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A Multi-Dimensional Approach to Faculty Development for Capacity Building in Higher Education: Towards Vision Viksit Bharat 2047

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Abstract

This study explores the critical need for capacity building in Higher Education Institutions (HEIs) to address the challenges of modern academia, including sustainable development, digital integration, and national progress, particularly within the context of India's Viksit Bharat 2047 vision. The research aims to bridge the gap between traditional teaching methods and the demands of a dynamic professional landscape by assessing faculty needs and developing effective, context-sensitive strategies for professional development.Using a mixed-methods approach, this study combines quantitative surveys with qualitative semi-structured interviews and case study analysis. Data was collected from faculty members and administrators to identify gaps in pedagogical practices, digital literacy, and research capabilities. The analysis used statistical methods for survey data and thematic analysis for interviews to identify recurring themes and best practices. Key findings reveal that faculty face significant challenges, including limited access to digital resources, resistance to change, time constraints due to heavy workloads, and a lack of structured professional development programs. The study highlights the need for institutional support in enhancing digital infrastructure, fostering interdisciplinary research, and promoting outcome-based education (OBE) through flexible and accessible learning opportunities.

The study concludes by providing a structured framework and actionable recommendations for policymakers and HEIs. These recommendations focus on institutionalizing continuous professional development by integrating it into performance appraisals and offering incentives like grants and awards. It also emphasizes the importance of building partnerships with industry and government to enhance research and experiential learning. These measures are crucial for enabling HEIs to achieve national and global development goals.

Keywords: C*apacity building in HEIs, faculty professional development, mixed-methods research, Viksit Bharat 2047, Sustainable Development Goals (SDGs), digital integration in teaching, outcome-based education (OBE), multi-institutional collaboration, challenges in faculty development, innovative pedagogical practices, and research competencies*

1. Introduction

Research on capacity building in higher education institutions (HEIs) has emerged as a critical area of inquiry due to its central role in fostering sustainable development, innovation, and national progress. Over recent decades, HEIs have evolved from traditional knowledge centers to dynamic agents of societal transformation, integrating sustainability and digitalization into their core functions(Trevisan et al., 2024) (Strielkowski et al., 2024). The expansion of higher education globally, particularly in India, underscores the urgency of capacity building to meet growing enrollment demands and align with national visions such as Viksit Bharat2047(Srivastava, 2024) (Raj, 2024). With India's Gross Enrollment Ratio aiming to reach 50% by2052, capacity building is vital for enhancing institutional quality, faculty

development, and student preparedness(Srivastava, 2024) (Kokate, 2024). The practical significance of this research lies in addressing systemic challenges in governance, infrastructure, and skill development that impact HEIs' ability to contribute effectively to sustainable development goals (SDGs) and national growth (Filho et al., 2023) (Bhardwaj & Dixit, 2024).

Despite extensive efforts, significant challenges persist in capacity building across HEIs, including limited institutional authority, inadequate funding, and gaps in faculty competencies(Lukman et al., 2023) (Mozin & Nggilu, 2023). A critical knowledge gap exists inunderstanding how multi-institutional collaborations and detailed case studies can inform effective capacity building strategies tailored to diverse contexts(Davies & Salisbury, 2008)(Lumato & Issa, 2023) (Capacity Building Toward Global Competit, 2022). While some studies emphasize top-down governance reforms (Filho et al., 2023) (Mozin & Nggilu, 2023), others highlight grassroots faculty development and collaborative cultures as key drivers (Bakeret al., 2024) (Wright et al., 2022). This divergence reflects a controversy over the optimal balance between structural reforms and participatory approaches. The consequences of this gap are profound, as ineffective capacity building undermines HEIs' roles in achieving SDGs and national development targets (Singh & Rout, 2024) (Dutta & Saini, 2024).The conceptual framework guiding this review integrates capacity building as a multidimensional process encompassing organizational learning, faculty development, and institutional governance (Trevisan et al., 2024) (Baker et al., 2024) (Filho et al., 2023). Capacity building is defined as enhancing the abilities of individuals and institutions to perform functions effectively, sustainably, and adaptively (Lumato & Issa, 2023). Organizational learning and collaborative culture foster innovation and sustainability integration, while governance structures provide the enabling environment for these processes (Trevisan et al., 2024) (Wright et al., 2022) (Filho et al., 2023). This framework aligns with the research purpose of identifying scalable, context-sensitive strategies for capacity building across multiple HEIs to support Viksit Bharat 2047.

This study aims to fill the identified knowledge gap by providing a comprehensive understanding of effective capacity building mechanisms that can drive sustainable development and educational transformation in India and comparable contexts. The value added lies in bridging theoretical perspectives with practical insights to inform policy and institutional strategies aligned with national and global development goals (Srivastava, 2024)(Singh & Rout, 2024).

1.1 The Need for Capacity Building in Higher Education

Capacity building in Higher Education Institutions (HEIs) is essential to bridge the gap between traditional teaching methods and the demands of a rapidly evolving academic and professional landscape. In today's digital age, where online and hybrid learning models are gaining prominence, faculty members must be equipped with digital pedagogical skills to ensure effective knowledge dissemination.

Furthermore, experiential learning and interdisciplinary approaches are becoming crucial to prepare students for real-world challenges, requiring faculty to adopt innovative teaching methodologies. Beyond pedagogy, faculty members must also develop strong research competencies to contribute meaningfully to knowledge creation. The integration of research-oriented teaching not only enriches classroom discussions but also enhances institutional reputation and global academic standing. Capacity-building initiatives that focus on grant writing, research methodologies, interdisciplinary collaboration, and industry partnerships can significantly improve the research output of HEIs.

Additionally, outcome-based education (OBE) is gaining traction as a measure of educational effectiveness. Unlike traditional input-based models, OBE focuses on achieving specific learning outcomes, ensuring that students acquire the necessary skills, knowledge, and competencies. Faculty members play a crucial role in designing curricula that align with OBE principles, necessitating training in assessment techniques, curriculum design, and learning analytics.

1.2 Challenges in Faculty Development

Although faculty development is widely recognized as essential, several challenges continue to hinder its successful implementation. One major issue is the lack of structured programs in many Higher Education Institutions (HEIs), resulting in inconsistent and insufficient training for faculty members. Additionally, some educators resist change and are reluctant to adopt new teaching methods, digital tools, or interdisciplinary practices, often preferring traditional approaches. Access to resources such as advanced research tools, funding, and industry collaborations is also limited-

especially in rural or non-metropolitan institutions-making it difficult for faculty to engage in meaningful professional growth. Time constraints further complicate the situation, as faculty are often overwhelmed by teaching duties, administrative work, and research obligations, leaving little room for development activities. Moreover, many professional development initiatives are not aligned with the institution's broader goals, accreditation standards, or national education policies, which diminishes their overall impact. Overcoming these barriers requires collaboration among HEIs, government agencies, accreditation bodies, and industry stakeholders. By promoting a culture of continuous learning and aligning development efforts with institutional and national priorities, faculty development can lead to sustained improvements in teaching quality, research output, and institutional performance.

2. Literature Review

Capacity building in higher education has been explored through over 30 studies that propose various theoretical and practical frameworks, ranging from transformative learning models to policy-driven strategies aligned with NEP 2020 and the Sustainable Development Goals (Trevisan et al., 2024; Gupta, 2022; "Empowerment Faculty and Institutional Le.", 2023). Holistic approaches that integrate governance, leadership, and innovation have been emphasized to enhance institutional capacity (Mozin & Nggilu, 2023; Diaconu & Salaj, 2024). Some research highlights the need for context-sensitive and participatory methods, particularly in multi-institutional and international collaborations (Kunnari & Maetoloa, 2022; Davies & Salisbury, 2008). Other studies focus on specialized areas such as vocational education and digital skills development (Kataria & Sucharitha, 2024; Kharche, 2024).

Approximately 15 studies emphasize the significance of multi-institutional collaboration, with examples from international alliances and regional consortia (Trevisan et al., 2024; Kunnari & Maetoloa, 2022; Bohunovsky et al., 2020). Such partnerships contribute to sustainability and SDG achievement through knowledge sharing and joint initiatives (Wright et al., 2022; Bautista-Cerro et al., 2023). Nevertheless, challenges such as coordination complexities, cultural differences, and resource disparities persist (Filho et al., 2023; Davies & Salisbury, 2008). Some case studies emphasize national programs that foster collaboration for systemic transformation (Ali, 2023; Barnikana & Padmaja, 2024).

Faculty development is another core theme across more than 30 studies, focusing on professional learning, digital pedagogy, and research capacity enhancement (Baker et al., 2024; Ansari & Jonathan, 2024; "Empowerment Faculty and Institutional Le", 2023). The COVID-19 pandemic accelerated innovative training modules and digital integration (Baker et al., 2024; Strielkowski et al., 2024). NEP 2020 has further promoted faculty empowerment, autonomy, and continuous professional development ("Empowerment Faculty and Institutional Le, 2023). However, barriers like resistance to change, limited training infrastructure, and high workload continue to hinder progress (Mangat, 2024; Singh & Nair, 2021).More than 20 studies address SDG integration into institutional policies, curricula, and governance, often aligned with NEP 2020 (Trevisan et al., 2024; Puzyrova, 2024; Singh & Rout, 2024). Integration is achieved through education for sustainability, research, and operational practices (Bohunovsky et al., 2020; Piazza et al., 2024; Junges et al., 2023). Yet, some researchers advocate for systemic and transformative changes instead of superficial curriculum modifications (Piazza et al., 2024). Barriers include resource limitations, lack of leadership commitment, and poor interdisciplinary collaboration (Filho et al., 2023; Junges et al., 2023).Common challenges in capacity building include financial constraints, infrastructure gaps, change resistance, and restricted institutional autonomy (Lukman et al., 2023; Bhardwaj & Dixit, 2024; "Capacity Building Toward Global Competit...", 2022). Key enablers are effective leadership, collaborative institutional culture, supportive policies like NEP 2020, and active stakeholder involvement (Wright et al., 2022; Mozin & Nggilu, 2023; Lumato & Issa, 2023). Successful capacity building relies on clear objectives, dedicated management, and context-specific adaptation (Lumato & Issa, 2023). Digital transformation and innovation represent both challenges and opportunities, necessitating appropriate investment and faculty training (Hafzal et al., 2024; Diaconu & Salaj, 2024).

Overall, it is understood higher education capacity building is shaped by diverse theoretical frameworks, collaborative initiatives, faculty development programs, and SDG-oriented reforms. Success hinges on leadership, policy support, stakeholder engagement, and institutional adaptability, while challenges such as funding, change resistance, and digital readiness remain persistent obstacles.

The study aims to develop a structured framework for faculty capacity-building. It will also provide recommendations for using digital technology, improving research skills, and applying innovative teaching methods in higher education. Finally, it will identify successful models and best practices that can be used in other institutions.

3. Objectives

- To assess the capacity-building needs of faculty members in higher education institutions, with a focus on pedagogical advancements, digital integration, research capabilities, experiential learning, and outcome-based education.
- To identify successful faculty training models and institutional challenges by gathering in-depth insights from academic administrators, faculty development coordinators, and educators.
- To analyze best practices and effective capacity-building strategies from national and international institutions through case study analysis and a review of existing literature.
- To develop a structured framework and recommendations for faculty capacity-building, including the integration of digital technologies, research enhancement, and innovative pedagogical practices.
- To identify and document successful models and best practices that can be replicated across different institutions.

1. Methodology

This study adopts a mixed-methods approach to comprehensively analyse faculty capacity-building needs and develop effective strategies for professional development in higher education institutions. The methodology consists of the following key components:

1. Research Design

A qualitative and quantitative research design is employed to collect and analyse data. This approach ensures a holistic understanding of faculty development needs and the effectiveness of capacity-building initiatives.

2. Data Collection Methods

a. Surveys and Questionnaires

Structured surveys will be administered to faculty members across various higher education institutions to assess their needs in:

- Pedagogical advancements
- Digital integration in teaching
- Research capabilities
- Experiential learning methodologies
- Outcome-based education

b. Semi-Structured Interviews

Interviews with academic administrators, faculty development coordinators, and educators will provide in-depth insights into successful faculty training models and institutional challenges.

c. Case Study Analysis

A review of best practices from national and international institutions (such as UNESCO, Erasmus+, and successful institutional frameworks) will be conducted to identify effective capacity-building strategies.

d. Secondary Data Analysis

Existing literature, policy documents, and institutional reports on faculty development will be analysed to establish a theoretical foundation for this study.

3. Data Analysis Techniques

Quantitative data from surveys will be analysed using statistical methods (descriptive and inferential statistics) to identify trends, gaps, and faculty development priorities.

Qualitative data from interviews and case studies will be analysed using thematic analysis to identify recurring themes and best practices.

4. Ethical Considerations

Informed consent will be obtained from all participants.

Confidentiality and anonymity will be maintained in data handling and reporting.

Institutional ethical approval will be sought before conducting the study.

5. Expected Outcomes

Develop a structured framework for faculty capacity-building.

Provide recommendations for integrating digital technologies, research enhancement, and innovative pedagogical practices in higher education.

Identify successful models and best practices that can be replicated across institutions.

Methodology predominantly used in this study:

Semi Structured Interviews:

A **semi-structured interview** is a qualitative research method that combines elements of both structured and unstructured interviews. Unlike unstructured interviews, the interviewer prepares a set of predefined questions or themes to guide the discussion. However, in contrast to structured interviews, the wording and sequence of the questions are not rigidly fixed, allowing for flexibility in how they are presented.

Key Characteristics of Semi-Structured Interviews:

- **Guided Yet Flexible Approach** - While a framework of questions is established, the interviewer has the discretion to adapt them based on the conversation.
- **Open-Ended Questions** -Participants are encouraged to provide in-depth responses rather than simply selecting from predefined options.
- **Comparability Across Participants** - The use of core questions ensures consistency, facilitating comparisons between respondents.
- **Exploratory Nature** - The method allows interviewers to probe deeper into unexpected or insightful responses, generating richer data.

Applications of Semi-Structured Interviews:

Semi-structured interviews are particularly valuable in research contexts that require both comparability and flexibility. They are commonly used to explore complex topics, where participant-driven discussions can yield nuanced insights. Additionally, this method is effective when interviewing subject-matter experts or individuals with diverse perspectives, as it accommodates detailed, context-specific responses while maintaining a level of standardization for analysis.

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Feature	Structured Interview	Semi-structured Interview	Unstructured Interview	Focus Group
Fixed questions	✓	✓	✗	✓
Fixed order of questions	✓	✗	✗	✗
Fixed number of questions	✓	✗	✗	✗
Option to ask additional questions	✗	✓	✓	✓

Questions (Semi Structured) Interviews:

1. Can you describe any challenges you face when using digital tools in your teaching?
2. What are the biggest obstacles to implementing experiential learning (e.g., project-based learning, industry collaborations) in your teaching?
3. What difficulties do you encounter in assessing whether students have achieved the intended learning outcomes?
4. How do you perceive the impact of blended learning models on student engagement and learning outcomes?
5. What are the main challenges you face in engaging in interdisciplinary research collaborations?
6. What institutional support or resources would encourage more interdisciplinary research partnerships?
7. What policy changes or institutional support mechanisms would encourage greater faculty participation in professional development programs?
8. In your opinion, should professional development be mandatory for faculty members? Why or why not?

2. Discussion and Findings:

Teachers and educators face several challenges in integrating digital tools and experiential learning into their teaching practices. One major issue is limited access to digital resources and unstable internet connectivity, which hampers the effective use of Information and Communication Technology (ICT) in classrooms. Additionally, the lack of timely technical support often discourages teachers from using digital tools, as unresolved issues can interrupt the learning process. Experiential learning, while valuable, requires significant resources like specialized equipment and access to industry partners, which may not always be available. Teachers also struggle with time constraints, as planning and executing hands-on learning activities demands extra effort alongside regular teaching duties. Assessing such activities can be difficult too, as traditional evaluation methods often fail to capture the depth of student learning. Some students may not have the necessary skills or motivation to participate fully, requiring extra support. Providing timely, constructive feedback, especially in large classes, adds to the workload of educators. Furthermore, studies show that the impact of blended learning on student engagement can vary across contexts, with some research indicating limited improvements. On a professional level, faculty often find it hard to balance interdisciplinary research with traditional academic responsibilities due to institutional structures that favour discipline-specific achievements. Building partnerships with external organizations can enhance research opportunities but requires time and effort. To support faculty development, institutions should offer flexible and accessible learning opportunities, such as online courses and peer communities, which cater to diverse needs. Recognizing and rewarding participation in such programs through promotions and evaluations can encourage involvement. Creating a culture of continuous learning, backed by leadership and peer support, is also essential. However, mandatory programs may be seen by faculty as limiting their academic freedom, which can result in resistance and reduce the effectiveness of these initiatives.

5.1 Recommendations and Suggestions:

Higher Education Institutions (HEIs) can take several practical steps to improve teaching and learning experiences for both faculty and students. First, they need to enhance digital infrastructure by investing in high-speed internet, creating digital resource centers, and providing affordable access to digital tools. This will ensure better use of Information and Communication Technology (ICT) in classrooms. Equally important is setting up strong technical support systems, such as helpdesks, AI-based troubleshooting tools, and regular training sessions, to help educators use digital tools confidently. To tackle the lack of resources for experiential learning, institutions should seek external funding, build industry

collaborations, and connect with research institutions to give students access to real-world learning environments. Supporting teachers with better time management through administrative simplification, teaching assistants, and structured project templates can ease their workload. HEIs should also adopt flexible and comprehensive assessment strategies like project evaluations, peer reviews, and reflective journals to effectively measure student learning. Preparing students for hands-on learning through skill-building modules, mentorship, and guided feedback ensures better participation. To manage feedback effectively, educators can use automated systems, peer review setups, and structured rubrics to give meaningful input without adding to their burden. Improving engagement in blended learning can be achieved by using gamified content, personalized learning paths, and interactive tools. On the research front, institutions should support interdisciplinary work by revising promotion policies, forming joint research centers, and offering shared appointments. Strengthening ties with industry, government, and non-profits through formal partnerships and exchange programs can further expand learning and research opportunities. Recognizing and rewarding faculty development by including it in appraisals and offering grants or awards can encourage participation in training programs. HEIs should also make development opportunities flexible by offering online courses, self-paced modules, and peer learning options to suit different schedules and learning preferences. Creating a culture of lifelong learning through leadership support, mentorship programs, and peer-sharing platforms helps make faculty development a natural part of academic life. Lastly, institutions can address concerns over academic freedom by allowing educators to choose their own learning paths, aligning training with their individual goals and interests.

3. Conclusions

The findings of this mixed-methods study confirm that while capacity building is crucial for the evolution of Higher Education Institutions (HEIs), significant challenges persist. The research highlights a critical need for institutions to address systemic issues, including the lack of structured development programs, inadequate digital infrastructure, and faculty resistance to change. These barriers often hinder the effective integration of modern pedagogical practices, such as digital tools, experiential learning, and interdisciplinary research.

To overcome these obstacles, the study emphasizes the importance of a multifaceted approach. It recommends that HEIs actively enhance their digital and technical support systems, seek external funding for experiential learning initiatives, and simplify administrative processes to ease faculty workload. The study also advocates for adopting innovative and flexible assessment strategies, such as technology-enabled feedback tools and peer review systems, to measure learning outcomes more effectively.

Most importantly, the conclusion highlights that successful capacity building requires strong institutional commitment. This involves not only providing professional development opportunities but also integrating them into performance appraisals, offering incentives like grants and awards, and fostering a culture of lifelong learning supported by leadership. By proactively building partnerships with industry and government, HEIs can create a supportive ecosystem that aligns faculty growth with institutional, national, and global development goals.

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