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Faculty Perceptions and Adoption Challenges of Active-Learning Strategies in Indian Higher Education: A Survey-Based Study with Implications for NEP 2020

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Abstract

Active learning (AL) is generally accepted as a more effective pedagogical alternative to passive lecture-based teaching but is still not widespread in Indian higher education. In this paper we report on results of a mixed-methods survey (n = 120 faculty in 15 states of India, mostly from Maharashtra) that examined faculty awareness of, attitudes to, and barriers to active learning adoption. The survey covered six dimensions of knowledge, including knowledge of AL methods, institutional support and training, infrastructure access, student readiness and willingness to use it. Research showed that 70% of them are familiar with at least one AL method and 75% are willing to use AL methods but they face a lot of structural barriers which include time constraints (78%), huge class sizes (71%), and poor infrastructure (68%). Only 31% of them had received NEP 2020-aligned training. The study places these findings within the framework of Vygotsky's social constructivism, Kolb's experiential learning cycle and India's National Education Policy (NEP) 2020 reform agenda. Suggestions for institutional capacity-building, faculty education and policy approaches to close the knowledge-implementation gap are mentioned.

Keywords: active learning; faculty perceptions; higher education India; NEP 2020; constructivism; pedagogical barriers; faculty development

1. Introduction

Higher education institutions worldwide are moving away from teacher-centred teaching and closer towards learner-centred pedagogy to encourage critical thinking, collaboration and problem solving (Bonwell & Eison, 1991). The term active learning can be used to refer to any type of education practice in which students are taught more than passively receiving course material (e.g., discussion, problem-based learning, peer teaching, role play, flipped classroom learning etc.). A landmark meta-analysis of 225 undergraduate STEM studies found that active learning classes raised mean exam scores by more than 6% and reduced failure rates by 1.5 compared to traditional lecturing (Freeman et al., 2014).

Despite such impressive evidence, active learning in Indian higher education is still a very new concept in which the pedagogy is more or less reactive. The Indian higher education sector alone has more than 1,000 universities and 40,000 colleges, with over 40 million enrolled students (AISHE, 2021–22). The National Education Policy 2020 (NEP 2020) is an important policy shift at its core that calls for an education driven by learning in an experiential, inquiry-oriented and competency-based manner at all levels of education and in terms of "multidisciplinary education" and the replacement of rote learning with a deep conceptual understanding (Ministry of Education, 2020). However, it is not clear to a lot of Indian faculty what they think about and how they react to active learning, especially given NEP 2020. These perceptions of faculty attitude and self-efficacy are critical to instructional change (Wieman, 2014). We aim to fill this gap through a survey conducted among 120 faculty from various fields and regions of India to understand: (i) the level of faculty knowledge of and engagement with active learning in India and how they are being affected by it; (ii) the kinds of barriers to change in faculty and the institutional framework and implementation of the NEP 2020.

2. Theoretical Framework and Literature Review

2.1 Constructivist Foundations of Active Learning

Active learning, in theory, is grounded in constructivism, which is the notion that learners are in the process of constructing meaning through interaction with the environment rather than passively receiving a stream of information (Piaget, 1972; Vygotsky, 1978). Vygotsky's notion of the Zone of Proximal Development (ZPD) (the cognitive space between what a learner can do alone and what they can do with expert scaffolding) is the key to creating a workshop that is collaborative and problem-based (Vygotsky, 1978). Instructional scaffolding, peer mentoring, and teacher withdrawal are some of the AL practices that work as a model of ZPD in the classroom (Wichita State University, 2024).

Kolb's (1984) experiential learning theory is inspired by Vygotsky's social constructivism and is based on a four-stage learning cycle (concrete experience → reflective observation → abstract conceptualization → active experimentation). AL methods like case studies, simulation exercises and laboratory-based research fit this cycle and learners must move from doing, reflecting, theorising and applying in an iterative way (Kolb, 1984). Bloom's revised taxonomy is a further step in realising AL and associates instructional activities with higher cognitive processes (remembering and understanding, analysing, evaluating, and creating) that are more active (Anderson & Krathwohl, 2001)

2.2 Evidence on Active-Learning Effectiveness

There is a lot of active learning evidence for the past three decades. Prince's (2004) seminal review found a wide but uneven body of evidence for AL components; while there were differences in the quality of different studies, the evidence was quite strong that active, cooperative, and problem-oriented learning was superior to lecture-only learning as an approach. A large-scale meta-analysis was presented by Freeman et al. (2014) with an effect size of 0.47 standard deviations for AL and a ratio of failure with traditional lecturing of 1.95. These results were valid across all STEM disciplines and class sizes, making the case for AL more general.

Hake (1998) showed in a 6,000-student study of introductory physics courses that interactive-engagement methods produced normalised learning gains two to three times the rate of traditional

teaching. The seven principles of good practice for undergraduate education as laid out by Chickering and Gamson (1987) further solidified active student participation, cooperation and feedback as necessary factors of high-quality education. In the Indian context, empirical research on the adoption of AL strategies is limited; therefore, this study is an important one.

2.3 Barriers to Faculty Adoption

Although there is no doubt that faculty will be unwilling to adopt the AL strategies because of numerous barriers at the institutional level. Bonwell and Eison (1991) highlighted the barriers as student resistance, class time to be taken, coverage of courses in the course and institutional inertia. More recent instrument development work by Rao et al. (2020) identified four barriers in engineering education: student preparation and engagement, instructional support, teacher comfort and confidence, and institution-based environment and reward. Large class sizes, examination-oriented assessment systems, and poor physical infrastructure are also identified as structural barriers in Indian universities (Sinha & Baxi, 2019). In the Diffusion of Innovations framework (Rogers, 2003), it is suggested that faculty may take on the innovation if they believe it will be compatible with the current values, easy to implement, and is supported by the institution, which is not always the case in Indian institutions.

2.4 NEP 2020 and the Active-Learning Imperative

India's National Education Policy 2020 is the most comprehensive reform of the country's education system since 1986. For higher education, NEP 2020 calls for the integration of vocational education, holistic and multidisciplinary programmes, flexibility in curricular decisions, and most importantly, an evolution from rote learning to critical thinking, creativity, and experiential learning (Ministry of Education, 2020). The policy also identifies faculty development as a part of a continuous professional development programme that is in line with these pedagogical objectives. However, the implementation machinery in place for the teacher-training system, assessment policies, and institutional supports are not sufficient in state universities (Namibian Studies Journal, 2024). The gap between policy articulation and classroom reality forms a central concern of the present investigation.

3. Research Methodology

3.1 Research Design

The study employed a descriptive survey design that is mixed-methods. Quantitative data were collected from a structured, self-managed questionnaire and qualitative data were obtained from open-ended items and interviews with a sub-sample of respondents. This design is appropriate for capturing the broad range of faculty perceptions across a large sample and the contextual nuance that closed-ended scales cannot provide (Cohen, Manion & Morrison, 2018).

3.2 Sampling and Participants

The purposive-cum-snowball sampling was conducted in order to recruit 120 in-service faculty members from universities in India. To be included the participants had to be actively engaged in undergraduate or postgraduate teaching in an associated or autonomous college. The survey tool was sent

on Google Forms to faculty via institutional mailing lists, WhatsApp groups, and email outreach. Respondents were drawn from five streams of study (Science, Commerce, Arts, Education, Humanities) from 15 states of India, and covered all five regions of India. Most of the respondents (65.8%) were from Maharashtra, as the primary investigator is affiliated with the IGNOU Nagpur Regional Centre.

3.3 Tools for Data Collection

The questionnaire consisted of four sections. Section A collected demographic and institutional information (gender, stream, qualification, state, institution type). Section B examined the knowledge of and use of active learning methods through a 12-item instrument developed by Bonwell and Eison (1991) and Prince (2004). Section C used a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree) to assess faculty attitudes regarding six constructs: familiarity with AL, institutional support, training access, infrastructure adequacy, student readiness and willingness to adopt. Section D introduced 8 barrier items based on the Faculty Instructional Barriers and Identity Survey (FIBIS; Rao et al., 2020), presented as yes/no questions. Content was validated by three education faculty members; the internal consistency of the Likert scale was evaluated with Cronbach's alpha ($\alpha = 0.79$) which confirms reliability.

3.4 Data Analysis

We analysed the data using IBM SPSS Statistics 26. We computed descriptive statistics for all variables (frequencies, percentages, means and standard deviations). The cross-tabulations were generated for stream-by-gender and qualification-by-stream interactions. Thematic analysis of open-ended responses was conducted in a six-phase model as per Braun and Clarke (2006). All qualitative quotes have been anonymised to protect participants' privacy.

3.5 Ethical Considerations

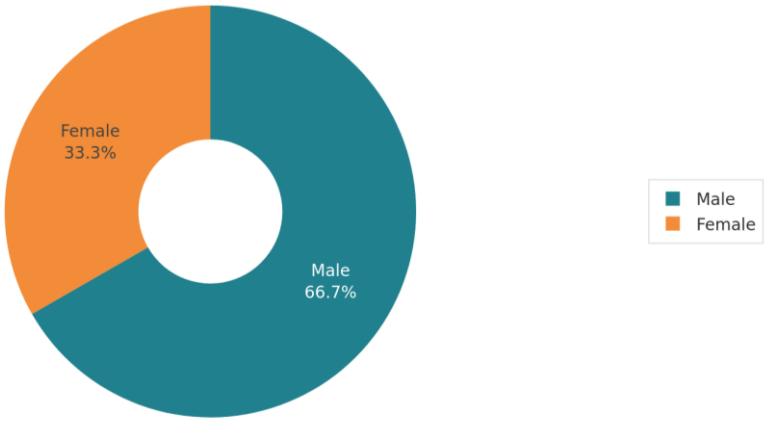
The participants were entirely anonymous and voluntary. At the beginning of the survey form we gathered electronically informed consent. No personally identifiable information was collected. The study was conducted in accordance with the ethical guidelines of Indira Gandhi National Open University.

4. Demographic Profile of Respondents

A total of 120 faculty members completed the survey instrument. Table 1 provides a summary of the demographic profile. Male respondents constituted 66.7% of the sample (n = 80), while female respondents accounted for 33.3% (n = 40), yielding a 2:1 male-to-female ratio. The gender imbalance was most pronounced in Science (78% male), Commerce (72% male), and Education streams (72% male), whereas Arts showed the highest proportion of female respondents (71.4%).

Figure 1

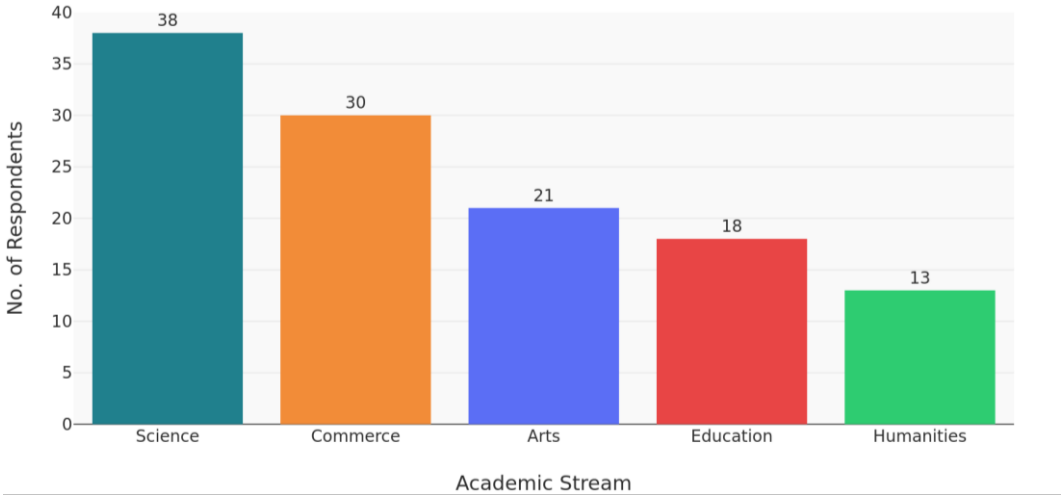
Gender Distribution of Respondents (n = 120). Source: Primary survey data.



In terms of academic stream, Science faculty formed the largest group (31.7%, n = 38), followed by Commerce (25%, n = 30), Arts (17.5%, n = 21), Education (15%, n = 18), and Humanities (10.8%, n = 13). This distribution broadly reflects the availability of faculty in these streams within the Maharashtra and broader Indian higher-education landscape.

Figure 2

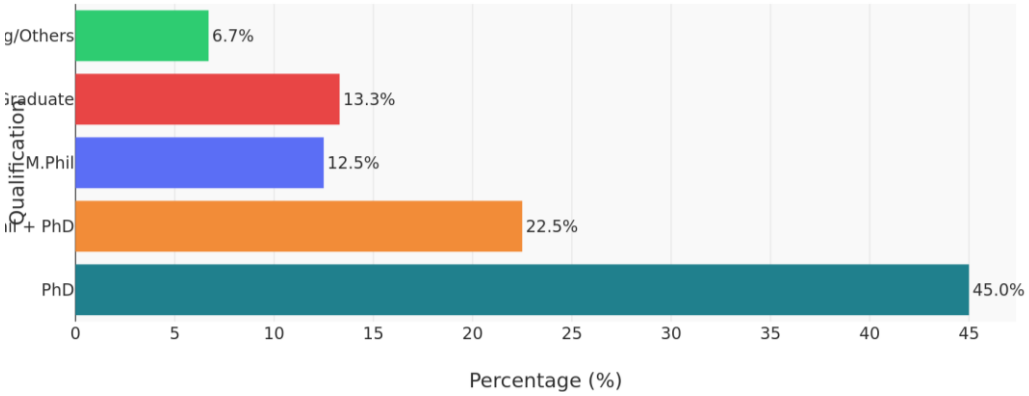
Respondents by Academic Stream (n = 120). Source: Primary survey data



Qualification levels were notably high: 45% held a PhD, 22.5% held M.Phil. in combination with PhD, and 12.5% held an M.Phil. Taken together, 67.5% of the sample possessed doctoral or equivalent-level qualifications, suggesting a well-educated respondent pool capable of nuanced pedagogical reflection. Post-graduate-only faculty accounted for 13.3%, while visiting faculty and others constituted 6.7%.

Figure 3

Qualification Profile of Respondents (n = 120). Source: Primary survey data



Geographically, respondents spanned 15 states and all five Indian geographic regions. Maharashtra was the most represented state (65.8%), followed by respondents from northern India (11.7%), other western states (9.2%), southern India (8.3%), and eastern India (5%). Institutions ranged from elite autonomous colleges (e.g., Fergusson College, Pune) to resource-constrained affiliated colleges in rural districts such as Gondia and Washim, a diversity that enriches the interpretive scope of the infrastructure and support-related findings.

Figure 4

Geographic Distribution of Respondents by Region (n = 120). Source: Primary survey data

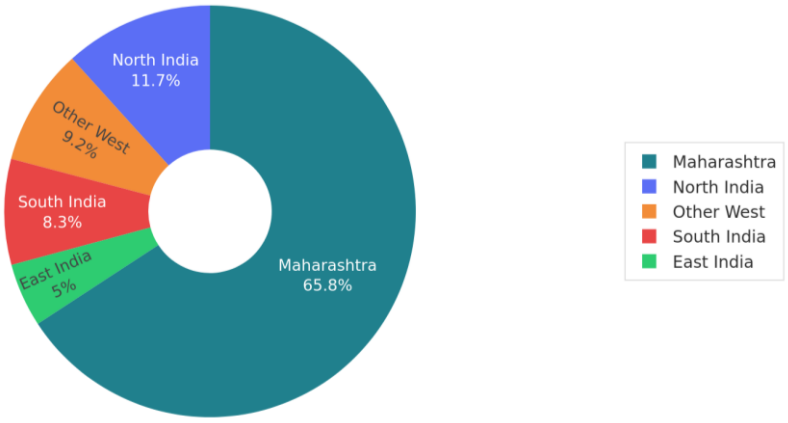


Table 1

Demographic Profile of Survey Respondents (n = 120)

Variable	Category	n (%)
Gender	Male	80 (66.7%)
	Female	40 (33.3%)
Stream	Science	38 (31.7%)
	Commerce	30 (25.0%)
	Arts	21 (17.5%)

	Education	18 (15.0%)
	Humanities	13 (10.8%)
Qualification	PhD	54 (45.0%)
	M.Phil + PhD	27 (22.5%)
	M.Phil	15 (12.5%)
	Post-Graduate	16 (13.3%)
	Visiting / Others	8 (6.7%)
Region	Maharashtra	79 (65.8%)
	North India	14 (11.7%)
	Other West	11 (9.2%)
	South India	10 (8.3%)
	East India	6 (5.0%)

Note. Percentages may not sum to 100 due to rounding.

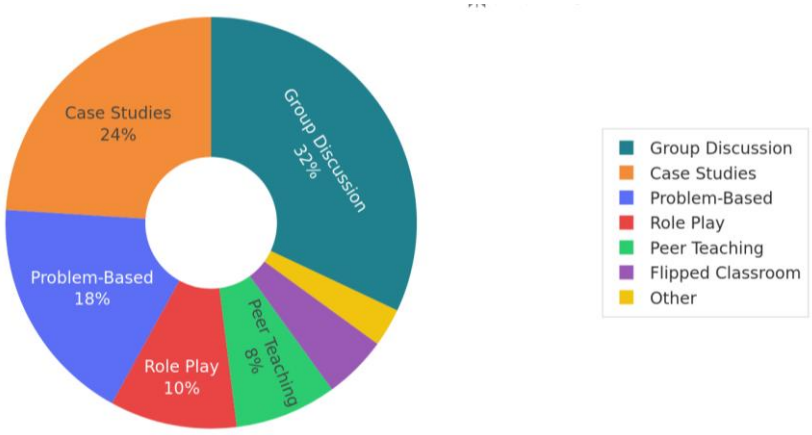
5. Survey Findings

5.1 Faculty Awareness and Current Use of Active Learning

When asked whether the majority of respondents were familiar with active-learning strategies, 70% (n = 84) have at least one AL strategy. Group discussion was the most commonly used method (32%) followed by case studies (24%), problem-based learning (18%), role play (10%), peer teaching (8%), and flipped classroom models (5%). These observations indicate that although faculty are not entirely unfamiliar with AL, they tend to work more in low-effort but less structurally disruptive methods (e.g., discussion) and less in resource-intensive methods (e.g., project-based or inquiry learning).

Figure 5

Active-Learning Methods Currently Used by Faculty (n = 120).
Source: Primary survey data



5.2 Likert-Scale Results Across Six Dimensions

Table 2 and Figure 5 show how the Likert responses are consistent across the six dimensions. Willingness to Adopt received the highest percentage of agree/strongly-agree (75%) among respondents, which is consistent with a general positive attitude towards AL in principle. Familiarity was 66% and Student

Readiness 57%. Training Received (37%) and Infrastructure Adequacy (43%) revealed the structural gaps, and a large neutral-to-disagree cluster indicated that many faculty feel under-supported and under-resourced.

Figure 6

Faculty Perceptions Across Key Active-Learning Survey Items (n = 120).
Source: Primary survey data

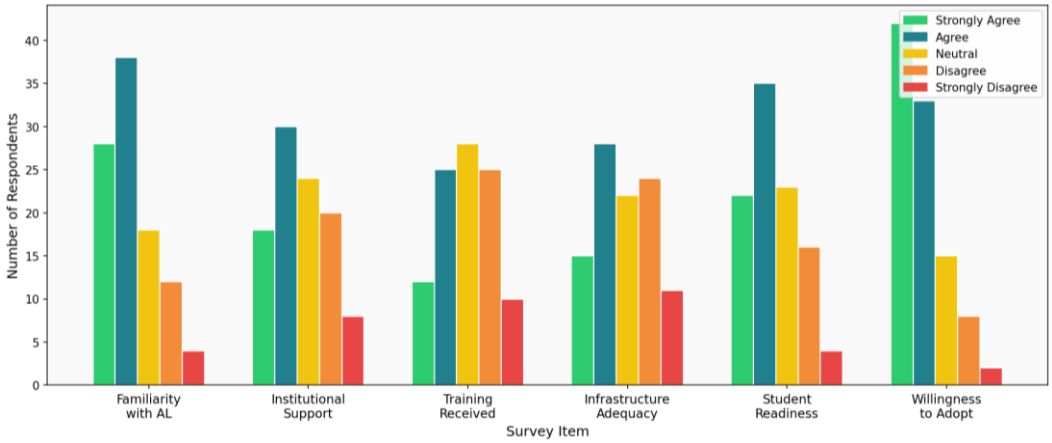


Table 2

Mean Scores and Agreement Rates Across Six Attitudinal Dimensions

Dimension	Mean (SD)	Agree + Str. Agree %	Disagree + Str. Dis. %
Familiarity with AL	3.52 (0.89)	66%	16%
Institutional Support	3.10 (1.02)	48%	28%
Training Received	2.87 (1.14)	37%	35%
Infrastructure Adequacy	3.08 (1.08)	43%	35%
Student Readiness	3.34 (0.95)	57%	20%
Willingness to Adopt	3.83 (0.81)	75%	10%

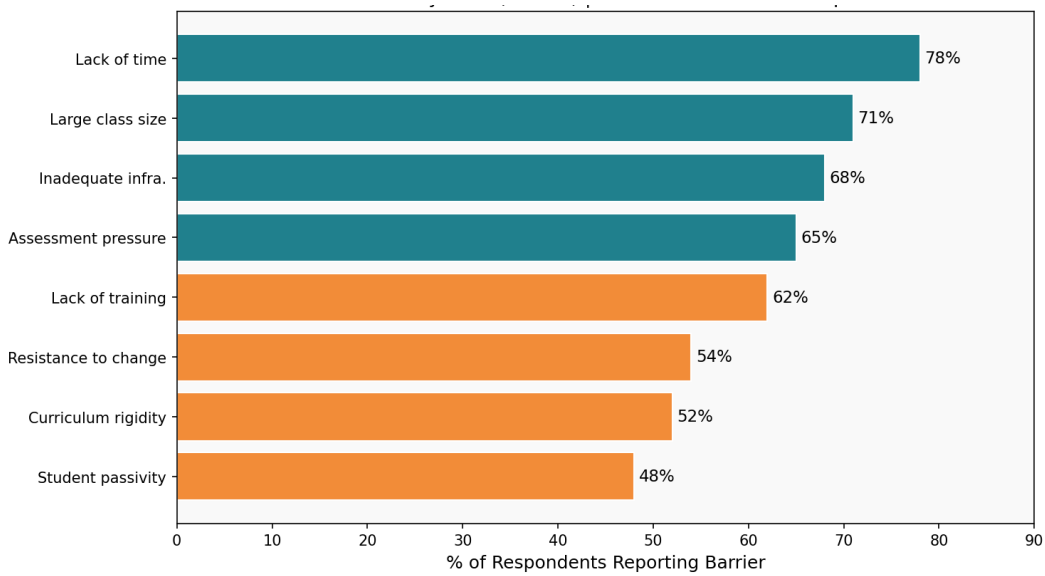
Note. Scale: 1 = Strongly Disagree to 5 = Strongly Agree. SD = standard deviation. Agree + Str. Agree % combines response options 4 and 5.

5.3 Perceived Barriers to Adoption

Among the eight barriers assessed, lack of time was the most commonly cited (78%), followed by large class size (71%), inadequate infrastructure (68%), examination or assessment pressure (65%), lack of training (62%), resistance to change (54%), curriculum rigidity (52%), and student passivity (48%). The top four barriers (time, class size, infrastructure, and assessment pressure) are structural and institutional rather than attitudinal, and faculty who are willing to adopt AL (75%) are less influenced by disposition and more by available conditions, which is in line with Rao et al. (2020) instrument-validated barrier typology.

Figure 7

Perceived Barriers to Active-Learning Adoption (n = 120).
Source: Primary survey data. Bars sorted in descending order

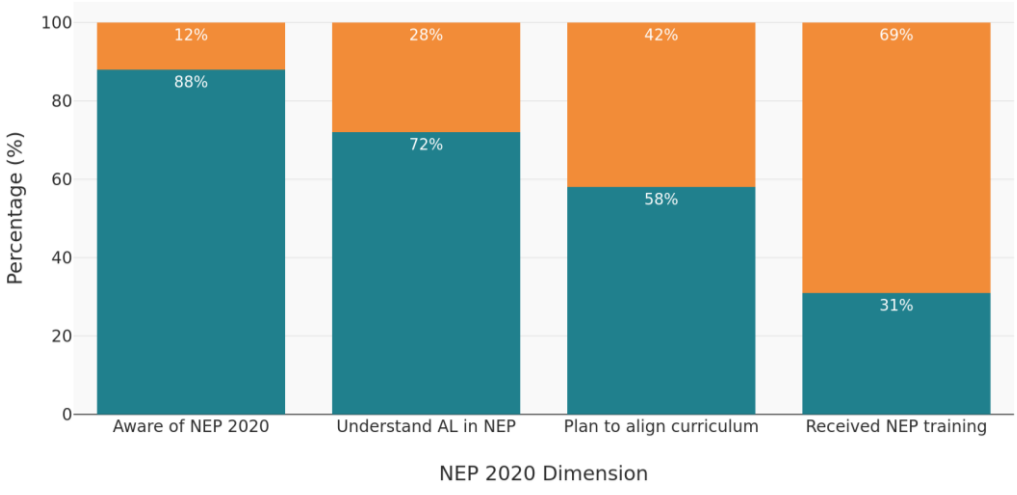


5.4 NEP 2020 Awareness and Implementation Readiness

A large proportion of respondents showed awareness of NEP 2020 (88%) and its active-learning mandate (72%). But the connection between awareness and training was much weaker: only 58% said they had plans to align their curriculum with NEP 2020 guidelines and only 31% said they had received any NEP-aligned pedagogical training. This 57-percentage-point gap between policy awareness and training receipt is one of the most striking findings of the study, and it shows that knowledge of policy intent cannot automatically translate into instructional change without investment in faculty development.

Figure 8

NEP 2020 Awareness versus Implementation Readiness (n = 120).
Source: Primary survey data



6. Discussion

6.1 Willingness–Capacity Disjunction

The most striking tension of the data is a willingness–capacity disconnect: most faculty are in fact willing to take part in active learning (75%), but they are systemically inhibited from doing so. This is consistent with the 'knowing–doing gap' that has been observed in the context of educational change (Pfeffer & Sutton, 2000), but it also corresponds well with the finding that in developing countries the most common barrier is not faculty resistance, but structural unfacilitability. Professional development has not solved this problem; structural reform in the classroom and in the learning environment is needed too.

6.2 Disciplinary and Gender Patterns

Science faculty were the most represented stream (31.7%) and experienced higher levels of laboratory-based active learning (an element of the discipline's pedagogical tradition) while they were less likely to use discussion-based and collaborative methods (based on discipline-specific pedagogical scripts). Arts faculty, who are overwhelmingly female (71.4%), had a higher knowledge of discussion-based AL but had fewer resources. The small percentage of women respondents (33.3%) also raises broader equity concerns for institutional research and policy since NEP 2020 also includes equity and inclusion as primary goals.

6.3 NEP 2020 Implementation Gap

The 57-percentage-point gap between policy knowledge (88%) and training received (31%) is particularly worrying. It suggests that NEP 2020's active-learning mandate is not a guiding principle but a rhetorical goal for most faculty. Qualification level (67.5% of respondents have PhD qualifications) does not necessarily translate to pedagogical alignment with NEP 2020, given that the doctorate as a credential is given for research, not teaching. This makes the case for formal, career-long programmes for faculty development that are oriented towards active learning, such as those in the US called the 'Future of STEM Scholars' (Wieman, 2014) or in the UK the 'SoTL' program.

6.4 Contextual Diversity as an Analytical Asset

The geographic and institutional diversity of the sample of colleges in the US and the resource-poor rural affiliated college clusters of 15 states is a key factor in setting barriers to understanding. The absence of infrastructure (68%) and large class sizes (71%) are more prevalent for rural and semi-urban affiliated colleges, whilst resistance to change (54%) and curriculum rigidity (52%) are common for older, less autonomous institutions. These differences in the data indicate that NEP 2020 implementation strategies should be customized to each institutional type rather than being based on a national model.

7. Recommendations

Based on our study results and the theoretical framework of our study, we make the following evidence-based recommendations for the faculty, institutions, and policymakers:

1. Institutionalise Faculty Development: Universities and colleges need semester-based Faculty Development Programmes (FDPs) to be implemented with mandatory modules on active-learning

design, assessment reform, and NEP 2020 compliance in place in order to move from an optional one-off workshop or a short course to a long-term, credit-bearing professional education.

2. Revise Assessment Frameworks: The examination pressure barrier (65%) indicates that curriculum and assessment reform should be integrated with pedagogical reform. Formative, portfolio-based, and competency assessment models - which are already recommended under NEP 2020 - need to be implemented through revised university examination ordinances.

3. Targeted Infrastructure Investment: State higher education councils and UGC should allocate funds for active-learning classroom infrastructure (e.g., movable furniture, audio-visual and digital resources) in rural and resource-poor affiliated colleges which have the greatest infrastructure gaps.

4. Class-Size Capping: A 71% correlation indicates that large class sizes are associated with reduced AL adoption, and this is in line with NEP 2020's focus on individualised learning and small-group learning.

5. Discipline-Specific AL Toolkits: Professional organisations (e.g., Association of Indian Universities, discipline-specific councils) should develop context-sensitive tools for Science, Commerce, Arts, and Humanities, as the AL landscape is not homogeneous.

6. Longitudinal Monitoring of NEP Implementation: The 57-point training gap should be monitored. State higher education institutions should require annual reporting on faculty professional development and NEP 2020 pedagogical alignment as a measure of performance.

8. Limitations and Future Research Directions

We should note a few limitations. The sampling method (purposive-cum-snowball) results in self-selection bias and faculty members may be more knowledgeable than the general population. Second, due to the concentration of Maharashtra in the top 50 states (65.8%), the results are not generalizable to other Indian states with different higher education governance structures. Third, the cross-sectional design only captures perceptions at a single point in time and longitudinal studies are needed to monitor the changes in behaviour after NEP 2020 interventions. Fourth, self-reported survey data is prone to social-desirability bias, especially on questions about willingness to adopt change. These limitations may be addressed by stratified random sampling across Indian states with a proportional representation of the institutional community, classroom observation studies to cross-check what self-reported AL practice is actually happening in the classroom, and longitudinal studies after FDP in order to assess transfer to practice and qualitative case studies of institutions which have successfully implemented AL to identify transferable enablers.

9. Conclusion

This study provides evidence-based understanding about the active-learning environment of Indian universities from the perspectives of 120 faculty members in 15 states and five streams of higher education. There is a positive student attitude toward AL (75% are in favour of adopting). Problems of time, class size, and infrastructure are common structural barriers. The 57-percentage-point disparity between NEP 2020 awareness (88%) and NEP-aligned training receipt (31%) is the study's most urgent finding, demonstrating that India's ambitious pedagogical reform agenda requires urgent investment in faculty development infrastructure to translate policy language into classroom reality. Theoretically, the findings lend weight to the constructivist case for AL - the dominant barriers are structural and not

cognitive in nature, and in this respect, creating enabling conditions is the primary policy lever. Practically, the study provides a differentiated, evidence-driven agenda for institutional reform that is sensitive to the diversity of higher education in India: from top autonomous colleges to resource-constrained rural affiliate campuses. As NEP 2020 enters its implementation decade, research like this is key to determining progress that can be measured and where accountability is required.

Declarations

Author Contributions

N.S.J. conceptualised the study, designed the instrument, collected and analysed the data, and wrote the manuscript. G.V.L. helped in analyzing the data. S.D.P. supervised the project, provided theoretical guidance, and critically reviewed the manuscript.

Disclaimer:

AI-assisted tools were used for literature discovery, plots and manuscript support. All retrieved information was reviewed, interpreted, and synthesized by the authors, who remains fully responsible for the accuracy, integrity, and originality of the article.

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Conflicts of Interest

The authors declare no conflict of interest.

Data Availability

The anonymised survey dataset is available from the corresponding author upon reasonable request.

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Appendix: Survey Instrument (Selected Items)

The following represents a selection of key items from the survey instrument used in this study. The full instrument is available from the corresponding author on request.

Section A – Demographics

1. Gender: Male / Female / Prefer not to say
2. Academic stream: Science / Commerce / Arts / Education / Humanities
3. Highest qualification: Post-Graduate / M. Phil / PhD / M.Phil+PhD / Other
4. State of employment
5. Type of institution: Government / Aided / Autonomous / Private

Section B – AL Familiarity (Yes/No)

6. I am familiar with the concept of active learning.
7. I use group discussions as part of my regular teaching.
8. I employ case studies or problem-based tasks in my classes.

Section C – Attitudes (1 = Strongly Disagree to 5 = Strongly Agree)

9. I feel confident implementing active-learning strategies.
10. My institution provides adequate support for adopting active learning.
11. I have received sufficient training to adopt active-learning methods.
12. The physical infrastructure of my institution supports active learning.
13. My students are ready to participate in active-learning activities.
14. I am willing to adopt active-learning strategies in my teaching.

Section D – Barriers (Yes/No)

15. Lack of time is a barrier to implementing active learning.
16. Large class size prevents me from using active-learning methods.
17. Inadequate infrastructure is a barrier.
18. Examination and assessment pressure limits my pedagogical choices.
19. I have not received adequate training in active-learning methods.
20. I feel resistance to changing my teaching approach.
21. The existing curriculum leaves little room for active-learning approaches.
22. Students' passive attitude is a barrier to implementing active learning.