Evaluation Report

2019-2025

Presents findings on the influence of LLI on university teaching and learning

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LUMS | Learning Institute

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List of Abbreviations

- AI- Artificial Intelligence
- CDD- Course Design and Delivery
- CES- Center for Continuing Education Studies
- CHPE- Certificate in Health Professions Education
- DHEP- Diploma in Healthcare Ethics & Professionalism
- FCTL- Faculty Certificate in Teaching & Learning
- IC- Institutional Culture
- IM- Institutional Metrics
- IST/ ISD- Instructional Skills Training/ Instructional Skills Development
- LLI- LUMS Learning Institute
- LUMS- Lahore University of Management Sciences
- MGSHSS- Mushtaq Ahmad Gurmani School of Humanities and Social Sciences
- PG- Professional Growth
- PI- Program Impact
- PM- Participation Metrics
- PPP- Pedagogical Partnership Program
- REDC- Rausing Executive Development Center
- RO- Registrar's Office
- SAHSOL- Shaikh Ahmad Hassan School of Law
- SDSB- Suleman Dawood School of Business
- SL- Student Learning Experience
- SOE- School of Education
- SP- Student Performance
- SBASSE- Syed Babar Ali School of Science and Engineering
- TAPDC- Teaching Assistant Professional Development Certificate
- TD- Teaching Development
- TP- Teaching Practices

Executive Summary

Between 2019 and 2025, the LUMS Learning Institute (LLI) has been working to drive pedagogical change at Lahore University of Management Sciences (LUMS). Through a mixed-methods evaluation combining participation metrics, course evaluations, faculty surveys (n=69), and in-depth interviews, this study assesses the influence of LLI's faculty development programs on teaching practices, professional growth, and institutional culture at LUMS.

Key Findings:

Widespread Faculty Engagement:

In a single academic year (2024-25), 92 unique faculty members participated in LLI programming, with 60% returning for multiple courses and workshops. The initiative saw particularly strong engagement from the early-career faculty across all five schools at LUMS.

Shift in Teaching Practices:

Significant shifts in pedagogy were observed, including the adoption of active learning strategies (e.g., Think-Pair-Share, technological tools such as PollEV) and transparent syllabus redesigns. Post-program evaluations showed an **average 2-point increase** in course ratings for 18 courses analyzed in this study. The faculty reported greater confidence in using educational technology and redesigning course assessments.

Professional Growth and Institutional Impact:

From the five schools, 18 faculty described increased confidence, time management skills, and collaborative teaching practices through peer-led initiatives like Teaching Squares. **Two schools now require the flagship Faculty Certificate in Teaching & Learning (FCTL) for new faculty**. However, **inconsistent recognition of teaching efforts in promotion processes remains a challenge.**

Challenges to Broader Participation:

Scheduling conflicts, disciplinary misalignment, and time poverty were common barriers, particularly for mid-career and senior faculty. Some experienced faculty felt the workshops were more remedial than beneficial to their teaching. Additionally, faculty from non-STEM disciplines expressed concerns over the lack of tailored content.

Recommendations:

1. *Enhance Flexibility in Program Delivery:*

   To overcome scheduling barriers, LLI should explore modular sessions, online micro-modules, and rolling enrollments. Targeted communication should also be used to increase outreach, especially for faculty with limited time availability.

2. *Broaden Faculty Engagement:*

   LLI should focus on engaging mid-career and senior faculty by offering advanced pedagogical workshops and instructional leadership training. Further customization of programs for different disciplines will help address concerns of relevance, particularly for non-STEM faculty.

3. *Embed Teaching in Promotion and Tenure Criteria:*

   A stronger alignment with university policies is needed to embed LLI credentials in promotion and tenure processes. This will signal that teaching excellence is as valued as research, helping to incentivize broader faculty participation.

4. *Foster a Culture of Reflective Teaching:*

   LLI should continue to nurture reflective practice through peer mentorship and cross-disciplinary collaboration, ensuring sustained improvements in faculty teaching practices and institutional culture.

LLI's faculty development programs have had a positive impact on teaching practices, faculty development, and institutional culture at LUMS. While addressing existing barriers, such as time poverty and the lack of discipline-specific content, LLI can expand its reach and continue to drive transformative change in teaching and learning at LUMS and beyond.

Introduction to LLI

About the LLI

The LUMS Learning Institute (LLI) was established in 2019 as a state-of-the-art center for teaching and learning. Inspired by successful models from universities around the world, the Institute supports faculty with instructional skill development and critical inquiry on the impact of their teaching on student learning, engages students as partners in educational development, and promotes an environment for sustained effort and shared responsibility for quality enhancement in higher education. LLI's core mission is to build capacity, shape policies and enhance learning, research, and pedagogical innovation by contextualizing global best practices for local higher education stakeholders. LLI aims to empower educators, researchers, students, staff, and university leaders, with the goal of expanding the body of knowledge and scholarship while promoting intentional, responsible, and sustainable teaching and learning practices.

Through research, innovation, and sustainable policies, LLI works to enhance faculty development, teaching excellence, and institutional capacity, extending its impact beyond the local context.

Establishment and History

The LLI was still a nascent center when faced with an incredible challenge that the world was unprepared for: the COVID-19 pandemic. Faculty and students alike struggled with hybrid learning environments, and the LLI played a pivotal role in bridging the gap by successfully assisting the faculty in their pivot to online teaching. In 2021, the LLI began providing in-person support to the LUMS community, working on strengthening teaching and learning communities at LUMS. Now, in addition to its several faculty and student support services, in an effort to provide opportunities to support adoption of innovative technologies and tools, LLI is also taking the lead on promoting Artificial Intelligence (AI) literacy amongst faculty and staff and has

emerged as a thought leader on AI policy, course evaluation and student assessments. These standards of rapid adaptation and commitment to excellence define LLI and how it engages with and inspires our academic community.

LLI's strategic initiatives now span several critical areas: integrating AI to refine professional practices, advancing health education, and developing specialized training programs for law educators. These efforts reflect LI's mission to enhance teaching effectiveness and to foster a robust culture of continuous professional development across disciplines.

Verticals at LLI

LLI seeks to engage the faculty, the students, and the schools and departments at LUMS in conversations about teaching and learning through the following interconnected programmes:

Faculty Development

The Faculty Development vertical supports and champions teaching and learning excellence. It engages students, individual faculty, and departments in conversations about teaching and learning through the breadth and depth of our various programs. We support faculty in building evidence-based instructional skills, designing courses and learning environments, and translating pedagogical research and innovation into practical applications in online and face-to-face classrooms. We offer a variety of courses and workshops to support skill development, and seminars and talks to encourage conversations about student engagement and current issues about learning and teaching.

Strategic Initiatives

The LLI is enacting its commitment to supporting purposeful collaborations with faculty and higher education institutes from across Pakistan through the establishment of various new strategic initiatives such as Certificate for Health Professionals Education (CHPE). The aim is to

nationally enhance teaching and learning across universities to support student learning outcomes.

Technology Enhanced Learning (TEL) and AI

TEL is a relatively new vertical in LLI, recently launched in 2023. TEL aims to revolutionize pedagogical practices at LUMS and familiarize educators with emerging trends in AI and multimedia classroom strategies. This vertical incorporates AI in pedagogical practices at LUMS and beyond. Internally at LUMS, faculty, staff, leadership and students were engaged in AI related workshops while externally CEOs, CTOs, and Senior Management personnel from different prominent organizations across Pakistan were trained. TEL is also engaged in forming partnerships with other universities and launching joint programs.

Research Initiatives

LLI leads and collaborates on research that informs our work in supporting evidence-based pedagogy, contributes to institutional teaching and learning priorities, and develops new knowledge about teaching and learning. We aim to support and recognize teaching and learning research through future programming and by creating opportunities for scholarly discussion, dissemination, and recognition.

LLI's Offerings

At present, the programs offered at the LLI can be divided into three audiences: faculty, students, and external participants. As LLI is committed to bringing about excellence in teaching and learning, the team at LLI has worked with educators in the following four key areas:

1. Supporting evidence-based pedagogical practice
2. Purposeful collaboration with students
3. Strategic growth and enhancement of technological resources supporting excellence in teaching and learning at the university and beyond

4. Innovative pedagogical research that enhances and responds to teaching and learning practices.

Below Table 1 reflects the faculty facing offering:

Table 1: Faculty Facing Programs

Programme (faculty)	Pedagogical purpose & distinctive features	Roll-out timeline
Faculty Certificate in Teaching & Learning (FCTL)	Flagship, evidence-based sequence (approx. 36 contact hours) covering course alignment, active-learning design, assessment literacy and reflective teaching practice. Serves as the *baseline qualification* for all new faculty hires.	*Full launch:* AY 2023. Now offered across semesters per academic year (Summer, Fall and Spring).
Instructional Skills Development	Instructional Skills training is a 24-hour intensive workshop for new and experienced teachers to build foundational skills in effective instruction and lesson design. There is a focus on peer feedback to improve instruction and practice teaching in small groups. The workshop is a forum for peer-based instructional development designed to strengthen instructors' skills through intensive, yet practical exercises in learning-centered teaching.	Introduced Fall 2019; folded into a blended ("hyflex") format in 2020 during COVID-19 to widen access. Runs every August and January.
Course Design & Delivery	The Course Design Seminar, a forerunner of the more intensive Course Design Express, was offered twice a year in face-to-face, online, and blended formats. The 2-day course design seminar offers teachers the opportunity to design or redesign courses. Teachers work on developing course syllabi, attend short workshop sessions, and receive feedback from peers in small groups.	First offered Summer 2023. Now offered every August and December.
Teaching Squares	This is a fully online course that continues the thinking and work introduced in the LUMS Instructional Skills Training (IST). The purpose of this course is to support LUMS faculty in their commitment to developing effective and engaging teaching practices. The nature of the course is very practical as it focuses on the integration of new teaching techniques and learning activities within courses currently in session. Faculty have the opportunity to design new classroom experiences, observe their teaching on video, receive timely and personalised feedback on their teaching, and witness innovative teaching by their peers.	Piloted with 1 square in AY 2020-21; scaled to 4 squares (≈ 40 faculty) by AY 2024-25.
Inclusive Teaching Dialogue Series	3-4hours workshop series spread across semesters on equity, diversity and Universal Design for Learning (UDL). Topics selected based on research conducted by OAI; readings shared a week ahead.	Began September 2024; continues as an academic-year series.
Faculty Success Series	Micro-workshops (60–90 min) on practical skills—e.g., Learning how to say no, Conflict resolution, Time management etc. Complements longer certificates.	Rolled out January 2024; typically 8-10 sessions across AY 2024-2025.

Enhancing Pedagogy with AI	8 hrs covering integrating AI in assessments, Ethical and responsible use of AI and AI literacy for learners. Exploring generative-AI prompts for feedback, rubric co-creation and formative quizzing. Emphasizes ethical AI use and assessment integrity.	First cohort August 2023; institutional subscription is in place for 2025.

LLI's student facing offering is depicted in the Table 2 below:

Table 2: Student facing programs

Programme (students / partners)	Rationale & core components	Roll-out timeline
Teaching Assistants' Professional Development Certificate (TAPDC) *in partnership with LUMSx*	Builds baseline pedagogical, facilitation and grading skills for graduate & undergraduate TAs. Combines four self-paced LUMSx modules (≈ 6 h).	Launched January 2020; mandatory for all new TAs from Fall 2021 onward.
Pedagogical Partnership Programme (PPP)	Pairs undergraduate/graduate "student consultants" with faculty to provide week-by-week feedback on course design or delivery; informed by the Student-Faculty Partnership model (Cook-Sather et al.).	Launched in 2020 AY 2025-2026 pause

Outside of the above regularly scheduled training courses, the LLI is responsive to any needs shared by a school or department at LUMS. Examples include facilitating 'Designing and Teaching Effective Law Courses' for the Shaikh Ahmad Hassan School of Law (SAHSOL), AI trainings for the School of Education (SOE), Rausing Executive Development Center (REDC), and the LUMS Human Resources department, and more. The LLI staff are available for one-to-one consultations and self-requested class observations. In alignment with LUMS's mission of "Learning Without Borders", which envisions breaking down traditional barriers to education and fostering inclusive, interdisciplinary, and globally relevant learning experiences, the LLI is committed to advancing educational excellence across Pakistan.

To support these goals and contribute meaningfully to the broader higher education and learning landscape of Pakistan, the LLI offers a diverse portfolio of the following external programs designed to enhance faculty capacity, institutional development, and educational leadership across a variety of contexts:

1. Certificate in Health Professions Education (CHPE)

2. Diploma in Healthcare Ethics & Professionalism (DHEP)
3. AI for Professionals (in collaboration with Center for Continuing Education Studies-CES)
4. Fundamentals of Generative AI (in collaboration with CES)
5. Generative AI for HR
6. AI for Developers
7. Signature Pedagogy
8. Mastering the Art of Teaching and Learning (in collaboration with CES)

Evolution of the Faculty Certificate in Teaching and Learning (FCTL)

The LLI began by developing four interconnected programs, co-led by an innovative partnership between the LLI team and faculty, and student partners. These four programs were Instructional Skills Design, Course Delivery Express (now expanded into a two-day Course Delivery and Design program), Technology in the Classroom and Instructional Skills Implementation (now known as Teaching Squares).

LLI's portfolio of teacher-training offerings has since expanded significantly, but its flagship offering is FCTL, which grew from the four original offerings. Today, the FCTL is a competency-based professional development program designed to help faculty members achieve teaching excellence based on the criteria described in the LUMS Appointment, Promotion and Tenure Policy document. The FCTL program encompasses the following 2 certificates: Theory & Practice and Scholarship. Many options are provided, and the training is both in person and hybrid, designed around the faculty's demanding schedules. FCTL breakdown can be seen in Appendix A.

LLI's broader institutional impact is visible in teaching evaluation scores, portfolio completions, and teaching innovations implemented as indicated by the analyzed data collected from faculty interviews, surveys and course data from Registrar's Office (RO). However, as LLI

expands its offerings, the Institute has undertaken a review of how the activities undertaken so far have influenced teaching and learning at LUMS, presented in this report. The following sections lay out the objectives of this study, supporting literature, methods, and findings.

LLI Participation Metrics

Table 3 below depicts the statistics for faculty participation in the academic year 2024-2025.

Table3: LLI Participation Metrics Summary (2024–2025)

Category	**Details**
Total Unique Faculty Participants	92
Total Workshop Participation Entries	284
Average Workshops per Faculty	3.08
Faculty Return Rate	58.7%
Participation by School/Department	
Mushtaq Ahmad Gurmani School of Humanities and Social Sciences (MGSHSS)	25
Shaikh Ahmad Hassan School of Law (SAHSOL)	6
Syed Babar Ali School of Science and Engineering (SBASSE)	39
Suleman Dawood School of Business (SDSB)	19
School of Education (SOE)	3
Total Across Schools	92

Objectives of the Study

Since the establishment of LLI in 2019, while activities have consistently grown both in scope and in size, leading to broader and deeper faculty engagement, a systemic review of how these activities are shaping teaching and learning has not been conducted yet. In this context, the current mixed methods research aims to explore the following key research questions:

I. To what extent do the Faculty Development Programs at LLI influence teaching and learning culture at LUMS?

II. What are the outcomes of faculty development programs in terms of individual changes in knowledge and attitudes, self-reported and observed behaviors, and organization at large?

III. What are the barriers and enabling factors for successful adoption of training within the classrooms?

IV. What are the areas for future growth and improvement?

The findings from this study are expected to provide insights that will inform strategic planning and enhance the effectiveness of future faculty programming at the LLI. By examining the extent to which these programs influence teaching practices and the broader culture of learning at LUMS, the research aims to identify what aspects are most resonant, where challenges lie, and how faculty can be better supported and served. Furthermore, the findings will strengthen LLI's role as a leader in educational development by offering a model for evaluating faculty development initiatives in a higher education setting.

Literature Review

Introduction

This literature review highlighted existing research in the space of teaching and learning in higher education, and how institutes like LLI have been influencing it. Faculty development initiatives like LLI serve as critical levers for improving university teaching. This literature review synthesizes findings from relevant studies to explore how structured professional development impacts faculty attitudes, pedagogical practices, and student learning outcomes. Drawing from empirical studies compiled in this review, we articulate how LLI-style initiatives foster long-term, systemic change.

Teacher Attitudes and Knowledge

Faculty development programs consistently result in shifts in teaching orientation from teacher-centered to student-centered approaches (Light et al., 2009). Using tools such as the Approaches to Teaching Inventory (ATI), studies showed that participation in long-term faculty development correlates with greater conceptual change and reflective teaching. Knight et al. (2007) emphasized that longitudinal engagement, a key feature of LLI through programs such as FCTL and PPP, strengthens intrapersonal development and sustained self-awareness in teaching. These gains are further enhanced by mentoring relationships, peer networks, and reflective dialogue, all shown to impact teacher identity and motivation.

Gibbs and Coffey (2004) found that faculty who took part in structured training shifted significantly from teacher-focused to student-centered methods. They also reported feeling more confident in teaching, more interested in improving their instruction, and more reflective about their teaching beliefs.

Teaching Practices

LLI participation metrics such as frequency, completion, and re-engagement are critical, as higher engagement levels correlate with teaching transformation. Redesigning courses, incorporating active learning strategies, and using varied assessment tools have documented outcomes in multiple studies. For example, one study (Knight et al., 2007) found that faculty who attended year-long development programs adopted new teaching strategies, increased student interaction, and used formative assessment techniques more frequently. The faculty also reported greater usage of educational technologies, aligning with measures of LMS adoption and tech integration.

Participation in communities of practice (Wenger, 1998), often cultivated through workshops and cross-departmental interactions, further facilitates knowledge exchange and practice improvement. The presence of these communities directly supports the metric of cross-departmental collaboration. Building on these findings, further research has shown that faculty development programs lead to self-reported improvements in teaching strategies. Teachers noted better instruction, more use of learning principles, and more intentional goal setting. In one study, participants reported using techniques like setting clear learning objectives, encouraging student reflection, and designing tasks for skill practice (Sullivan et al., 2005). Short-format courses also improved instructors' confidence and understanding of learner-centered methods (Steinert et al., 2016).

Student Outcomes

While faculty development primarily targets educators, studies show a downstream effect on student performance and engagement. Knight et al. (2007) reported increases in student motivation, attendance, and participation in faculty courses following interventions. Student-centered practices, such as active learning and inclusive teaching, have been linked to higher course completion rates and better grade distributions (Freeman et al., 2014). Moreover,

when faculty align assessments with learning outcomes and introduce varied assessment methods, students exhibit deeper learning and improved critical thinking (Biggs & Tang, 2011).

These student-level benefits appear most consistently when faculty engage in structured faculty development experiences. Gibbs and Coffey (2004) found that students in such courses demonstrated significantly deeper learning, reflected through improved scores on learning measures and a shift away from relying on surface level strategies. In contrast, students whose instructors had not participated in faculty development programs did not show comparable gains, which further hints towards a strong connection between faculty growth and student learning outcomes (Light et al., 2009).

Institutional and Program-Level Impact

Faculty professional development centers like LLI contribute to an evolving culture of teaching excellence by embedding new standards and expectations. According to studies reviewed, participants were more likely to apply for teaching grants, publish SoTL work, and lead departmental initiatives. These are indicators that reflect both program impact and institutional cultural change. Moreover, recognition in the form of teaching awards, enhanced retention, and leadership in pedagogy signals institutional validation and reinforcement of these changes (Steinert et al., 2016; Rutz et al., 2012).

Faculty development often leads to broader shifts in institutional practices through faculty engagement. Participants noted that their engagement influenced how colleagues across departments, programs, and faculties approached teaching and assessment. Many were invited to share input on pedagogical matters and became involved in shaping teaching-related policies at both faculty and university levels. Due to these experiences, participants often initiated more frequent discussions about teaching and learning within their departments and academic networks. This practice contributed to an increase in peer discussion. These results suggest a

cascade effect, in which personal growth influences institutional culture and practice (Cilliers & Herman, 2010).

Professional Growth and Institutional Culture

Programs such as LLI facilitate professional growth through mentoring, peer feedback integration, and contributions to teaching communities. The faculty also reported creating and sharing new resources, which aligns with metrics on tools and strategy development. Institutionally, the emergence of peer learning communities, policy shifts, and greater collaboration across departments points to LLI's role in shaping an inclusive and innovative-driven teaching culture (Leibowitz et al., 2014).

Participants in longitudinal programs consistently reported high levels of satisfaction, noting the value of the content, instructional methods, and peer relationships. They particularly appreciated the opportunity to experiment with new teaching strategies in a supportive environment, which led to improvements in their teaching effectiveness in areas such as providing purposeful feedback, time management, and course design. (Ferman, 2002; Steinert et al., 2016).

Moreover, an important theme emerging from studies evaluating faculty development programs is the strong influence of mentoring relationships on professional development. Participants described mentoring as a meaningful source of guidance, confidence, and reflective thinking in their teaching practice. These relationships provided sustained support that shaped their understanding of teaching and contributed to long-term growth. Collaborative work also featured prominently, offering opportunities for shared learning and exchange of ideas. However, it was the depth of mentoring and continuous nature of the relationship that many participants credit that helped them navigate instructional challenges and develop a clear teaching identity. Consequently, these forms of engagement supported an inclusive and innovation-oriented teaching culture (Ferman, 2002)

Constraints and Enabling Factors

While faculty development is widely acknowledged as a crucial factor in enhancing pedagogical practice, its effectiveness is rarely determined by the programs alone. The broader institutional context plays a pivotal role in shaping program outcomes poorly aligned with institutional goals or with inadequate time allocation; incentives, or visibility often struggle to gain traction. This misalignment may then contribute to limited faculty motivation, inadequate awareness of available development opportunities, and the perception that teaching is less valued than research in terms of recognition and career advancement (McLean et al., 2008; Steinart & Mann, 2006). Faculty developers must therefore navigate these complexities by designing flexible, contextually relevant programs that secure leadership buy-in and align with institutional culture.

Additionally, even when faculty engage initially, sustaining change over time presents additional risks. While instructors may experiment with new strategies, they often revert to prior practices due to institutional or workload pressures, especially when ongoing support mechanisms are absent or minimal. Interventions such as refresher workshops, peer networks, and reflective forums contribute to reinforcing learning but require sustained institutional investment (Steinart & Mann, 2006). Another key challenge lies in the way the effectiveness of faculty development is usually measured. Despite high aspirations, evaluation practices often rely on self-reported satisfaction or perceived confidence, rather than on observable changes in teaching behavior or student learning outcomes (Steinart, 2000; Sheets & Schwek, 1990). Therefore, without more robust evaluation methods, structural barriers to meaningful change through these programs may remain invisible and unaddressed.

Considering these challenges, creating enabling environments for faculty development requires addressing both relational and structural constraints. While peer mentoring, professional networks, and individualized feedback are often cited as effective supports, they

are not sufficient without institutional systems that formally recognize and reward teaching. Faculty members are more likely to sustain new practices when teaching excellence is embedded in promotion criteria, leadership appointments, and resource allocation (Whitcomb, 2003; Boucher et al., 2006). More importantly, institutional cultures must shift away from positioning research as the sole “gold standard” of academic success and be reinforced by systems that value teaching on par with research and administrative responsibilities (Hill & Stephens, 2004). Without such alignment, even well-designed faculty development initiatives risk limited uptake or long-term impact.

Methodology

Following the Extended Model of Faculty Development (Kember, 1997), this research uses a convergent parallel design to assess both qualitative and quantitative data. The theory underpins the research design, as it predicts that faculty development leads to changes in teaching practices, which, in turn, affect student learning outcomes and institutional culture. Data collection includes quantitative analysis of course evaluations and grade distributions, as well as qualitative insights drawn from interviews with faculty members. This approach allows for triangulation of findings, ensuring a comprehensive assessment of program impacts.

For this research we used mixed methods of research, namely convergent parallel design, that enables simultaneous collection and analysis of both quantitative and qualitative data. In this design, the two types of data are gathered independently, analyzed separately, and then merged during the interpretation phase to draw comprehensive conclusions (Creswell & Plano Clark, 2018). This methodology is particularly valuable as we seek to corroborate findings across data sources, elaborate on quantitative trends with qualitative detail, and gain a deeper understanding of influence of faculty development initiatives, where both measurable outcomes (e.g., participation rates, course evaluations) and experiential insights (e.g., faculty narratives, perceived changes) are critical to a holistic assessment of effectiveness.

Quantitative Data includes secondary data from RO, and primary data from surveys. Qualitative Data includes primary data collected through interviews and open-ended survey questions to probe faculty experiences with our professional development offerings. Descriptive statistics (frequencies, means) and inferential analyses (e.g., t-tests, Chi-square tests) were conducted to identify trends and differences between groups. Since the research team does not have access to an experimental setup, a pre-and post-comparison of grade distributions and teaching evaluation scores serves to identify trends associated with the rollout of LLI's flagship program, the FCTL. Inferential statistics allowed us to test for significance in the identified

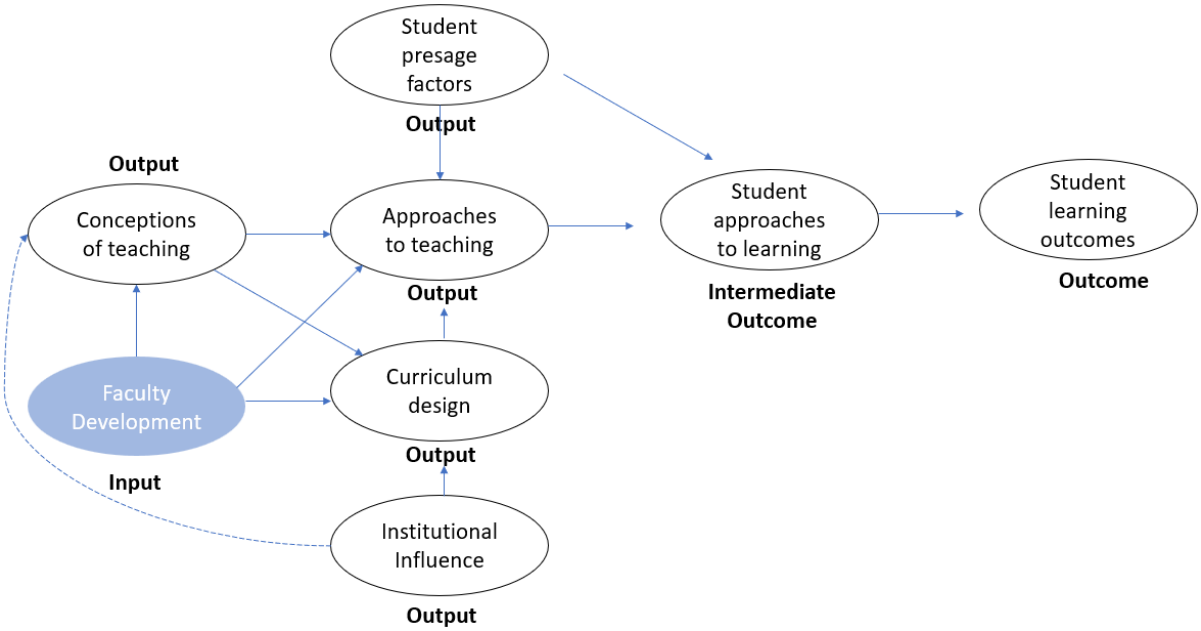
differences. While the method cannot be used to establish causality, it does indicate and highlight changes over time, if any.

Concurrently, qualitative data collected via surveys and interviews was analyzed using deductive coding analysis. A first-cycle, descriptive coding process was applied to the interview transcripts. Codes were initially drawn from the LLI evaluation framework and refined through close reading of faculty narratives. Each excerpt was mapped to one or more key constructs representing the intended outcomes of LLI programming. This allows for a more nuanced look at our core objectives, adding details that help explain the quantitative findings.

Theory of Change

The **Extended Model of Faculty Development, Teaching, and Learning**, as adapted from Kember (1997), presents a Theory of Change that articulates the complex interrelationships between faculty development and student learning outcomes that LLI is trying to achieve through its faculty development initiatives. This model underscores the central role of faculty development in transforming instructional practices. By reshaping teaching conceptions, curriculum design, and classroom strategies, while accounting for student and institutional contexts, the model anticipates measurable improvements in student learning outcomes. This framework, diagrammatically depicted in Figure 1 below, provides a robust rationale for the implementation and evaluation of faculty development programs such as the Faculty Certificate in Teaching and Learning.

Figure 1: Theory of change models of Faculty Development, Teaching and Learning



The inclusion of the above Theory of Change in this literature review provides a conceptual framework that links faculty development activities with intended outcomes in student learning. It serves as a roadmap for examining the processes and mechanisms through which faculty development programs like LLI achieve impact. It also showcases the complex interactions among individual faculty, the curriculum, and the institution, thus influencing learning outcomes. This big picture perspective is essential for guiding program design, implementation, and assessment, and ensuring that interventions lead to meaningful and lasting improvements.

The literature clearly supports the assertion that faculty development programs like FCTL significantly impact teacher beliefs, instructional approaches, and student outcomes. Moreover, such programs catalyze broader institutional transformation, evidenced through improved teaching evaluations, faculty retention, and academic recognition. The integration of LLI within university systems reflects a best-practice model for sustainable, high-impact pedagogical development. However, these programs also face barriers in terms of participation, e.g., volume of work, lack of time, and logistical factors. Skeff (1997) and colleagues have posited the

following factors that hinder faculty participation in faculty development programs that are focused on improving pedagogical skills: “attitudes and misconceptions of teachers; insufficient support from the institution, and a lack of convincing research on the benefits of teaching improvement methods.” (Steinert et al., 2010)

Data Collection

This evaluation draws on a combination of secondary quantitative data, qualitative interviews, and faculty surveys to comprehensively assess the impact of LLI's faculty development initiatives.

Secondary Data

The RO was requested for data on quantitative course evaluation from students and grade distribution for 18 faculty members across two schools, SSE and SDSB, who have completed the FCTL for the last five academic years to provide a dataset for comparison of evaluation scores and grade distributions. Data for 18 courses (109 sections) was received for grades and for evaluation scores respectively.

Interviews

We used purposive sampling to capture contrasting perspectives. Three strata were defined: (a) faculty who had never enrolled in any of our workshops (n = 6), (b) recent LUMS hires with at least one workshop completed (≤ 3 years at the university; n = 6), and (c) long-tenured LUMS faculty who had attended at least one workshop (> 10 years at the university; n = 6). E-mail invitations were sent to all 18 shortlisted academics. Ten agreed to participate (56 % response rate), all drawn from the two LUMS strata; none of the "no-training" invitees responded. Interviews, lasting 35–55 minutes, were conducted via Zoom or in person depending on the participants' preference, recorded with consent, and transcribed verbatim for thematic analysis.

As part of this qualitative evaluation, nine faculty members were interviewed across disciplines including humanities, social sciences, and STEM through purposive sampling. The participants varied in their levels of engagement with LLI in terms of both long-term participation and those with limited involvement. For instance, some had finished programs such as FCTL and PPP, and some had taken a couple of workshops such as the likes of 'ChatGPT as a co-instructor' and 'Teaching in Large Classrooms' etc.

Purpose of interviews

The interviews aimed to assess the influence of LLI's faculty development initiatives on key constructs being evaluated in this report. The aim was to identify shifts in teaching strategies, student performance, professional growth, and institutional culture resulting from LLI participation, if any. To probe faculty experiences with our professional development offerings, we combined semi-structured interviews with a short, web-based survey.

Survey

A brief questionnaire (mix of 18 closed items and one open comment box) was distributed electronically to the full population of faculty who had completed two workshops ($n \approx 180$) and those who had completed five or more or finished an entire program with LLI ($n \approx 120$). Sixty-four usable responses were received (overall response rate $\approx$ 22 %), providing quantitative triangulation of the interview themes. Ethics approval was granted by the LUMS IRB. All participants received an information sheet, gave informed consent, and were assured of anonymity in reporting.

Coding Thematic Analysis

The coding thematic analysis systematically examined faculty interviews and survey responses to identify key patterns and themes related to LLI's impact. Using a multicycle coding process, data was organized into higher-order structures reflecting teaching practices, professional growth, and institutional culture. This approach revealed both positive outcomes and challenges experienced by faculty across disciplines. The following section provides consolidated thematic coding analysis of faculty interviews and surveys. (n=9 semi-structured interviews; sub-code coverage shown as number of interviews mentioning / total number of interviews) (n= 64 survey responses)

Introduction and Method

Using Saldaña's multicycle model, transcripts were descriptively coded, then collapsed into higher-order constructs already established in prior work (e.g., Teaching Practices). Each construct yielded finer sub-themes. The narrative that follows moves construct-by-construct, first defining each sub-theme, then noting how many interviews reference it, and finally illustrating with two anonymized faculty quotations. Each excerpt was mapped to one or more key constructs representing intended outcomes of LLI programming Participants represent diverse disciplines such as science & engineering, law, business, and humanities and varying engagement levels (FCTL graduates, occasional workshop attendees, and non-participants). The resulting themes are presented below in Table 5 with anonymized quotes and linked recommendations.

The set of *evidence-based* instructional moves an instructor makes before, during, and after class (e.g., active learning tasks, formative assessment, feedback loops) to maximize student learning (Freeman et al., 2014; Henderson, Beach & Finkelstein, 2011).

Table 5: Definitions of the identified constructs, frequency of codes in interview and surveys along with sample utterances

Code	Key Construct	Definition	Interview Freq.	Survey Freq.	Total
PM	Participation Metrics	Quantitative indicators (gross/net enrolment ratios, attendance, demographic participation gaps, credit uptake) that describe who is engaging with an education system at a given time (Marginson, 2016).	3	-	3
TP	Teaching Practices	The methods and strategies used by educators to enhance student learning and engagement, including active learning, assessment techniques, and the integration of technology (Knight et al., 2007; Gibbs & Coffey, 2004).	15	20	35
SP	Student Performance	The demonstrable level of academic attainment a learner achieves (grades, GPA, test scores, competency mastery), often treated as one dimension of overall student success (York, Gibson & Rankin, 2015).	2	-	2
PG	Professional Growth	A sustained, career-long process in which educators deliberately expand their knowledge, skills, and judgment through coherent, job-embedded professional learning and reflection (Desimone, 2009).	5	3	8
PI	Program Impact	The net causal effect (intended or unintended) that an educational intervention produces, established by comparing observed outcomes with a credible counterfactual in multi-site RCTs or robust quasi-experiments (Raudenbush & Bloom, 2015).	3	-	3
TD	Teaching Development	Structured institutional initiatives (workshops, learning communities, mentoring, SoTL projects) designed to move instructors from novice to expert practice and improve	3	8	11

		teaching effectiveness (Steinert et al., 2006).			
IM	Institutional Metrics	A concise, policy-relevant set of key performance indicators (completion, progression, cost per graduate, employment and learning outcomes, rankings data) used to monitor institutional effectiveness and drive improvement (Hazelkorn, 2018).	1	4	5
IC	Institutional Culture	The deeply embedded shared values, beliefs, and norms shape how members of an institution perceive their work, interact, and respond to change (Tierney, 1988).	2	15	17
SL	Student Learning Experience	Students' holistic cognitive, affective, and social perceptions of the environments, activities, and supports that shape their learning journey (often captured via engagement/satisfaction surveys) (Coates, 2005).	2	7	9

Participation Metrics (PM)

LLI's footprint is broad yet uneven. **Six of nine interviewees** described serial attendance at workshops; **three** emphasized scheduling or communication hurdles.

Workshop-uptake (6/9). Faculty shared that they continue to participate in programs offered by LLI. Often the participation started with completing the FCTL, then taking further workshops such as new AI workshops, FSS, Inclusive Dialogue Series etc. Sample utterances for this code include:

"Attended the ChatGPT workshop *and* Faculty-Success Series, LLI became a habit."

"FCTL plus three add-on modules; I now plan each semester around LLI offerings."

Scheduling barriers remain the same (3/9). However, the faculty posited that late onboarding, email overload from LLI, or clashes with teaching loads constrain their participation. LLI needs to improve their processes around communication reach and efficacy as well as scheduling windows that ensure greater faculty footfall. Sample utterances for this code include:

"Missed the FCTL window; only managed two Faculty-Success sessions."

"I don't know what LLI really does—timing and email overload mean I miss sign-ups."

Participation is high among motivated faculty but hinges on agile scheduling and targeted outreach.

Teaching Practices (TP)

LLI programming has catalyzed marked pedagogical shifts amongst faculty. **Five interviews** referenced course redesign and incorporating lesson planning models such as BOPPPS to achieve constructive alignment in the classroom after completing FCTL; **four** noted adoptions of interactive technology; **three** highlighted formal feedback loops.

Increase in course and lesson-redesign (5/9). The faculty shared that by taking course design workshops, the syllabi was transformed into learning contracts with explicit outcomes. Many also shared that they started using lesson planning models like BOPPPS to make classes more engaging. Sample utterances for this code include:

"Course outline is now a comprehensive *contract*—students know exactly what to expect."

"Write learning objectives on day 1; earlier I gave them only verbally."

"ISD changed how I present content—audience-friendly 2-min concept pitches... How to think about the audience, how they are going to perceive it, what questions to ask, how to make concepts easier or relatable to the audience. So that is what I learned"

Increase in active learning with technology (4/9). Faculty shared that incorporating technology such as PollEV, gamified bonuses and AI-prompt activities helped them achieve learning outcomes in the class by making classes more engaging. Sample utterances for this code include:

"Introduced Poll-EV in a 150-seat lecture; students said it 'kept us alive."

"Replaced calling out names with question-plus-bonus—quiet ones now speak."

Increase in feedback integration (3/9). Many faculty, especially the ones who had completed the FCTL, shared that attending LLI workshops enabled them to integrate structured mid-semester surveys as well as formative assessments which aided in real-time adjustments thus enhancing student learning. Sample utterances for this code include:

"We collect two feedback by mid-term; pacing tweaks make students feel heard."

"Redesigned my anonymous feedback form after the workshop."

The transition from teacher-centric delivery to learner centered, interactive instruction is the clearest impact of LLI training. Overall, an increase in active-learning strategies due to participating in FCTL, faculty reported using colored-chalk boards, Poll-EV, Think-Pair-Share, minute-paper, and experiential learning trips. Open-ended survey data corroborate and extend the interview findings, adding a wider faculty voice to each construct. 35 respondents reported LLI helping them shift their teaching practices such as creating or adapting materials.

"Workshops helped me build a toolkit that worked well for me."

"Shifted toward more student-centric learning techniques and course designs."

Implementation challenges (4/9). Faculty, however, faced challenges in changing their pedagogy in alignment with what is preached at LLI. For instance, faculty finds it challenging to incorporate active learning techniques in content heavy courses, where the need is to also cover curriculum. Closing the loop as part of summary and participatory learning as part of active learning within BOPPPS becomes especially challenging within class timings, given the constraint of covering content also. For one faculty member, they observed negligible change in their teaching practices. While a senior faculty member saw himself as advanced, and perceived workshops to be remedial not adding much value to his teaching development. Sample utterances for this code include:

"No teaching-method change yet."

"Still balancing content load vs interaction time."

"Struggles to close the loop in single lecture due to module size."

Student Performance (SP)

The transition of faculty from predominantly lecture-driven (information transmission) to student centric (conceptual change) classes and interactive instruction eliciting student engagement has led to noticeable improvements in student engagement and performance. **Three** interviewees described increased participation and attentiveness in revamped classes, while **two** faculty members highlighted enhanced higher-order thinking, owing to active learning and application-focused teaching methods.

Perceived growth in engagement (3/9). Faculty shared that student participation and attentiveness increase in classes where faculty have incorporated learnings from FCTL such as incorporating active learning strategies or shifted their courses/lectures from teacher(content) centered to learner (learning) centered. Sample utterances for this code include:

"Students now volunteer answers the earlier silent ones are first to speak."

"Think-pair-share woke up my 120-student lecture."

Higher-order thinking enhanced (2/9). Students tackle complex tasks and do independent research in those lectures where faculty have added active learning strategies after taking FCTL to add rigor to their classes and inculcate higher order thinking skills among students. For instance, one biology student converted a class assignment into a full research project—an example of higher-order engagement. Sample utterances for this code include:

"Going application-focused, one student spun a research idea out of an assignment."

"They can handle harder projects than before."

Active-learning design fosters deeper comprehension, though systematic analytics is needed.

Professional Growth (PG)

Four out of nine interviewees referenced peer mentoring through Teaching Squares, while **two** highlighted the impact of time-management strategies from the Faculty Success Series.

Enhanced reflective practice (4/9). Faculty view LLI as a key contributor to their professional development, highlighting that its offerings helped them become reflective practitioners not only through self-reflection but also through peer-based mentoring, -that shaped their teaching identities and day-to-day practices. Peers in teaching Squares and cross-disciplinary demos in ISD gave feedback that faculty themselves would never notice. Sample utterances for this code include:

"Peer video-feedback (part of Teaching Squares) was extraordinary for spotting blind spots."

"Teaching Squares gave me the language to discuss pedagogy with colleagues."

"That's the best part of LLI – you get feedback couched in a lot of support," said a humanities professor. "My peers brought out a lot of things I would not have noticed..."

Improved time-management skills (2/9). Another faculty member attributed increased efficiency by attending LLI's faculty development programs such as Faculty Success Series. Sample utterances for this code include:

"Calendar-blocking from FSS made my prep doable."

"Toolkit actually works for me—less scramble before class."

Ongoing time poverty. While LLI builds reflective skills, workload pressures on faculty persist, tempering sustained growth. Faculty posits that it is difficult for them to take out time for attending LLI trainings because university

"Faculty-Success tips help but prep still eats evenings."

"Time-management improved, yet research deadlines squeeze teaching prep."

"I would like LLI to also advocate to the extent possible that we have really amped the pressure on faculty. So, the university is becoming more research oriented. Research pressure is putting on tenure track. And there is more and more pressure to also, service is going on, now again our governance model is changing... faculty should be engaged, but we are putting a lot of pressure on teaching. ...so I think we just have to find that balance, right? It wasn't right that we left teaching completely, that you can do whatever you want, whether there is any discipline in the classroom or not, we are leaving it completely to the instructor...And one of the reasons why a lot of us went into academia is, you know, you have your own time to do things at the pace that you would like. So, yeah, I don't think we're paying enough attention to time poverty. And I don't understand why we are sort of like, you know, in this headlong race."

Survey respondents also echoed that attending workshops led to their professional growth. Following are some qualitative responses elaborated in the survey:

"Faculty success series has been very helpful in me building on and developing my own research"

"The workshops at LLI have been very useful for my teaching and helped my students to learn in more productive and clear manner."

Program Impact (PI)

Two out of nine interviewees shared that portfolio artefacts and certificates directly contributed to dossiers strengthening their tenure and promotion case. While **three** interviewees described their experience with LLI as "transformative." And **two** faculty members posited that the content in the LLI faculty development programs were not relevant for their discipline.

Strengthened tenure portfolio (2/9). Faculty members also noted the tangible value of LLI programs in shaping their professional journeys, particularly in relation to career advancement and recognition. Faculty shared that FCTL artefacts feed directly into tenure portfolios. One faculty member also posited that after taking the FCTL they noticed a boost in their teaching evaluations. Sample utterances for this code include:

"LLI practices are now documented in my tenure file."

"FCTL certificate sits right upfront in my dossier."

Enhanced teaching skills (3/9). A professor attributed "transformative" change in their teaching methodologies by attending LLI's faculty development programs. Sample utterances for this code include:

"ISD + Course-Design *transformed* my teaching."

“Completely revamped slides—pictures, videos, mini-questions after taking FCTL.”

Weak alignment with promotion criteria (2/9). While LLI credentials enhance individual dossiers, it lacks consistent institutional weight in promotion decisions. Sample utterances for this code include:

“Teaching evidence still weighs less than publications.”

“Not clear that LLI credentials matter for tenure here.”

Content misfit/disciplinary skew (2/9): Faculty perceives LLI as SSE centric and sees a poor fit of workshop content to humanities. Sample utterances for this code are as follows:

“My impression is the trainings are mostly for people teaching in the science & engineering school… Humanities pedagogies are not exactly technical … most things are not addressed to me.”

Additionally, LLI nurtures reflective practice and the formation of communities of practice. 22 respondents from the survey engaged in collaborations because of LLI that helped them with their professional development.

Teaching Development (TD)

While **two** out of nine interviewees shared how they restructured their syllabi to better align with learning outcomes and ensure transparency, however **two** reflected on the ongoing challenge of implementing active learning strategies within content-heavy modules.

Increased syllabus redesign towards outcome clarity (2/9). Faculty members described concrete shifts towards learner centered classroom policies and teaching strategies brought about by LLI’s faculty development programs. Outcomes-aligned; detailed syllabi replace topic lists. Sample utterances for this code include:

“Course outline is now a comprehensive learning contract.”

“Learning objectives are written up front.”

Increased implementation challenges (2/9). Faculty finds it cumbersome to implement all the techniques in their lectures due to the continuous struggle between having to cover content versus making classes engaging by incorporating pedagogical strategies. Sample utterances for this code include:

“Struggle to close the loop in a single lecture due to module size.”

“Still balancing content load and interaction time.”

No change in classroom policies/practices (2/9): Faculty perceives themselves as advanced/established and view LLI workshops as remedial. Sample utterances for this code are as follows:

“Trainings are for newer faculty; I’ve evolved my pedagogy over 15 years to serve my students”

When asked about creating and/or adapting teaching materials/strategies due to being a part of any LLI workshops/programs 36 respondents from the survey answered with a yes. Of these 36, 29 respondents further elaborated that LLI workshops helped them develop teaching strategies that worked well in their classrooms. One of the respondents noted:

“I took the ISD, CDD, and the Large Classrooms workshops, which have been extremely relevant and helped me immensely with my teaching. I have taught classes that involved dealing with a huge number of students in a single class, and the workshop on ISD and large classrooms helped me gain the skills to actively engage the majority of the class. The goal is obviously to take every single student in the class with you. Similarly, the reflective

practices taught throughout the workshops have been helpful to never settle down and keep improving."

LLI is offering excellent support for support seekers. I always count LLI and it's a great source of positivity at LUMS. A hub that connects faculty from different schools and students to collaborate and create impact."

Institutional Metrics (IM)

Findings from interviews suggest that LLI's influence extends beyond individual faculty to shape broader institutional priorities. Faculty perspectives highlight that Departmental innovations are emerging, yet university-level policies have not fully institutionalized LLI participation. **Two** out of nine interviewees advocated for formally integrating LLI credentials into tenure criteria, while **three** described department-level initiatives that have adapted LLI concepts to their contexts.

Minimal policy integration (2/9). Some faculty proposed that attending LLI workshops should be incentivized in a way that this aids in their promotion cases. Sample utterances for this code include:

"Suggest making FCTL compulsory for tenure."

"Faculty awards should require LLI evidence."

Increase in Department level teaching initiatives because of LLI (3/9). Faculty shared that departments/schools within LUMS have been inspired by LLI's teaching and learning philosophy and have thus launched their own initiatives. Sample utterances for this code include:

"Mandatory LLI workshop for certain courses." [This is talking about the FCTL being mandated for faculty in both SDSB and SSE for new/early career faculty]

"Economics TEXEcon initiative (for research and professional development for pedagogy in economics) grew from LLI inspiration."

Institutional Culture (IC)

Two out of nine interviewees observed emerging cross-disciplinary conversations about teaching practices, while another **two** noted feelings of misalignment where program content felt less relevant to their specific fields.

Increase in pedagogical dialogue (2/9). Faculty members believe there has been a gradual cultural shift toward valuing teaching more openly. Shared language teaching emerges. Sample utterances for this code include:

"We now talk about teaching at faculty meetings, not just research."

"Faculty-Success sessions create space for teaching conversations."

Perceived discipline mis-alignment (2/9). Faculty members noted that some disciplinary tensions remain concerning the relevance of LLI offerings. Some feel content skews toward other disciplines. Sample utterances for this code include:

"Tips are geared to business or law; SSE needs its own strategies."

"Trainings seem mostly for STEM; humanities feel left out."

48 respondents from the survey cited department- or school-level initiatives influenced by LLI and hence having an influence over the institutional culture of teaching and learning within LUMS. Following are some quotes by the faculty from the survey:

"Mandatory LLI workshop for certain courses (i.e. FCTL)."

"TEXEcon teaching initiative started as an inspiration from LLI."

Student Learning Experiences (SL)

Four out of nine interviewees reported regularly collecting and responding to student feedback, while **three** described incorporating real-world tasks to deepen learning and engagement.

Increase in incorporating feedback loop (4/9). Following participation in LLI offerings, faculty emphasized the significance of continuous student feedback and experiential learning in enhancing student learning experiences. Sample utterances for this code include:

"Collect feedback multiple times during the term."

"I now collect two feedback by mid-term"

Experiential learning enhanced student learning (3/9). The faculty stated that hands-on application of concepts through real-world tasks being integrated into coursework enhanced student learning. Sample utterances for this code include:

"Take students to court and police station."

"Students work with real data sets."

48 respondents from the survey also corroborate the interview findings, indicating that faculty integrate student feedback, often multiple times per term.

"Thanks to LLI, I collect feedback multiple times during the term."

"I close the loop by communicating changes back to students."

"I take informal feedback during the semester and alter delivery and assessments based on that. The term end feedback as it is, is not as useful even for the next offering because it seems students are mostly reacting to their grades in assessments leading to the final exams."

The data underscores a generally positive impact of the LLI on faculty teaching practices, student engagement, and elements of professional growth. Notably, the faculty reported

meaningful pedagogical shifts and improved student outcomes. However, recurring challenges such as time constraints, workload balance, and varying disciplinary relevance tempered these gains. Mixed participation levels and divergent perceptions of program impact further suggest that one-size-fits-all approaches may fall short. To foster sustained, systemic change, institutions must adopt tailored strategies that both leverage key enablers and proactively address persistent barriers.

A summary of the direction of thematic codes is shared in Table 6 below:

Table 6: Directionality of thematic codes

Code		Directionality of Responses
PM	Participation Metrics	Mixed – High participation with noted barriers like scheduling and communication.
TP	Teaching Practices	Positive – Marked pedagogical shifts, but challenges in implementation noted.
SP	Student Performance	Positive – Improved engagement and cognitive outcomes observed.
PG	Professional Growth	Mixed – Enhanced skills but constrained by time and institutional pressures.
PI	Program Impact	Mixed – Perceived transformative for some, weak institutional weight for others.
TD	Teaching Development	Mixed – Useful for some, seen as remedial or irrelevant by others.
IM	Institutional Metrics	Mixed – Departmental adoption noted, but limited policy-level integration.
IC	Institutional Culture	Mixed – Growing pedagogical dialogue, yet disciplinary misalignments persist.
SL	Student Learning Experience	Positive – Enhanced through feedback loops and experiential learning.

Quantitative Analysis

Quantitative analysis was done for the secondary data obtained through the RO and the primary survey data.

Secondary data analysis

Two main types of analyses were conducted:

1. Analysis of Course Evaluation Mean Scores (Instructor, Course, Process dimensions)
2. Analysis of Grade Distributions

Both analyses compared two periods:

- **Period 1 (P1):** Academic Years 2020-21, 2021-22, 2022-23 (before the FCTL was mandated)
- **Period 2 (P2):** Academic Years 2023-24, 2024-25 (after the FCTL was mandated)

1. Analysis of Course Evaluation Mean Scores

Quantitative Methods Used:

Data Extraction & Aggregation

For each of the 18 instructors, the mean (μ) scores for three dimensions – "Instructor," "Course," and "Process" – were extracted from the summary tables from the PDF evaluation reports of each course taught. These scores were then grouped by Period 1 and Period 2 for that instructor and dimension.

Statistical Significance Testing

To determine if the difference in average scores between Period 1 and Period 2 was statistically significant for a given dimension and instructor, an independent two-sample

Welch's t-test was employed. This test was chosen because it does not assume equal variances between the two periods, which is a robust approach for real-world data where the number of courses (and thus scores) per period can vary. A p-value[1] less than 0.05 was used as the threshold for statistical significance rejecting null hypothesis hence indicating that change in course evaluation scores is statistically significant.

Sample Size (Faculty and Courses):

Faculty

The analysis covered 18 instructors.

Courses (per test)

The sample size for each Welch's t-test was the number of individual course mean (μ) scores available for a specific instructor and a specific dimension within Period 1 and Period 2, respectively. For instance, if Instructor X had three course scores for the "Instructor" dimension in Period 1 and four course scores for the "Instructor" dimension in Period 2, the t-test for that dimension would be based on these sample sizes (n1=3, n2=4). The test was considered applicable only if there were at least two course scores in *each* period for the specific dimension being tested, as this is a minimum requirement for calculating a standard deviation within each group.

[1] The *p-value* represents the probability of observing a difference at least as large as the one reported—assuming no real difference exists (null hypothesis). We treat results with **p < 0.05** as *statistically significant*; that is, the likelihood that the observed change in course-evaluation means (or grade distributions) arose by chance alone is < 5 %. Larger p-values indicate that any apparent variation could plausibly be random and should be interpreted cautiously.

Limitations of the Course Evaluation Analysis:

Unit of Analysis

The analysis was performed on course-level mean scores provided in the evaluation summaries, not on the underlying individual student responses. Consequently, Welch's t-test compared the average of these course means between periods, rather than directly comparing the average of all individual student ratings. The variance used in the t-test was the variance among these courses mean scores within each period.

Small Sample Sizes for t-tests

In several instances, an instructor might have had only a few (e.g., 2 or 3) course mean scores available in one or both periods for a particular dimension. Welch's t-tests conducted with such small sample sizes have limited statistical power, meaning they are less likely to detect a true difference if one exists. Therefore, we interpret non-significant results for instructors with few courses per period with caution.

Averaging Method

The period averages for each dimension were calculated as simple arithmetic means of the course μ scores. This approach gives equal weight to each course's mean score, regardless of the number of student respondents for that course.

The results from the analysis are given in Table 7 below that indicate two out of the 18 courses, evaluation scores increased significantly by 2 whole Likert points (e.g. 3-->5) for the course dimension, 2 for the instructor dimension, and 2 for the process dimension between periods 1 and 2. A statistical test ($p<0.5$) shows this jump is unlikely to be due to chance. An additional 5 courses showed an increase along the course and process dimensions, and 6 for the process dimension, though these were not significant. Overall, we see that the largest trend is an increase in scores between the 2 periods.

Table 7: Number of courses that has changed in course evaluation scores between period 1 and period 2

		Dimension		
Trend	**Significant ($p < 0.05$)?**	**Course**	**Instructor**	**Process**
Decrease	NA	1	1	1
	No	5	6	5
Decrease Total		**6**	**7**	**6**
Increase	NA	2	2	2
	No	5	5	6
	Yes	2	2	2
Increase Total		**9**	**9**	**10**
Stable	No	1		
Stable Total		**1**		
Stable/Slight Decrease	No	1	2	
Stable/Slight Decrease Total		**1**	**2**	
Stable/Slight Increase	No	1		2
Stable/Slight Increase Total		**1**		**2**

2. Analysis of Grade Distributions

Quantitative Methods Used:

Data Extraction & Aggregation

For each of the 18 instructors, the raw counts for each grade category (A+, A, A-, B+, B, B-, C+, C, C-, D, F, W, I, NC, P – a total of 15 categories) were extracted from the detailed grade distribution table. These counts were summed across all courses and sections taught by that instructor within Period 1 and, separately, within Period 2. Entries of "-" in the grade data were treated as zero.

Percentage Calculation

To describe the distributions and the nature of any changes, the aggregated raw counts for each grade category within each period for each instructor were converted into percentages. The total number of students (sum of all grade counts including W, I, NC, P) for that instructor in that period served as the denominator.

Statistical Significance Testing

A Chi-squared (χ^2) test of homogeneity was performed for each instructor to compare their overall grade distribution in Period 1 versus Period 2. This test evaluates whether the observed proportions of students falling into the different grade categories are statistically different between the two time periods. A p-value less than 0.05 was used as the threshold for statistical significance, rejecting null hypothesis hence indicating that change in grade distribution is statistically significant.

Sample Size (Faculty and Students):

Faculty

The analysis aimed at covering all instructors for whom grade data was requested.

Students (per test)

The sample size for each Chi-squared test for a given instructor is the total number of students whose grades were recorded for that instructor across all their courses in Period 1 and Period 2, combined. The test operates on a 2x15 contingency table (2 periods × 15 grade categories) containing the observed student counts.

Limitations of the Grade Distribution Analysis:

Data Aggregation Level

Grade distributions were aggregated at the instructor level for each period. This approach provides an overview of an instructor's general grading patterns but does not account for potential variations in grading practices across different courses (e.g., undergraduate vs. graduate, different subjects, lab vs. lecture), different class sizes, or varying student cohorts. This is a result of the small number of courses available per instructor.

Chi-squared Test Assumptions & Robustness

The Chi-squared test assumes independent observations. A key guideline for its validity is that expected frequencies in the cells of the contingency table should not be too small (commonly; most expected cell counts should be 5 or more). For instructors with a low overall number of students graded, or for grade categories that are rarely used (resulting in many zero or extremely low counts), the Chi-squared approximation might be less accurate. While the test was computed, we interpreted the results for instructors with sparse data or low total student numbers with caution.

Interpretation of "Change"

A statistically significant Chi-squared test indicates that the overall grade distribution has changed, but it does not pinpoint which specific grade categories are responsible for the change or the directionality without further descriptive analysis, provided by comparing percentages.

Inclusion of Non-Academic Grades

The analysis included all 15 grade categories (A+ through P, including W, I, NC, P). Changes in the distribution of non-academic grades (W, I, NC, P) can be influenced by various factors beyond direct instructor grading practices, such as student decisions, administrative policies, or the nature of the courses (e.g., increased use of Pass/Fail grading options reflected in 'P' or 'NC').

Consistency of Course Offerings

The types and levels of courses taught by an instructor might have changed between Period 1 and Period 2, potentially influencing overall grade distributions independent of any change in the instructor's grading standards. This analysis does not control such variations in course assignments.

The results for the analysis indicate that 6 of the 18 instructors' grade distribution changes significantly from period 1 to period 2. The details for these instructors are presented in Table 8, with four of the six showing a greater percentage of higher grades, and two showing a reduction in A+ grades. These results indicate a measure of change, though given the limitations of the analysis, attribution to LLI undertakings is not possible.

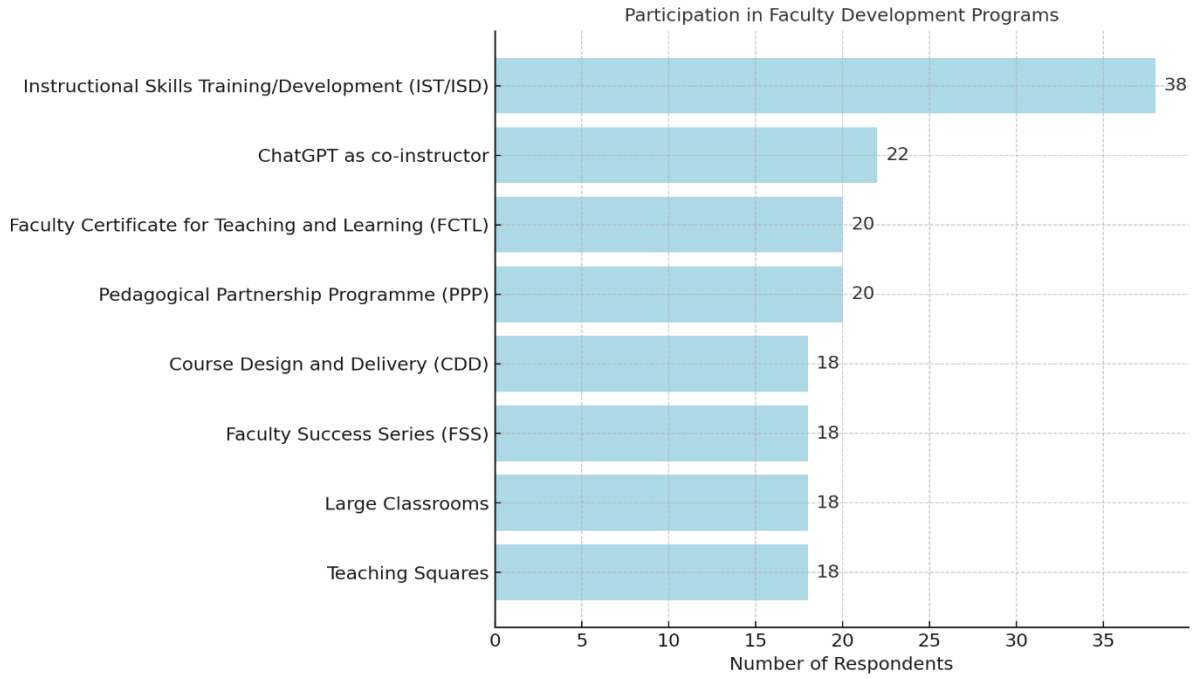
Table 8: Instructors with notable change in grade distributions from period to period 2

Total Students P1	Total Students P2	p-value	Statistically Significant ($p < 0.05$)?	Directionality of Shift / Key Changes
324	379	0.008	Yes	Shift towards higher A grades (A+ from 3.4% to 5.8%, A from 16.7% to 19.0%); decrease in B+ (21.0% to 14.5%); increase in C- (3.4% to 6.9%) and D grades (1.9% to 3.7%). NC and I grades reduced to 0.
112	39	0.001	Yes	Decrease in A+ (7.1% to 2.6%) and A grades (15.2% to 10.3%); significant increase in C+ (1.8% to 12.8%) and C grades (3.6% to 7.7%). P grades (6.3% in P1) disappeared; W grades appeared (2.6% in P2).
157	72	<0.001	Yes	Decrease in A+ (11.6% to 5.6% based on my counts, user table showed 8%); general shift from very high I% (27.1%) and P% (7.8%) in P1 towards more distributed letter grades (A-F) and lower I% (10%) in P2. Increase in F grades (0.6% to 2.8%).
144	15	0.039	Yes	Shift towards higher grades (A+ from 5.6% to 13.3%, A from 10.4% to 13.3%), but also increase in B- (15.3% to 20.0%). NC and P grades disappeared. Small P2 N limits detailed interpretation.
249	257	<0.001	Yes	Clear increase in A grades (total A's from ~27.7% to ~39.7%). Significant decrease in P grades (13.7% to 0%) and I grades (18.1% to 11.3%). Shift towards higher letter grades and fewer P/I.
133	282	0.014	Yes	Clear increase in A grades (total A's from ~27.8% to ~47.2%, esp. A+ from 4.5% to 11.0%). P grades (15.0%) disappeared. I grades increased (18.1% to 20.6%). Shift towards higher letter grades, P grades eliminated.

Primary Data Analysis

The primary data collected through the survey yielded 69 responses. The most attended trainings are depicted in the following Figure 2:

Figure 2: Most attended trainings from the survey



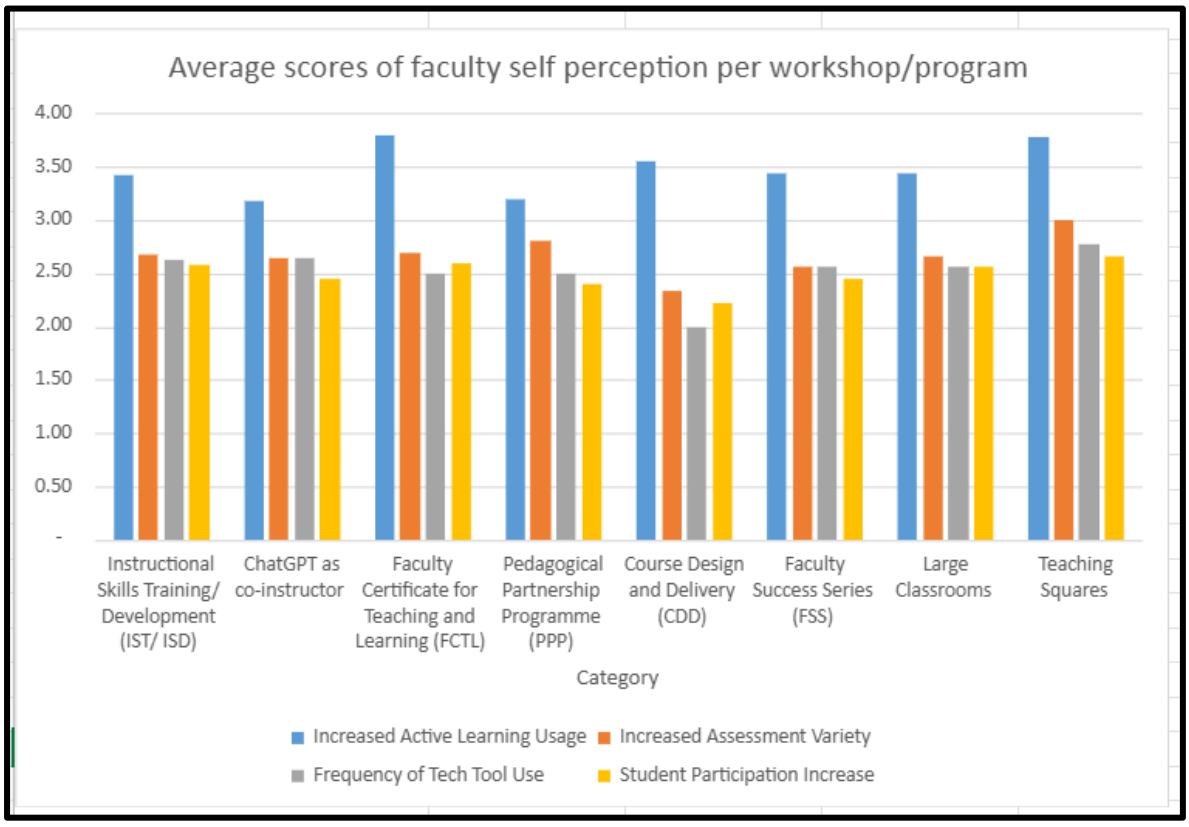
Respondents were asked questions regarding Increased Active Learning Usage, Increased Assessment Variety, Frequency of Tech Tool Use, and Student Participation Increase on a five-point Likert scale, with 5 being a lot higher, and 1 being the same as before. The average scores by training are given in Table 9 below.

Table 9: Average scores of faculty self-perception on average per training. Raw survey data is linked here.

Category	Number of Respondents in Category	Increased Active Learning Usage	Increased Assessment Variety	Frequency of Tech Tool Use	Student Participation Increase
Instructional Skills Training/ Development (IST/ ISD)	38	3.42	2.68	2.63	2.58
ChatGPT as co-instructor	22	3.18	2.64	2.64	2.45
Faculty Certificate for Teaching and Learning (FCTL)	20	3.80	2.70	2.50	2.60
Pedagogical Partnership Programme (PPP)	20	3.20	2.80	2.50	2.40
Course Design and Delivery (CDD)	18	3.56	2.33	2.00	2.22
Faculty Success Series (FSS)	18	3.44	2.56	2.56	2.44
Large Classrooms	18	3.44	2.67	2.56	2.56
Teaching Squares	18	3.78	3.00	2.78	2.67

The results indicate an overall higher use of innovative pedagogical approaches, particularly active learning strategies. This is also represented in Graph 1 below:

Graph 1: Average scores of faculty self-perception per workshop/program



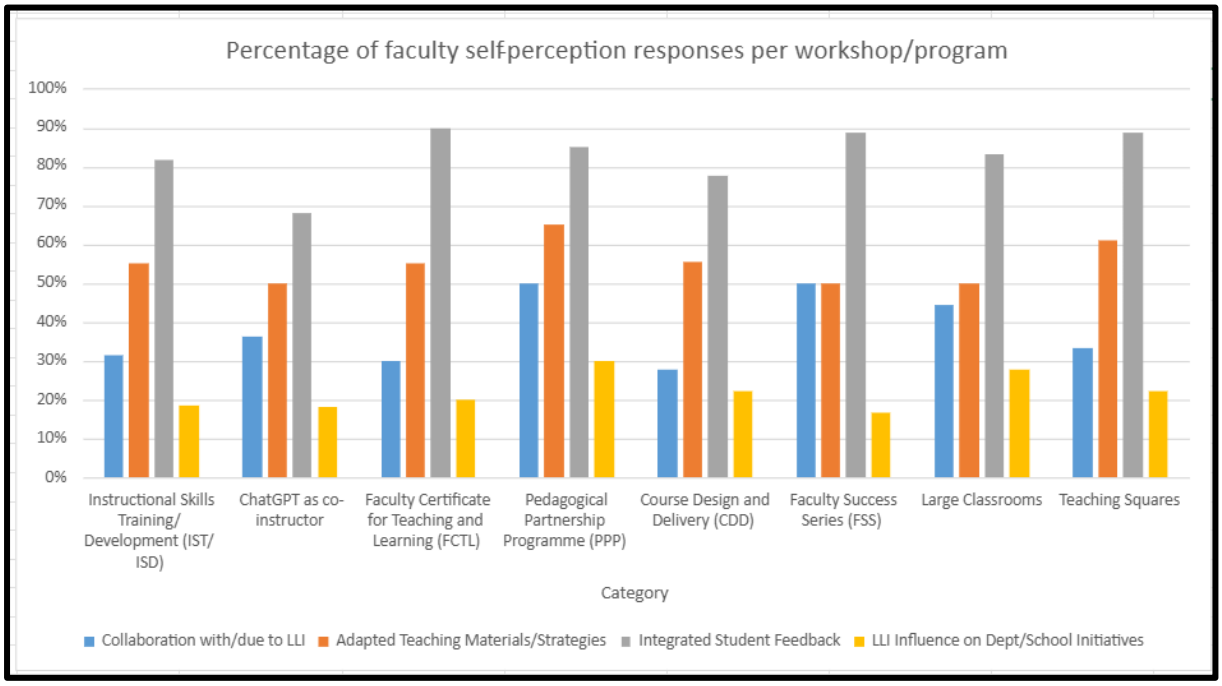
The respondents were also asked if LLI trainings and initiatives had influenced collaborations, adaptation of teaching materials/strategies, integration of student feedback, and overall departmental or school level initiatives. Table 10 below indicates the percentage of respondents who indicated yes as a response.

Table 10: Percentage of faculty self-perception that indicated 'yes' as a response.

Category	Number of Respondents in Category	Collaboration with/due to LLI	Adapted Teaching Materials/Strategies	Integrated Student Feedback	LLI Influence on Dept/School Initiatives
Instructional Skills Training/ Development (IST/ ISD)	38	32%	55%	82%	18%
ChatGPT as co-instructor	22	36%	50%	68%	18%
Faculty Certificate for Teaching and Learning (FCTL)	20	30%	55%	90%	20%
Pedagogical Partnership Programme (PPP)	20	50%	65%	85%	30%
Course Design and Delivery (CDD)	18	28%	56%	78%	22%
Faculty Success Series (FSS)	18	50%	50%	89%	17%
Large Classrooms	18	44%	50%	83%	28%
Teaching Squares	18	33%	61%	89%	22%

This is also represented in Graph 2 below:

Graph 2: Percentage of faculty self-perception responses per workshop/program



Impact

Both quantitative metrics and qualitative narratives provide converging evidence of a positive transformation in teaching practice at LUMS since 2019. Faculty engagement in LLI programs is sizable and sustained, with 60% returning for other workshops in the same academic year. This sustained participation signals strong perceived value among faculty members. Mean scores on the “Instructor” dimension rose by 2 points post FCTL, and six of the eighteen instructors exhibited statistically significant upward shifts in grade distributions. Survey results complement these gains: respondents reported higher use of active-learning techniques, richer assessment repertoires, and measurably greater student participation across most training categories (Table 5). Qualitative interviews echo the quantitative signals, with eight out of the nine interviewees describing a move towards student-centered pedagogy. This triangulation provides high-confidence support to the claim that professional development inputs are translating into observable pedagogical change.

Through this mixed methods approach employed in this study, we have noted positive changes in junior faculty’s approaches to teaching by participating in our faculty development programs. Interview and survey data emphasized that pedagogically LLI is associated with marked shifts from traditional lecture-focused teaching to student-centered approaches. This shift is attributable to their involvement in the faculty development programme and is mirrored in an increase in the proportion of grades awarded at A- level or higher for the six instructors whose distributions shifted significantly.

Pedagogically, LLI participation is associated with marked shifts from traditional, lecture-focused teaching toward student-centered and active learning approaches which was also posited by Light, et al (2009). The faculty, as reflected in their interview and survey responses, is shown to have redesigned courses to incorporate transparent learning contracts, interactive technologies (e.g., PollEV, AI tools), and formative feedback mechanisms, linking it directly to the

workshop content. These practices enhance student engagement and participation, evidenced by faculty observations of increased student contributions and documented improvements in course evaluation scores as evidenced in the literature review. The 2 points gain on the "Instructor" and "course" dimension respectively on the course evaluations corroborates these perceptions and signals a statistically reliable enhancement in teaching quality. Nearly three-quarters (72%) indicated more frequent use of teaching-technology tools, and thirty-four per cent initiated new teaching collaborations, while 56% created or adapted teaching materials as a direct result of LLI participation, signaling sustained reflective practice beyond a single exposure.

In addition, survey and interview respondents highlighted greater confidence in experimenting with assessment strategies and in seeking peer critique. Seventy per cent of survey respondents reported diversifying assessment methods *"A test bank of authentic and renewable assessments for Development Economics and Microeconomics"*, and **70 %** said they now integrate student feedback into course redesigns; the latter is corroborated by 48 survey responses specifically citing feedback loops. 5 Interviewees likewise emphasized formative checks and rubric-based grading as emergent practices, underscoring alignment between the datasets.

Quantitative metrics and faculty testimony converge on three positives: greater active-learning adoption, richer assessment practices, and sustained professional growth, while diverging on workload feasibility, disciplinary tailoring, and institutional incentives. These convergences and divergences frame the subsequent Discussion section and directly inform the targeted recommendations that follow.

Discussion

Despite the broad alignment, three discrepancies emerged when quantitative and qualitative data were examined in parallel. Faculty workload and workshop scheduling seem to be a hinderance in faculty participation. While survey satisfaction is high, faculty still cited "time poverty" and email overload as a barrier to deeper engagement. Similarly, interviews portrayed time-poverty, especially heavy semester loads, as main obstacles to either attending workshops or redesigning syllabi. Faculty spoke of research deadlines, meetings, and family obligations that "still squeeze teaching prep". Survey comments echo this: one respondent cites "timing isn't in my favour…meetings, research, classes," while another posits that the university is "not paying enough attention to time poverty."

Perceived lack of disciplinary fit undermines equitable faculty participation. Attendance logs show cross-school participation, but HSS and SSE faculty report that workshop examples "seem mostly from STEM" "or business or law," leaving them feeling "left out" or workshop "not relevant" for them, a concern echoed in interviews. Parallel interview data confirm a "content mis-fit/disciplinary skew," with faculty asserting that programs are "mostly for people teaching in the science and engineering school". This divergence indicates that overall participation numbers obscure discipline-specific relevance gaps; without tailored tracks or exemplary case-studies, uptake and impact remain uneven.

In addition, there is a trend of experienced faculty (more than 15 years of teaching experience) who never felt the need to seek out teaching help: *"I think I'm doing okay. My evaluations are over 4.6 every semester… I feel a sense of satisfaction; it's not an area I feel I need to invest time to elevate."* For such established faculty with strong student feedback, the incentive to engage with LLI may be low – especially given time constraints (this professor mentioned having "three kids" and barely managing existing duties). Yet another survey respondent related to adoption of tools and pedagogical strategies mentioned *"i didnt learn any*

of these and other tools through LLI - I knew of them earlier Plus i learnt new ones myself." The challenge here is twofold: demonstrating value to experienced faculty who believe their teaching is already effective and accommodating their busy schedules. This could be mitigated by introducing programmes that target the needs of experienced faculty.

While most interview and survey respondents value the LLI credentials, they are weakly embedded in promotion policy. Interviews reveal uncertainty about whether LLI credentials carry weight in promotion decisions; only two of the nine interviewees felt such evidence mattered. Typical remarks include "teaching evidence still weighs less than publications". The survey contained no item on promotion policy, leaving this divergence visible only in qualitative data.

The 2024 survey did not include a promotion-policy item, leaving this divergence visible only qualitatively. The absence of quantitative confirmation itself is telling; institutional reward structures remain opaque enough that they were not probed in the standard survey. Closing this gap requires both (a) dialogue with academic leadership to embed LLI evidence formally in promotion criteria, and (b) a new closed-ended survey question so future evaluations can track change numerically.

On a broader level, faculty touched on certain institutional conditions that affect LLI's impact. One issue is the competitive academic culture at the university, which can dampen the openness needed for pedagogical innovation. An experienced instructor observed that junior faculty often feel intense pressure to prove themselves in research and may deprioritize teaching development unless there is a cultural signal that teaching excellence is valued. The ongoing efforts to revamp course evaluations (with LLI involvement) and introduce peer observation are steps in the right direction, as noted by an economics professor:

"We're involving LLI more in peer evaluations... also mentorship for newer faculty... we have a very informal approach, which works sometimes and not others"

Her point was that without formal structures, some faculty slipped through without support. The opportunity here is to integrate LLI into faculty development pathways (for example, making LLI workshops a regular part of department activities or promotion criteria). She also praised that having an administration that values data-driven decision making (e.g., a Vice Chancellor who is an economist and an educator) has led to more systematic approaches, implying that top-level support and expectations are crucial for culture change.

Quantitative data corroborates these qualitative insights, showing improvements in course evaluations for some instructors and positive shifts in grade distributions for others, indicating improved student learning outcomes. While not all the changes seen are statistically significant due to sample size constraints, the consistent trend across multiple metrics strengthens credence in LLI's impact.

Furthermore, LLI has accelerated professional growth and fostered a supportive community of practice among faculty members. Peer mentoring, workshops such as Teaching Squares (and the Faculty Success Series), and reflective dialogue contribute to sustained instructional improvement. Institutionally, LLI is becoming increasingly embedded in the university culture, as seen by its role in faculty evaluation/ appraisal criteria, as well as thought leadership work on course evaluation, AI policy, and more. These findings align closely with existing literature on faculty development programs. Consistent with Gibbs and Coffey (2004) and Knight et al. (2007), LLI has facilitated a shift toward student-centered pedagogy. The role of longitudinal engagement through programs like the FCTL mirrors the sustained intrapersonal development and professional identity growth documented in previous studies.

The integration of active learning strategies and formative assessments reflects best practices supported by Freeman et al. (2014) and Sullivan et al. (2005), who linked pedagogical innovations like these to improved student outcomes. LLI's support for peer mentoring and reflective practice echoes findings by Ferman (2002) and Steinert et al. (2016) that highlight

community building as essential for lasting change. Some of the challenges identified in this study, such as workload pressures, scheduling conflicts, and the need for field-specific content, are like barriers documented by McLean et al. (2008) and Steinart & Mann (2006). The call for embedding teaching development within institutional reward systems aligns with the critical cultural shifts emphasized by Whitcomb (2003) and Hill & Stephens (2004). Overall, LLI embodies a best-practice model in line with global evidence on effective faculty development, demonstrating the potential for individual and institutional transformation when programs are thoughtfully designed and contextually relevant.

However, it is important to note the limitations of the interpretation of these findings. Firstly, the mixed methods design, while robust for triangulating results, cannot establish causality as there is no controlled experimental setup. Improvements in course evaluations and grade distributions, although promising, may also be influenced by external factors like concurrent university initiatives. Secondly, the sample size for quantitative analyses is small, specifically the number of instructors and courses per period, limiting statistical relevance/ generalization. Thirdly, the voluntary nature of participation in interviews and surveys introduces potential selection bias, with the likelihood of more engaged or positively inclined faculty responding to such requests. The perspectives of non-participating or skeptical faculty have been included, but that group remains underrepresented, limiting insight into barriers faced by them. Fourth, qualitative data, while rich, relies on self-reporting and may be subject to bias, as faculty might emphasize positive outcomes while underreporting ongoing challenges. Finally, the study is context-specific to LUMS and its institutional culture, which may limit transferability to other higher education settings unless it is adapted.

Despite these limitations, the study's significance lies in its comprehensive, evidence-based assessment of LLI's impact on teaching and learning. The resultant findings present a compelling case that sustained faculty development can usher in meaningful pedagogical transformation, benefiting both faculty and students. Some of the institutional changes

observed, such as policy alignment with teaching excellence, utilizing LLI participation metrics as part of yearly appraisals, and the emergence of departmental initiatives inspired by the LLI indicate that faculty development may serve as a driver of broader cultural shifts on campus as documented by Cilliers and Hermen (2010). The LLI's work, grounded in reflective teaching practices, peer collaboration, and pedagogical innovation, contributes to position LUMS as a leader in pedagogical excellence in Pakistan's higher education space. Finally, this study underscores the importance of responsiveness and relevance in program design, and the need to continuously adapt offerings to evolving faculty needs, emerging or disruptive technologies, and field-related developments.

Conclusion and Recommendations

The LLI has emerged as a catalyst for pedagogical transformation at LUMS, creating a ripple effect from faculty development to improved student engagement and performance, ultimately contributing to institutional culture change. Faculty credit LLI with enhancing classroom clarity, student participation, and teaching creativity, while also fostering a collaborative, cross-disciplinary community.

To build on current findings and address identified gaps, future research and program development should consider the following:

1. **Workload pressures and scheduling:** LLI should target emails to individual faculty instead of broadcasting it. LLI could also introduce flexible delivery models: Experiment with varied formats such as modular sessions, online micro-modules, and rolling enrollments to overcome scheduling barriers in order to expand access. shifts and faculty advocacy. **Enhance targeted outreach** through interest-based mailing and structured onboarding sessions for new hires (responding to participation drop-offs and communication gaps).
2. **Target 'Missed' Faculty:** Further scale LLI's impact through strategic initiatives such as developing strategies to engage faculty members who appear less inclined to participate, through peer-led initiatives. Particularly introduce programing for mid to advanced career faculty instead of focusing on early career faculty. Scholarship of Teaching and Learning (SoTL) is one step towards this. However, in terms of avenues for advanced pedagogical workshops, instructional leadership training for academic as well as non-academic staff etc. This can also be done through **Discipline-Specific Programming.** Develop and customize workshops and micro-modules that address unique pedagogical challenges and priorities for the different schools at LUMS.

3. **Policy Alignment:** Conduct a dialogue with university's academic leadership to embed LLI credentials on faculty's professional development certifications as part of tenure and promotion policy in order to incentivize faculty participation and signal to faculty that university values teaching as much as it values research. Additionally, many of the programs and methodologies used for human capital development in the business world can also be used in faculty development. Shared responsibility is important whereby senior administrators/faculty of the university need to become advocates for faculty development and actively promote participation. Moreover, it is time to move beyond the teaching versus research debate and explore how these areas, though distinct, can complement each other. Michael Prince, Richard Felder, and Rebecca Brent (2011) argue that simply discussing research content in the classroom has not been shown to improve instruction. They propose that teaching methods such as inquiry-based and problem-based learning, which mirror the research process, provide a more meaningful connection. Southern Illinois University Edwardsville (SIUE) committed to valuing meritorious teaching for promotion and tenure in 1994-95, requiring candidates to demonstrate significant teaching performance alongside scholarship or service. This policy has led to improvements in student learning across SIUE, supported by various initiatives focused on enhancing teaching quality. Additionally, **formally integrate LLI credentials** into tenure, promotion, and teaching awards (mirroring institutional culture.

By focusing on these areas, future iterations of LLI programming and research can deepen impact, broaden reach, and support an ongoing culture of teaching innovation at LUMS and beyond. Thematic analysis of faculty experiences reveals that the LLI has become a powerful lever for elevating teaching and learning at the university. Through its workshops, certificate program, and collaborative forums, LLI has helped faculty transform their teaching practices, leading to more engaged classrooms and innovative pedagogy. Faculty credit LLI with improving student participation, enhancing clarity and organization in courses, and even sparking

pedagogical creativity that has led to better student outcomes and new research endeavors. Equally important, LLI has fostered a budding community of educators who value reflective teaching and openly share strategies across disciplines, a cultural shift from teaching being a private endeavor to a collective pursuit of excellence.

To deepen its influence, LLI should build momentum from successful alumni and teaching award recipients by involving them as mentors and departmental facilitators. Strengthening alignment with university policies and expanding efforts in assessment of innovation and inclusive teaching will help translate improved pedagogy into measurable student outcomes. Future programming should adopt agile, modular formats and be informed by faculty needs assessments to ensure broader engagement. LLI can sustain a culture of reflective, student-centered teaching and broaden its institutional reach by leveraging its current strengths and addressing identified gaps.

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Appendix A: Faculty Certificate in Teaching and Learning (FCTL)

Figure 3: The overall program structure of FCTL