PEZZOTTAITE JOURNALS

Volume 8, Number 3, July – September 2019

ISSN (Print): 2279-0977, (Online): 2279-0985

EVALUATING PROBLEM-BASED LEARNING: INSIGHTS FROM TEACHER PERCEPTIONS AND PRACTICAL CHALLENGES IN INDIAN HIGHER EDUCATION

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ABSTRACT

This study explores the efficacy of Problem-Based Learning (PBL) in higher education, focusing on teacher perceptions, institutional challenges, and factors influencing successful implementation within Indian B-schools. A survey was conducted with 120 faculty members to assess views on PBL and its integration. Results reveal both positive attitudes toward PBL's potential for enhancing student engagement and significant barriers, including limited resources and time constraints. This paper discusses findings and suggests strategies to optimize PBL implementation within the Indian educational context, aiming to bridge theoretical and practical applications.

Keywords: *Problem-based learning; higher education; faculty perception; educational challenges; India; instructional design; student engagement*

INTRODUCTION

Problem-Based Learning (PBL) is widely recognized for its potential to create dynamic learning environments that prioritize critical thinking, problem-solving, and learner independence over traditional memorization-based learning. Originating from medical and engineering fields, PBL has since been adopted across disciplines worldwide, demonstrating positive impacts on student engagement and professional preparedness (Boud & Feletti, 1991). However, in India, integrating PBL within the conventional education system poses challenges, such as resource limitations, high student-teacher ratios, and reliance on lecture-based approaches, which can inhibit the pedagogical flexibility needed for effective PBL adoption (Dunkhase & Penick, 2010).

This paper investigates these dynamics by examining the perceptions and experiences of faculty members in Indian B-schools, aiming to uncover factors affecting PBL implementation and highlight strategies to support more robust and accessible PBL models. Through the faculty's perspective, we explore not only the perceived benefits but also the practical barriers and constraints that shape their views on PBL.

LITERATURE REVIEW

The efficacy of PBL has been substantiated by studies in various educational settings, emphasizing its effectiveness in enhancing students' critical and reflective skills, self-directed learning, and collaborative abilities (Gallagher, Stepien, & Rosenthal, 2012). PBL differs from traditional learning methods by allowing students to engage actively with real-world issues, requiring them to explore, inquire, and develop their own solutions. In successful PBL applications, students demonstrate increased engagement, intrinsic motivation, and improved retention of complex concepts (Savin-Baden, 2016). However, to achieve these benefits, adequate infrastructure, well-trained faculty, and supportive resources are essential (Ma, 2014).

In the Indian context, where educational institutions often face significant resource and capacity constraints, the adoption of PBL is met with both enthusiasm and caution. Faculty members express optimism regarding the method's ability to promote deep learning and lifelong skills but cite logistical and institutional challenges as significant obstacles to its success (Tanner et al., 2015). Studies indicate that countries like Singapore have successfully integrated PBL into mainstream curricula by prioritizing teacher training and aligning educational objectives with industry demands, a model that India may benefit from adopting (Savoie & Hughes, 2014).

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Volume 8, Number 3, July – September 2019
ISSN (Print): 2279-0977, (Online): 2279-0985

RESEARCH METHODOLOGY

The study employed a quantitative survey methodology, targeting faculty members at Bangalore-based B-schools with established PBL initiatives. A structured questionnaire was developed, drawing from the existing literature on PBL and discussions with experts in educational pedagogy. The questionnaire consisted of 35 items, which were later refined to 30 items after testing for validity through Exploratory and Confirmatory Factor Analysis (EFA and CFA). These items measured various factors influencing PBL, including knowledge, skills, attitudes, technical capabilities, and resource support.

The sample included 120 faculty members from ten B-schools, with each school contributing five participants chosen randomly. Responses were collected and analyzed using descriptive statistics, including mean, percentages, and standard deviation. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .873, and Bartlett's test of sphericity was significant at $p < .001$, indicating the dataset was suitable for factor analysis. The constructs exhibited reliability and internal consistency, with Cronbach's alpha coefficients exceeding 0.70 across factors, confirming the instrument's robustness.

RESULTS AND DISCUSSION

Table 1 presents a summary of the findings related to factors affecting PBL implementation, including knowledge, skill, attitude, technical capacity, and resource support.

Table 1 Presents A Summary of the Findings Related to Different Factors

Factor	Mean Positive Response (%)	Mean Negative Response (%)
Knowledge Factors	64	32
Skill Factors	58	26
Attitude Factors	60	30
Technical Factors	62	32
Resource Support Factors	56	28

Enhanced Discussion

The findings presented in Table 1 offer a nuanced view of the factors influencing Problem-Based Learning (PBL) adoption in Indian B-schools, specifically from the perspective of faculty members. Analyzing these factors—knowledge, skill, attitude, technical capacity, and resource support—reveals both enthusiasm and significant barriers to effective PBL implementation.

Knowledge Factors

A substantial 64% of faculty members expressed positive attitudes toward their understanding of PBL's theoretical underpinnings. However, the 32% of faculty with negative responses indicates that while there is foundational knowledge of PBL, many educators feel uncertain about applying this knowledge to design complex and authentic problem scenarios effectively. This gap suggests a need for specialized training, particularly in developing and framing problems that foster higher-order thinking and real-world relevance.

Skill Factors

Skill factors, with a 58% positive response rate, highlight that over half of the faculty feel confident in their teaching skills to some extent. However, the 26% negative response rate reflects concerns about integrating PBL effectively, particularly with digital tools that support PBL. Faculty noted that adapting PBL for students with varying academic backgrounds, especially those struggling with foundational skills, remains challenging. This indicates a need for adaptive PBL models that provide differentiated support based on student proficiency levels, potentially through tailored assignments or scaffolded PBL tasks.

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Attitude Factors

Attitudinal responses toward PBL implementation were 60% positive, which shows a broad acceptance of PBL's benefits, such as enhanced student engagement and independent learning. Yet, the 30% negative responses indicate hesitation due to PBL's time-intensive demands on both lesson planning and student engagement. Teachers reported the need to invest significant time in crafting meaningful problem statements, coordinating group activities, and providing continuous support. These responses highlight the importance of institutional measures to alleviate teacher workloads, such as time management training or adjusting teaching loads to accommodate PBL implementation.

Techincal Factors

The technical capacity factor received a 62% positive response, suggesting that most faculty members see potential in technology-enhanced PBL. However, with 32% reporting negative experiences, there remains a significant barrier due to inadequate IT skills, limited access to digital resources, and inconsistent technical support. These barriers affect the seamless integration of ICT in PBL, which is often critical for modern PBL applications that rely on collaborative digital tools, virtual simulations, or online research activities. Addressing this gap may require institutions to expand both technical support services and faculty training in educational technology.

Resource Support Factors

Resource support received the lowest positive response at 56%, with 28% of faculty expressing concerns over insufficient resources. The responses highlight a need for better infrastructure, such as well-equipped classrooms, reliable internet, and updated digital tools, which are essential for effective PBL facilitation. Inadequate resources not only affect faculty's ability to design and deliver PBL activities but also limit students' engagement with diverse learning materials. To maximize the potential of PBL, institutions may need to prioritize investment in infrastructure and seek partnerships to support resource enhancement.

Synthesis of Factors and Practical Implications

Overall, these findings suggest that while faculty are optimistic about PBL, practical implementation is hindered by skill gaps, resource limitations, and workload pressures. Faculty members are particularly interested in integrating PBL but require greater institutional support to transition effectively from traditional to PBL-based instruction. Moreover, addressing the challenges of technical capacity and resource support would create a more conducive environment for PBL, enabling both teachers and students to engage fully with its potential benefits.

These insights underscore the importance of aligning institutional support with faculty needs, as successful PBL implementation relies not only on faculty competence and positive attitudes but also on an environment that fosters seamless technological integration and provides adequate resources.

CONCLUSION

This study reveals that while faculty in Indian B-schools show positive attitudes toward Problem-Based Learning (PBL) and acknowledge its benefits for student engagement and independent learning, significant barriers hinder its practical implementation. Key factors such as knowledge, skill, attitude, technical capacity, and resource support each contribute to the complexity of adopting PBL, particularly in educational contexts where resources are limited, and conventional teaching methods dominate. Faculty members demonstrate foundational knowledge of PBL but often lack the support, skills, and resources needed to translate theory into effective classroom practice. Notably, technical and resource constraints impede full-scale PBL integration, underscoring a pressing need for institutional investments in training, infrastructure, and support systems that can enable sustainable PBL practices.

Suggestions

1. **Focused Training Programs**: Institutions should offer specialized training for faculty on designing PBL curricula, particularly in crafting effective, real-world problem scenarios that are adaptable for students with varying skill levels.
2. **Incremental Implementation**: A phased approach to PBL adoption, which allows faculty to gradually incorporate PBL activities into their courses, could reduce the immediate demands on time and resources, making the transition more manageable.
3. **Strengthening Digital Infrastructure**: Expanding digital resources, including software, reliable internet access, and IT support, will be crucial for facilitating the technical aspects of PBL.

Implications

The results underscore the need for B-schools and other higher education institutions in India to adapt PBL within a framework that aligns with their unique challenges. Addressing these identified barriers will not only enhance the teaching and learning experience but also better prepare students with the critical, problem-solving skills demanded in today's workforce. Moreover, institutional support in training and resource allocation would empower faculty to integrate PBL more confidently and effectively, thereby increasing its impact on student outcomes.

Recommendations for Future Researchers

1. **Longitudinal Studies on PBL**: Future research could conduct longitudinal studies to observe the sustained impact of PBL on student learning outcomes, focusing on the development of critical thinking, collaboration, and problem-solving skills over time.
2. **Comparative Analysis Across Institutions**: Researchers could explore the differences in PBL implementation success across diverse institutions, including rural and urban settings, to identify context-specific strategies that may work better in varied educational environments.
3. **Evaluating Hybrid Models**: As a practical compromise between resource constraints and PBL effectiveness, future studies might investigate the viability of hybrid instructional models that combine traditional and PBL approaches. This could provide insights into scalable models that optimize both teaching efficacy and resource use.
4. **Focus on Student Perspectives**: Expanding research to capture student experiences and attitudes toward PBL would provide valuable data on its effectiveness from the learner's perspective, offering a more comprehensive understanding of PBL's impact in Indian higher education.

These recommendations will not only expand the body of knowledge on PBL in the Indian context but also help institutions and educators better understand and overcome the practical challenges associated with PBL adoption.

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