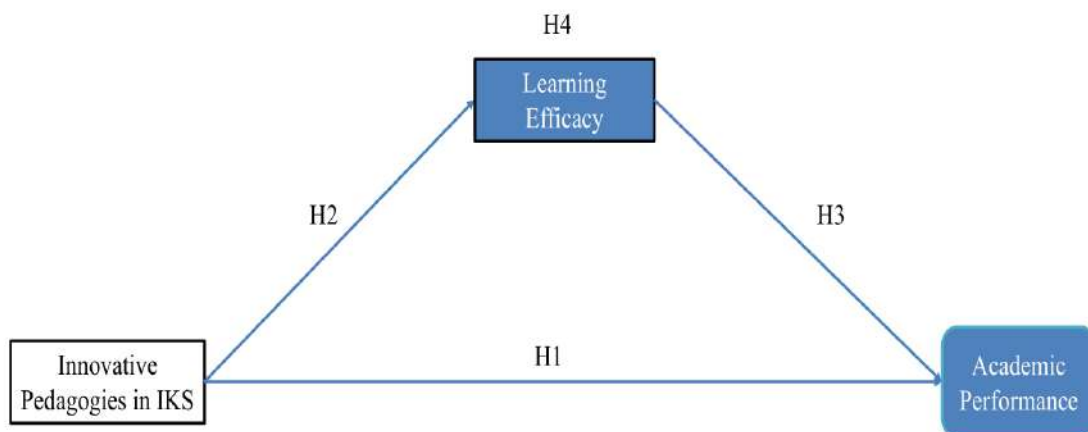


Figure 1: Proposed Hypothesised Model

3. RESEARCH METHODOLOGY

The present study adopts a quantitative research design to examine the impact of innovative pedagogical approaches in Indian Knowledge Systems (IKS) on students' perceived academic performance, with learning efficacy as a mediating variable. A cross-sectional survey method was employed to collect primary data from students enrolled in IKS courses in autonomous colleges.

The study is explanatory in nature, aiming to test causal relationships between variables using regression and mediation analysis.

3.1 Population and Sampling

The target population comprised undergraduate students studying in autonomous colleges where IKS is integrated into the curriculum. A combination of purposive sampling (selection of institutions offering IKS) and convenience sampling (student participation based on accessibility) was used.

Students included in the study had:

- Exposure to IKS courses
- Experience of innovative pedagogical methods (experiential learning, case-based teaching, etc.)
- Completed at least one semester of IKS

3.2 Sample Size

A total of 311 valid responses were collected. The sample size is adequate for regression and mediation analysis, ensuring statistical reliability and generalisability within the study context.

3.3 Data Collection and Measures

Primary data were collected through a structured questionnaire using a five-point Likert scale. The instrument measured:

Innovative Pedagogical Methods in IKS Scale (IPM-IKS): IPM-IKS was measured by the Innovative Pedagogical Methods in IKS Scale developed by the researcher. (Cronbach α = 0.931)

Learning Efficacy: students' learning efficacy was measured by the Self-Efficacy for Learning and Performance – Scale (MSLQ) developed by Pintrich et al., (1993). The 8-item scale was modified to suit the measurement of the IKS pedagogies' impact. (Cronbach α = 0.974)

Students' Perceived Academic Performance (AP): To measure AP, the Perceived Academic Performance Scale, adapted from Al-Harthy et al., (2010), was used. The scale contains 3 items. (Cronbach α = 0.914)

4. DATA ANALYSIS AND RESULTS

Data were analysed using SPSS through descriptive statistics, correlation analysis, regression analysis, and mediation testing (Baron & Kenny approach / PROCESS model). (Baron & Kenny, 1986; Zhao et al., 2010)

4.1 Testing of Hypothesis

H1: Innovative Pedagogies → Academic Performance

Regression results indicated that innovative pedagogies significantly predict perceived academic performance (β = 0.803, $p < 0.001$), explaining a substantial proportion of variance ($R^2 = 0.527$).

H1 is supported.

H2: Innovative Pedagogies → Learning Efficacy

Innovative pedagogies were found to significantly influence learning efficacy ($\beta = 0.383$, $p < 0.001$), though with moderate explanatory power ($R^2 = 0.085$).

H2 is supported.

H3: Learning Efficacy → Academic Performance

Learning efficacy showed a strong positive impact on perceived academic performance ($\beta = 0.283$, $p < 0.001$), though with moderate explanatory power ($R^2 = 0.099$), indicating that students with higher confidence in learning demonstrate better academic outcomes.

H3 is supported.

H4: Mediation Effect of Learning Efficacy

To test the mediating role of learning efficacy in the relationship between innovative pedagogical approaches and students' perceived academic performance, a mediation analysis was conducted using regression-based procedures (PROCESS Model 4).

The results indicated that innovative pedagogical approaches significantly predicted learning efficacy ($\beta = 0.383$, $p < 0.001$), satisfying the first condition of mediation. Further, learning efficacy significantly predicted perceived academic performance ($\beta = 0.283$, $p < 0.001$), supporting the second condition.

In the direct model, innovative pedagogical approaches had a strong and significant effect on academic performance ($\beta = 0.803$, $p < 0.001$). However, when learning efficacy was introduced as a mediator, the direct effect of innovative pedagogical approaches on academic performance decreased ($\beta = 0.745$, $p < 0.001$), while remaining statistically significant.

Additionally, the indirect effect of innovative pedagogical approaches on academic performance through learning efficacy was found to be significant (Indirect Effect = 0.089, Bootstrapped 95% CI [0.056,0.127]), confirming the presence of mediation. Since both the direct and indirect effects remained significant, the results indicate *partial mediation*.

Thus, *H4 is supported*, suggesting that learning efficacy partially mediates the relationship between innovative pedagogical approaches and students' perceived academic performance. This implies that innovative pedagogy enhances academic performance both directly and indirectly by strengthening students' confidence in their learning abilities.

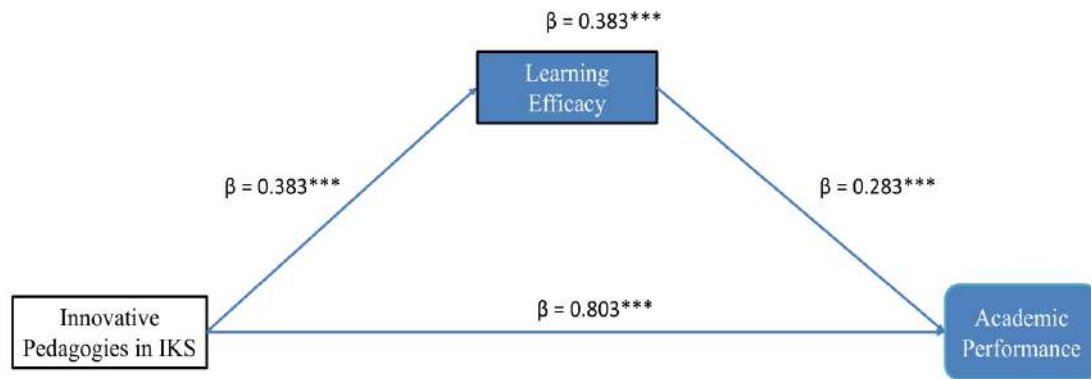


Figure 2: Graphical Presentation of the Association of Variables

Note: β values are significant at $p < 0.001$

5. DISCUSSION OF RESULTS

The findings provide strong empirical support for the role of innovative pedagogical approaches in enhancing student outcomes in IKS education.

First, the significant relationship between innovative pedagogy and academic performance (H1) highlights that experiential, interactive, and application-oriented teaching methods directly improve students' academic outcomes. This aligns with constructivist learning theory, where active engagement enhances knowledge retention and performance.

Second, the results support H2, demonstrating that innovative pedagogy positively influences learning efficacy. However, the relatively lower R^2 suggests that learning efficacy is influenced by multiple factors such as prior knowledge, motivation, and cognitive abilities. While pedagogy initiates confidence, it does not solely determine it.

Third, the strong support for H3 indicates that learning efficacy is a critical predictor of academic performance. Students who believe in their ability to understand and perform well are more likely to achieve better outcomes. This is consistent with Social Cognitive Theory, which emphasises self-efficacy as a key determinant of performance.

The most significant contribution of this study lies in the mediation effect (H4). The findings reveal that innovative pedagogy does not only have a direct impact but also works indirectly through enhancing students' learning efficacy. This suggests a dual pathway:

- **Direct Pathway:** Innovative teaching improves understanding and performance
- **Indirect Pathway:** Innovative teaching builds confidence → improved performance

The mediation being partial indicates that while learning efficacy is important, other mechanisms (such as engagement, motivation, and interest) may also play a role.

Overall, the results suggest that innovative pedagogy operates as both a cognitive and psychological enabler of learning outcomes.

6. CONCLUSION

The present study highlights the significant role of innovative pedagogical approaches in enhancing students' perceived academic performance in Indian Knowledge Systems (IKS). The findings confirm that such pedagogies not only directly improve academic outcomes but also strengthen students' learning efficacy, which in turn contributes to better performance. The partial mediation effect indicates that learning efficacy serves as an important psychological mechanism linking teaching methods with academic success.

Overall, the study underscores the need to move beyond traditional lecture-based instruction towards more experiential, interactive, and learner-centric approaches in IKS education. By fostering both understanding and confidence among students, innovative pedagogy can make IKS more relevant, engaging, and effective in higher education.

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