Assessing the Impact of Teaching Learning Centers on Faculty Preparedness and Empowerment

Sahil Sawhney[1]Ankur Gupta[2], Ankita Nanda[3], Adit Gupta[4]
[1]School of Management, Model Institute of Engineering and Technology, Jammu, J&K
[2]Department of Computer Science and Engineering, Model Institute of Engineering and Technology, Jammu, J&K
[3]School of Management, Model Institute of Engineering and Technology, Jammu, J&K
[4] MIER College of Education, Jammu, J&K
[1]sahil@mietjammu.in, [2]ankurgupta@mietjammu.in, [3]ankita.mba@mietjammu.in ,[4]adit@mier.in

***Abstract*— With the evolution of higher education, Teaching Learning Centers (TLCs) have emerged as vital resources for enhancing faculty preparedness, promoting pedagogical innovation, and empowering educators to elevate student learning experiences. This study evaluates the influence of TLCs on faculty teaching competencies and empowerment. Quantitative surveys with faculty members who have participated in TLC programs across diverse institutions. The quantitative analysis examines changes in teaching efficacy, pedagogical knowledge, and classroom practices after engagement with TLCs. The findings indicate that faculty members involved with TLCs experience notable improvements in their teaching skills, increased confidence in their instructional methods, and a heightened sense of community and support within their institutions. The study also highlights the role of TLCs in cultivating a culture of continuous improvement and innovation in teaching, ultimately leading to better student engagement and academic success.**

***Keywords*— Faculty empowerment; Faculty preparedness; Higher education; Teaching Learning Centre.**

***ICTIEE* Track*:* Entrepreneurship Collaboration and Administration**

ICTIEE Sub-Track: Role of Teaching and Learning Centres in Transforming Engineering Education.

I. INTRODUCTION

Teaching and learning are the essence of an educational institution, embodying profound engagement, rigorous inquiry, mentorship, and transformation. Teacher preparedness and teaching effectiveness are the key pillars of any Education system. (Chen et.al, 2024, Ronfeldt, M., 2021). The landscape of higher education in India is continuously evolving, characterized by heightened competition and a growing demand for value for efficiency. This necessitates the adoption of new teaching methods and other essential reforms. However, there appears to be a significant lack of substantial empirical evidence regarding the current state of teaching, learning, and faculty development in Indian higher education. As per a study by Wright (2023) Centers for Teaching and Learning (CTLs) are vital change agents on campus, employing unique and impactful strategies. The Teaching Learning Centers are relatively new support systems established within academic institutions to support the faculty as well as the students. They provide support to the faculty for content development, enrich pedagogy, develop new frameworks of evaluation and assessment, adopt global best-practices, train faculty and students and operate in an experimental manner to help attain student learning outcomes and stated institutional outcomes to the best extent possible. Various government initiatives have been initiated to improve teaching preparedness through continuous training. One such scheme is Pandit Madan Mohan Malviya National Mission on Teachers and Teaching which highlights that limited capacity of teachers in effective teaching, learning, and research as the key reason for the poor ranking of academic Institutions and Universities, necessitating intervention. Therefore, the TLCs have the potential to serve as the drivers of change and aid universities in enhancing their performance in a highly competitive environment, potentially positioning the nation as a global leader in education. In a study by Nam and Dipasupil (2019) the researchers strongly suggested that Universities should set up teaching and learning centers for providing support to the faculty and the students. The need for the TLCs is also in line with our New Educational Policy 2020 which focuses on the transition in the role of the teacher as it requires the preparation of faculty to take up courses which are multidisciplinary, build student engagement,

Prof. Sahil Sawhney
Model Institute of Engineering and Technology, Jammu
sahil@mietjammu.in

get well versed with technology, be the curriculum designers and inculcate lifelong learning (Kakodkar, 2024).

The main objective of the paper is to examine the results from the initiatives undertaken at a Teaching Learning Center at a higher technical education institution, specifically on teacher preparedness and empowerment. When teachers feel empowered and confident in delivering courses and value to the students, the institution benefits in myriad ways including enhanced student engagement and satisfaction levels. The data was collected from the faculty members across various engineering streams who had attended various trainings, workshops, and faculty development programs organized by TLC at the Institute over a 1-year period.

With the advent of new technologies and pedagogies, it is important for the faculty members to update and upgrade their knowledge base for better preparedness. In addition, faculty exposure to various kinds of training and workshops is essential for enhancing the teaching preparedness and effectiveness (Tamsah et.al,2023; Saroyan, & Amundsen,2023; Smith & Gillespie,2023). Also, as per the research conducted by Microsoft, the attention span of Generation Z is only 8 seconds which is almost 4 seconds less than the millennials. (Thais, 2023) and that of Generation Alpha is even less. In this scenario, it is difficult to engage the students in the classroom using traditional methods and active learning strategies are required. (Hodges, 2020; Nguyen et.al, 2021; Odum et.al, 2023). Designing curriculum (Trinter and Hughes, 2021) is another challenge faced by the faculty which highlights the need for formal training of faculty members in this area. Apart from the teacher's preparedness, empowerment of the faculty is also important to bring quality of education (Ahmadi and Arif, 2022). Ghasemi et. al (2023) in their study have found that the faculty development including training and development leads to faculty empowerment.

Thus, there is a dire need for dedicated teaching learning centers in higher education institutions to focus on teacher preparation and empowerment. Most of the studies pertaining to Teaching Learning centers are in the western context (Wright, 2023; Beckley, 2022; Asimakopoulos et.al, 2021). Very few studies have been conducted in the Indian context (Bhushan, 2019). Also, the studies conducted in the past focus on the role of teaching learning centers in enhancing student performance (Asimakopoulos et.al, 2021) with little attention to its role in enhancing teacher preparedness and empowerment in Higher Education. There are almost no studies in literature which have tried to examine the impact of teaching and learning initiatives on teacher empowerment. Hence, the present study assumes significance in the Indian context.

The rest of the paper is organized as follows: Section 2 presents the key initiatives taken by the TLC at the institute with the details of the programs conducted over a period of one year. Section 3 presents the research design which has been further divided into four sections which includes the participants, research instrument used, data collection and data analysis; Section 4 presents result as well as discussion. Section 5 concludes the study and also includes the implications of the study and identifies some areas for future work.

II. KEY INITIATIVES TAKEN BY TLC

Some of the unique key initiatives taken by TLC are listed below:

Course Design: The TLC at the Institute conducted repeated workshops on the preparation of course handouts, pack and lesson plans with hands on training. Also, an approved format to prepare the same was shared with all the faculty members to ensure standardization across departments.

Educator Certifications: The TLC nominated over 60 faculty members to attend international educator certifications delivered by global experts to help empower them with international pedagogical trends, best-practices and research-backed classroom interventions. The certification program lent prestige to the process and helped faculty members in improving their orientation towards in-class teaching excellence.

Classroom Delivery Active Learning Strategies: Trainings and Workshops were conducted to promote the use of active learning strategies, such as flipped classrooms, and collaborative projects, to engage students more deeply in the learning process.

Technology Integration: Various training courses and workshops conducted by the TLCs also helped to incorporate digital tools and resources, like Learning Management Systems (LMS), online assessments, and virtual labs, to enhance the learning experience.

Outcome Based Education: The teaching and Learning Centre at the Institute offers training on outcome-based education as a part of the Faculty Induction program so that the faculty is well aligned with the approach to be followed.

Assessment and Evaluation: The TLC offered training on improving the quality of assessment preparation including setting up high quality question papers, assignments and projects.

Feedback Mechanisms: TLCs implemented a system for collecting and analyzing anonymous student feedback on teaching practices and course content, helping educators adjust and improve their methods. This feedback was shared with the subject teacher concerned about improving the quality of teaching and learning.

Research Workshops: TLC at the institute has conducted various research workshops to develop research acumen among the faculty and encourage them to undertake research paper writing and submit project proposals.

Curated Learning Paths on Coursera: The institute has procured a dedicated license for Coursera to Campus and the faculty members at the institute are put to curated learning paths for capacity building in emerging areas.

Curriculum Design: The faculty members across departments have been trained to design the curriculum with eye to detail and framing appropriate outcomes for each course. TLCs assisted in designing and revising curricula to ensure they are

up-to-date, relevant, and aligned with industry standards and student needs. The TLC provided support across departments to develop curriculums as per the recent industry trends.

Faculty Mentoring: The faculty members have also been provided one-to-one mentoring for support and guidance. The mentoring aimed to align the faculty members towards institutional objectives and provide them with a path for career growth.

Problem Based Learning: The TLC at the Institute has organized several training programs on problem-based learning.

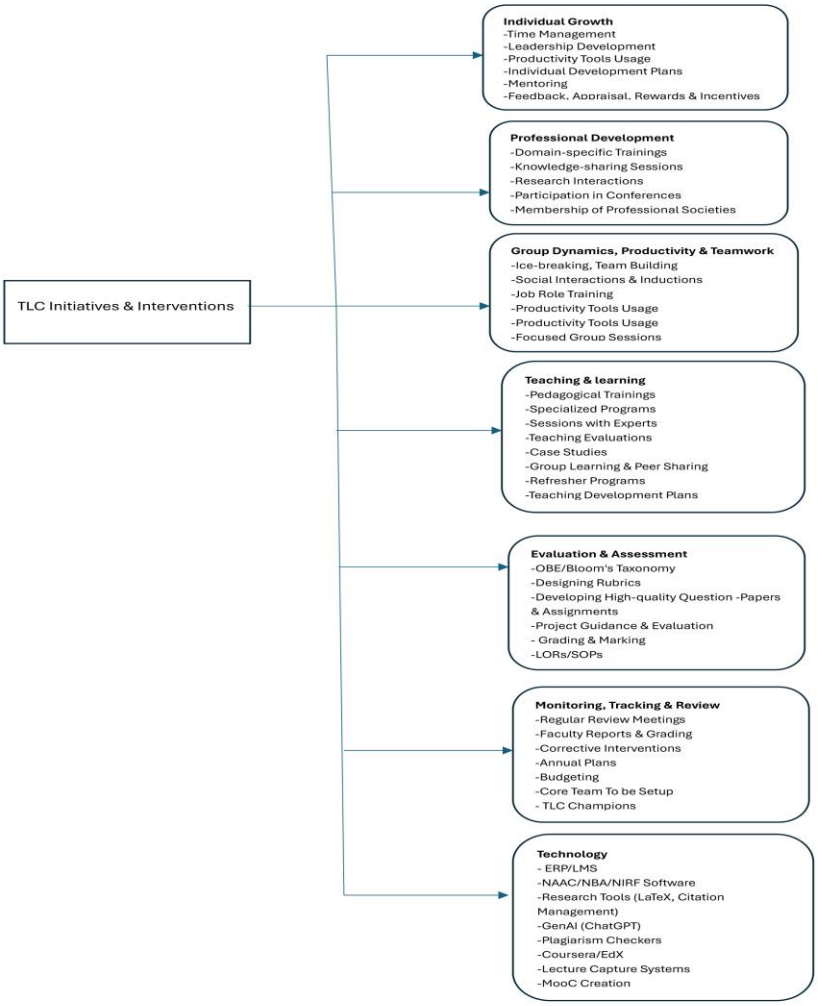

Fig. 1. Indicative initiatives and Interventions under the ambit of the Teaching-Learning Centers at Higher Education Institutions.

Design Thinking: Several workshops and hands-on training sessions were conducted to introduce faculty to design thinking and encourage them to form interdisciplinary teams to tackle educational challenges.

Academic Audits:

By focusing on these areas, Teaching Learning Centers at this engineering institute have fostered a culture of continuous improvement and innovation in higher education, ultimately leading to better teacher preparedness and empowerment.

Figure1 above indicates the broad spectrum of initiatives and interventions which come under the ambit of TLC at Higher Education Institutions. This includes the individual growth of the faculty members through effective time management, mentoring and providing feedback, and rewards. TLC also contributes to the professional development of individuals by imparting domain specific training, knowledge sharing sessions and building research networks through participation in conferences. The various initiatives of the TLC are aimed at strengthening group dynamics by promoting teamwork and collaborations. Most importantly, the TLC helps to improve the

teaching learning processes through various workshops and training on innovative teaching pedagogies and improving classroom effectiveness through constructive feedback obtained from classroom evaluations. It also leads to objectivity in assessments through well-defined rubrics for carrying out evaluations. TLC also invests sufficient time in faculty reviews and regular meetings are conducted so that the corrective actions can be taken at the appropriate time. As advent of technology is the inevitable feature in today's modern world, several initiatives are taken by the TLC to train people on the learning management systems, to make effective use of AI tools, navigate through learning paths and create content for the Massive Open Online courses. Further, Table I indicates that out of the identified activities under the TLC, the following programs were conducted over a period of one year.

TABLE I
PROGRAMS CONDUCTED BY TLC OVER A PERIOD OF ONE YEAR

Programs	Description
Faculty Induction Programme	Includes comprehensive sessions on course design, Bloom's taxonomy, assessment techniques, ICT Usage, online resources, V-Labs
Teaching Consultation	Teaching consultation provided educators with tailored support and resources to enhance their instructional practices and address specific classroom challenges
Research Mentorship	Gyan Badhao sessions Workshop on Developing Patents FDP on Qualitative Research Methods using NVivo and Orange
Curriculum Design Support	TLC at MIET provided curriculum design support to assist various departments in developing and refining curriculums
Faculty Performance Evaluation	TLC conducted the in-class Faculty performance evaluation and shared their observations with the faculty members to improve the quality of teaching and learning
Preparation of Quality Course Documents	TLC conducted various sessions on the preparation of quality course documents and also standardized the template for all departments to maintain uniformity of records
Professional Development (Trainings & Workshops)	35 faculty members completed the IIEECP Certification from IUCEE. Learning Paths provided on Coursera for Campus Blockchain Technology Workshop | In-Depth Learning and Practical Applications Process Oriented Guided Inquiry Learning (POGIL) Workshop on Career Planning for Faculty Implementation and Impact of NEP 2020 Workshop on Direct Instructional Skills Training on Flipped Classroom and Effective Inclass Activities

III. RESEARCH DESIGN

The study employs a quantitative approach to examine the impact of TLC Initiatives on the faculty teaching preparedness and empowerment. The study was undertaken in an Engineering Institute in a Tier II city where the TLC has actively initiated various workshops, training on Outcome Based Education, Student Engagement, ICT usage, Problem Based Learning, designing course content etc.

Research Questions

The primary questions addressed in the study were:

1. Do formally structured TLCs at higher education institutions in India positively impact faculty preparedness and empowerment?
2. What initiatives, interventions and best practices at TLC are the most effective from the faculty perspective?

A. Participants

The participants in the present study were the faculty members who had attended the various programs conducted by TLC at the institute.

The demographic profile of the respondents has been presented in Table II. The results indicate that most of the faculty members in the institute were females (64.3%). Most of the faculty members in the institute were in the age group 35-44(41.8%) followed by 25-34(28.6%), 45-54(19.4%) and 55 and above (10.2%). Most of the faculty members were Assistant Professors (64.3%), followed by Associate Professors (22.4%) and Professor (13.2%).

B. Research Instrument

The data was collected by using a self-structured questionnaire which consisted of 46 statements related to the various initiative taken by the Teaching and Learning Center at the Institute. Before preparing the final instrument, pretesting was done on a sample of 50 respondents to validate the instrument for further use. The reliability of the instrument was checked using Cronbach Alpha.

C. Data Collection

The data was collected from 110 faculty members of the institute who received rigorous training and workshops conducted by the TLC members. A self-structured questionnaire was used to collect the responses. The questionnaire consisted of two sections. Section A was related to the demographic profile of the respondents and Section B was about the statements related to the various initiatives taken by TLC. The faculty members were teaching Engineering courses across various disciplines viz Computer Sciences, Civil, Electronics with a mix of Assistant Professors, Associate Professors and Professors. Purposive sampling was used to collect data from the target group which were the faculty members of the institute who were exposed to the various programmes and initiatives conducted by the Teaching and Learning Center. Out of the various responses collected, only 98 were found to be useful and complete. Therefore, the response rate was 89.09%.

TABLE II
DEMOGRAPHIC PROFILE OF RESPONDENTS

Characteristics	Frequency	Percentage
Gender		
Male	35	35.7%
Female	63	64.3%
Age		
25-34	28	28.6%
35-44	41	41.8%
45-54	19	19.4%
55 and above	10	10.2%
Designation		

Assistant Professor	63	64.3%
Associate Professor	22	22.4%
Professor	13	13.2%

D. Data Analysis

A sequence of steps was implemented to examine the data. Cronbach Alpha was used to check the internal consistency of the constructs. Principal Component Analysis along with KMO and Bartlett Test of sphericity have been used to analyze the data. Multiple Regression Analysis was undertaken to examine the impact of the various orientations, FDPs, trainings and workshops on the faculty preparedness and empowerment. SPSS 29 software was used to analyze the results.

IV. RESULTS AND DISCUSSION

A. Results

The 46 statements pertaining to the various initiatives taken by the Teaching Learning Center were subjected to principal component analysis and seven factors were extracted with appropriate loadings. Before conducting the factor analysis, the value of KMO and Bartlett's test of sphericity was calculated as exhibited in Table III. The Cronbach Alpha value as indicated in Table IV was greater than 0.7 which proved the reliability of the construct (Nunnaly,1978). The statements with factor loading less than 0.5 were removed.

TABLE III
KMO VALUE AND BARTLETT'S TEST OF SPHERICITY

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.816	
Bartlett's Test of Sphericity	Approx. Chi-Square	3656.432
	Df	342
	Sig.	.000

The KMO Value, which is a measure of sampling adequacy, was found to be 0.816 which was much higher than 0.6 and indicates its relevance for further analysis. Therefore, factor analysis was conducted, and relevant factors were extracted.

TABLE IV
COMPONENT MATRIX FACTOR LOADINGS

Factor	**Measurement Items**	**Factor Loading**	**Cronbach Alpha**
Course and Curriculum Design	TLC has given me a good understanding of the course design preparation.	.576	0.8
	I have received constructive feedback from TLC that has helped me improve my course design.	.533	
	TLC has helped me to master the art of curriculum design.	.614	
	TLC has provided clarity in framing the Course outcomes of the courses.	.542	
Active Classroom Delivery	TLC training has helped me to incorporate active learning techniques into teaching.	.532	0.72
	TLC training has influenced how I use collaborative learning strategies in the classroom.	.614	
	TLC training helped me to create a more student-centered learning environment.	.537	
	TLC training helped me integrate real-world examples and applications into teaching.	.625	
Assessment and Evaluation	TLC has helped me understand the importance of clearly defined assessment objectives.	.558	0.9
	The training provided by the TLC has enhanced my ability to design effective and fair assessments.	.696	
	TLC has provided me with strategies to balance formative and summative assessments effectively.	.572	
	The TLC training has guided me in creating and using rubrics to assess student work more consistently.	.646	
	I have learnt to ensure fairness and transparency in my assessment practices through TLC's support.	.691	
Skill Development	The TLC has played a significant role in my overall professional growth and development.	.632	0.83
	The Curated Learning paths offered through Coursera by TLC helped me grow professionally.	.654	
	Curated Learning Paths provided me confidence in the subject.	.571	
	Curated learning path was a game changer for my effectiveness as a teacher	.652	
Technology Integration	TLC training equipped me with skills to use technology to engage students more effectively.	.581	0.87
	TLC training programs improved my confidence in using technology.	.681	
	TLC trainings helped me to adopt technology in everyday classroom teaching.	.531	
Research Support and Mentoring	TLC provided resources and tools to enhance the quality of research conducted by faculty and students.	.692	0.92
	TLC contributed to the professional development of researchers in terms of training, workshops, or mentorship programs.	.661	
	Total Learning Concepts (TLC) facilitated the development and implementation of research projects within the institution.	.592	
	TLC mentors provided research support and guidance.	.632	
Outcome Based Education	TLC has helped me understand how to define clear and measurable course objectives.	.532	0.81
	I have improved in aligning assessments with course learning outcomes due to the guidance from TLC.	.641	
	TLC provides adequate support and resources for implementing outcome-based initiatives	.662	

The adjusted R^2 in Table VII is .585 which clearly indicates that the seven factors including course and curriculum design, active classroom delivery, assessment and evaluation, skill development, technology integration, research support and

Table IV above indicates the seven factors extracted after conducting factor analysis with their respective factor loadings and value of Cronbach Alpha.

Further, multiple regression analysis was undertaken with teacher preparedness and empowerment as the dependent variable and the initiatives taken by the TLCs as independent variables.

The results of the regression analysis to examine the impact of TLC initiatives on the teacher preparedness have been indicated in Table V and VI below.

TABLE V
MODEL SUMMARY

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics: R Square Change	F Change	df1	df2	Sig. F Change
1	.548[a]	.710	.714	.4312	.332	57.084	3	447	.000

TABLE VI
MODEL SUMMARY

Model		Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	T	Sig.
1	Constant	1.562	.157		10.413	.000
	CCD	.092	.052	.106	1.740	.000
	ACD	.090	.048	.092	1.917	.000
	AE	.086	.051	.213	1.532	.000
	SD	.117	.058	.386	1.863	.000
	TI	.386	.063	.087	5.313	.000
	RSM	.117	.058	.093	1.863	.363
	OBE	.386	.063	.312	5.313	.000

The adjusted R^2 in Table V is 0 .714 which clearly indicates that the seven factors (course and curriculum design, active classroom delivery, assessment and evaluation, skill development, technology integration, research support and mentoring, outcome-based education) together cause 71.4 percent variation in teacher preparedness. The results of Table VI indicate that out of the seven extracted factors, research support and mentoring does not have a significant impact on the teacher preparedness RSM (β=0.093, p=0.363).

Skill development which included providing the curated learning paths to the faculty members was found to have the the maximum impact on the teacher preparedness SD (β=0.386, p=0.000) followed by the understanding of outcome based education OBE (β=0.312,p=0.000),assessment and evaluation AE (β=0.213,p=0.000),course curriculum and design CCD (β=0.016,p=0.00), active classroom delivery ACD (β=0.092,p=0.000) and the adoption and Technology Integration TI (β=0.087,p=0.000).

Further, multiple regression analysis was again applied to examine the impact of teaching learning initiatives on teacher empowerment for which the results have been indicated in Table VII and Table VIII.

TABLE VII
MODEL SUMMARY

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics: R Square Change	F Change	df1	df2	Sig. F Change
1	.523[a]	.582	.585	.4621	.282	47.062	2	417	.000

mentoring, outcome-based education together cause 58.5 percent variation in teacher empowerment

TABLE VIII
MODEL SUMMARY

Model		Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	T	Sig.
1	Constant	1.562	.157		10.413	.000
	CCD	.092	.052	.065	1.740	.001
	ACD	.090	.048	.342	1.917	.000
	AE	.086	.051	.297	1.532	.000
	SD	.117	.058	.331	1.863	.001
	TI	.386	.063	.328	5.313	.001
	RSM	.117	.058	.086	1.863	.000
	OBE	.386	.063	.314	5.313	.001

The results of Table VIII indicate that all the seven factors have a significant impact on teacher empowerment.

Active Classroom Delivery had the maximum impact on the teacher empowerment ACD(β=0.342, p=0.000) followed by skill development SD (β=0.331, p=0.001), Technology Integration TI (β=0.328,p=0.001), outcome based education OBE (β=0.314,p=0.001), followed by assessment and evaluation AE(β=0.297,p=0.000), research support and mentoring RSM (β=0.0.086,p=0.000)and course curriculum and design CCD (β=0.065,p=0.001). All the variables were found to have a significant relationship with teacher empowerment.

B. Discussion

The results of the study have indicated that after the various initiatives taken by the Teaching Learning Centre at the Institute, the faculty members at the Institute felt more empowered and confident in effective classroom delivery, designing effective assessment and evaluation, producing qualitative research outcomes and accelerating their professional growth and development. The constructive feedback that the faculty members had from the TLC evaluators helped them to improve the quality of teaching and learning. The teaching and learning center helped to equip faculty with new pedagogical interventions, evaluation and assessment frameworks, necessary support, strong reflective practices and providing a platform where faculty can exchange their key learnings and challenges while seeking continuous support. The effectiveness of the Teaching learning centers further can be enhanced through adequate support and commitment from the leadership of the institution. Studies like Frantz et.al (2024), Asimakopoulos et.al (2021) have advocated the role of teaching learning centers not only towards the empowerment of the faculty members but also extending it to students and research staff.

CONCLUSION

This paper presented initial results from implementing a structured Teaching-Learning Center at an institution in the Higher Technical Education space. The TLC has demonstrated a significant positive impact on teacher preparedness and

empowerment, leading to improved teaching practices and student outcomes. By investing in these initiatives and creating a supportive environment for professional growth, educational institutions can ensure that their teachers are well-equipped to meet the challenges of a rapidly evolving education landscape. TLC initiatives provide teachers with ongoing opportunities to update their instructional strategies and subject matter expertise, making them more effective educators. By facilitating collaborative planning and peer observation, TLC initiatives promote a supportive community among teachers, reducing isolation and fostering a shared commitment to student success. As teachers gain new skills and knowledge, their confidence in their teaching abilities increases, empowering them to take initiative and innovate in their classrooms. Encouraging reflective practices helps teachers identify areas for improvement and develop strategies for continuous growth, leading to sustained professional development. Well-prepared and empowered teachers can more effectively meet the diverse needs of their students, leading to higher levels of student engagement and achievement, a critical requirement for the Indian Higher Education sector. Future work shall involve analyzing the impact of TLC on student outcomes in terms of pass percentages, attainment of course outcomes and student perceptions on teaching effectiveness. This will help close the loop in understanding the long-term impact of TLCs on attaining critical institutional objectives around improving the quality of teaching-learning and enhancing student outcomes as well as graduate attributes.

Based on the results, experiences of the key stakeholders and faculty members, the following implications emerge for the effective implementation of TLCs at higher education institutions:

1. **Investment in Professional Development:** Higher educational institutions should allocate resources towards sustained and meaningful professional development programs**.** This includes funding for workshops, conferences, custom training programs and subscription to online learning systems such as Coursera/Edx besides setting up dedicated learning and development spaces for faculty members.
2. **Tracking and Review:** Implementing regular assessment and feedback mechanisms to evaluate the effectiveness of TLC initiatives ensures that they remain relevant and impactful. This can include classroom visits and appraisals, one-on-one meetings, surveys, focus groups, and performance data analysis, leading to corrective interventions.
3. **Focus on Reflective Practice**: Encouraging teachers to engage in reflective practices, such as maintaining teaching journals, participating in peer observations, and engaging in self-assessment, can lead to deeper professional growth.
4. **Building a Collaborative Culture**: Engineering institutes should strive to build a culture that values collaboration and continuous learning. Celebrating successes, sharing best practices, and fostering a positive and supportive environment can help achieve this.
5. **Planned Subject Allocation**: Subject allocation should be scientifically carried out based on past course outcomes, student feedback, faculty confidence and preparedness. Younger faculty may be asked to complete curated learning paths from Coursera/Swayam/NPTEL prior to teaching courses for the first time.
6. **Standardization:** TLCs should strive to create standardized course packs, lesson plans, teaching material and content which can be reused and constantly upgraded to ensure homogeneity in quality delivery. This ensures that new faculty do not spend too much time preparing base material for courses. Course champions can be identified and entrusted with updating course material for specific courses where they are deemed to have expertise.
7. **Incentivization and Reward:** The faculty members should be given due recognition for their good teaching efforts and practices through awards and incentives by the TLC. Recognition and rewards endorse the right teaching culture at institutions centred around excellence and quality.
8. **Mentoring and Coaching:** Mentoring of early-stage faculty members by senior faculty is a proven international best-practice for enhancing faculty effectiveness. Hence, it is highly recommended.
9. **Dedicated Personnel:** Institutions will do well to provision dedicated and trained personnel to man the TLC ensuring that stated objectives are attained in a timely manner. This will ensure continuous focus on continuous quality improvement in the support services provided by the TLC.
10**.Supportive Approach**: To effect qualitative change in teaching and learning a positive and supportive approach must be adopted based on long term engagement and nurturing faculty members. Hence, the leadership team of TLCs should be mature individuals with the relevant experience and exposure so that the desired outcomes can be attained.

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