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Innovative Pedagogy for the Future: From Evidence-Informed Teaching to Evidence-Producing Learning

A Conceptual Framework for Higher Education - Critical Integrative Literature Review

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Abstract

Universities are under pressure to modernize teaching, widen access, and respond to generative artificial intelligence (GenAI). Much of the current talk treats innovative teaching as a list of tools and techniques. This paper argues that the real gap lies elsewhere: most institutions have no dependable way for everyday teaching to produce trustworthy evidence about learning and then use it to change practice. Through a critical integrative review of work on educational philosophy, active learning, assessment and feedback, learning analytics, and GenAI, the paper traces a path from transmission teaching, through student-centered and evidence-informed models, to Evidence-Producing Pedagogy (EPP). It then presents the eight-dimension Evidence-Producing Pedagogy Framework (EPPF), a four-phase implementation model, and a set of critical tensions, and it outlines a research agenda that gives attention to Pakistan and South Asia. The paper is written in the light of the KUST ORIC-funded project “Empowering Excellence” (Principal Investigator: Prof. Dr. Muhammad Naseer Ud Din) and its three-day faculty workshop on AI in education and pedagogical techniques, organized with IER and CHRCD. It closes with the NASEER Framework, a possible solution for faculty development in the AI age. The contribution is conceptual. The framework has not been tested empirically, and it is offered as a structured starting point for that work.

Keywords: *Innovative pedagogy; evidence-producing pedagogy; evidence-informed teaching; higher education; formative assessment; learning analytics; generative AI*

1. Introduction

The most common terms and words, such as “active learning,” “flipped classrooms,” “blended delivery,” “adaptive learning,” and “AI feedback,” now appear in almost every university strategy document. They have spread faster than the reasons for choosing them. An institution may adopt a new tool because it looks modern and later find it cannot say whether learning improved.

This creates a paradox. On the one hand, there is strong research on what works. Freeman et al. (2014) synthesized 225 studies and determined that active learning improves the examination grade by approximately half a letter grade and reduces the number of students failing to pass undergraduate science, technology, engineering and mathematics (STEM) classes as compared with lecturing. There's an unseen price tag on active learning, too. However, satisfaction scores do not necessarily indicate good learning; Deslauriers et al. (2019) found that active classes achieved higher learning outcomes, but experienced less satisfaction. Prince (2004) in a previous review found similar results with engagement. Concurrently, this knowledge is diffused unevenly into daily practice, and research on GenAI applications begins to question its possible applications not only in terms of its availability but also in terms of its potential for good usage (Belkina et al. 2025; Zawacki-Richter et al. 2019).

The paper's argument is simple. The main problem is not a shortage of innovative methods or of research findings. It is the lack of a routine through which a teacher's own classroom becomes a source of evidence so that the next lesson can be improved. Existing frameworks each cover part of the picture. Constructive alignment links outcomes, activities, and assessment (Biggs, 1996). TPACK describes the knowledge teachers need to use technology well (Mishra & Koehler, 2006; Koehler et al., 2013). The Community of Inquiry describes social, cognitive, and teaching presence online (Garrison et al., 1999; Garrison & Arbaugh, 2007). Learning analytics deals with collecting and reporting learner data (Long & Siemens, 2011). None of them joins philosophy, teaching design, assessment, evidence, interpretation, and action into one continuing cycle. This paper proposes Evidence-Producing Pedagogy (EPP) to do that.

The paper is written in the light of the KUST ORIC-funded project “Empowering Excellence: A Comprehensive Framework for Holistic Faculty Professional Development in Pedagogical Skills, Artificial Intelligence (AI) in Education, Sustainable Practices, Student Learning Outcomes (SLOs)-Based Teaching, and Assessment Techniques at Kohat University of Science and Technology (KUST)”. The project is led by Prof. Dr. Muhammad Naseer Ud Din as Principal Investigator. As part of it, KUST ORIC is organizing a three-day Faculty Professional Development Training Workshop, “Faculty Professional Development Training in AI in Education and Pedagogical Techniques,” in collaboration with the Institute of Education and Research (IER) and Centre of Human Resource Career Development (CHRCDD). The workshop covers AI-integrated education, innovative pedagogical practices, SLO-based teaching, and assessment techniques. Themes which are discussed in this paper are the same on which this project is based and has a real institutional setting in,

The importance of this study lies in the fact that it will relate the use of artificial intelligence in education to actual faculty development and new methods of teaching. Faculty members will be trained on how to apply artificial intelligence, a student-centered approach to teaching, an SLO-based approach, and effective assessments to their classes. Moreover, an actual institutional context will be provided by KUST for the implementation, observation, and

evaluation of these approaches. It also promotes a culture of **evidence-based teaching**, helping faculty make informed decisions about when and how educational technologies should be used. Moreover, the project can provide a **scalable model for AI-enabled faculty development** that may be adapted by other higher education institutions in Pakistan.



Figure 1. Concept Map of Three-Day Faculty Professional Development Training Workshop (Author, 2026)

2. The Problem

There are three symptoms that have been mentioned repeatedly in the literature. One reason why innovation is sought after for its own sake is this. A recent review of 21 case studies of GenAI in higher education by Belkina et al. (2025) showed that many of these tools fall in the lower levels of SAMR: substitution. Second, evidence gathered typically consists of compliance data – grades, satisfaction scores, retention rates, etc. These rarely connect to a specific teaching decision. Large amounts of data are not the same as useful evidence, a point made repeatedly in the analytics literature (Long & Siemens, 2011). Third, even when a teacher reads the signs well, there is seldom a formal channel that carries the lesson into curriculum design, assessment redesign or staff development.

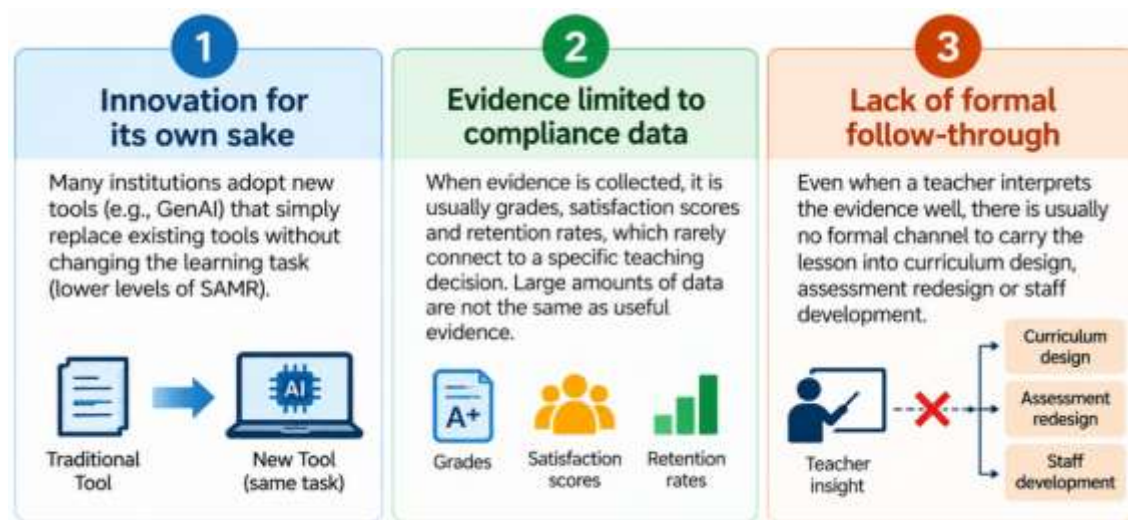


Figure 2. Three Critical Gaps in AI-Integrated Educational Practice(Author, 2026)

3. Philosophical Foundations

A framework that treats teaching as a continuing source of evidence needs roots deeper than technique. Table 1 summarizes eight traditions that point in the same direction: away from handing over fixed content and toward inquiry, dialogue, reflection, and improvement. Socrates showed that questioning can reveal what a learner really understands at the moment of the exchange. Dewey (1938) argued that an experience is educative only when its results shape what happens next. Piaget (1970) taught us to read mistakes as evidence of how a learner is thinking. Vygotsky (1978) placed learning in interaction and made the zone of proximal development a constant call for evidence about where a learner stands. Freire (1970) warned against the banking model and asked teachers and students to investigate problems together. Self-determination theory adds that learners engage more when they feel autonomy, competence, and connection (Ryan & Deci, 2000). Schön (1983) showed that skilled practitioners read situations and adjust as they work. Kolb (1984) described learning as a cycle, and Bruner (1966) added the spiral curriculum and scaffolding that is withdrawn or restored as evidence changes.

Table 1. Philosophical foundations and what each gives to evidence-producing pedagogy

Thinker	Core idea	Contribution to EPP
Socrates	Dialogic questioning	Questioning generates evidence during teaching
Dewey	Experience and reflection	Outcomes of an activity inform the next step
Piaget	Constructivism	Misconceptions are diagnostic evidence
Vygotsky	Zone of proximal development	Evidence locates the learner to calibrate support
Freire	Problem-posing education	Learners interpret evidence with the teacher
Schön	Reflective practitioner	Professional judgment stays central
Kolb; Bruner	Experiential cycle; spiral curriculum	Improvement is cyclical and revisable
Bloom; Biggs	Cognitive levels; constructive alignment	Aligned assessment gives trustworthy evidence

Constructive alignment deserves a special note. Biggs (1996) argued that outcomes, teaching activities and assessment tasks must fit together. In this paper it is treated as a precondition. If an assessment does not measure the intended outcome, the evidence it produces is at best hard to interpret and at worst misleading.

Evidence-based teaching and learning is a concept that has its origins rooted in the writings of some of the greatest educational theorists. “Socrates” stressed the use of dialogic questioning, whereby evidence could be collected on the understanding of learners through questioning and dialogue. “John Dewey” emphasized the connection between experience and learning, where he suggested that the results of the activity could serve as evidence in determining what to do next. The view of learning as an active process of knowledge construction held by “Jean Piaget” means that misconceptions by the learners provide valuable evidence regarding how their thinking evolves. The Zone of Proximal Development theory put forward by Lev Vygotsky further emphasizes the need for evidence in determining what the learner can do without any help and areas that require more assistance. “Paulo Freire” emphasized dialogue and problem-posing education, whereby both teachers and learners together interpret experiences and evidence. Similarly, like this, “David Kolb” suggested that learning takes place as a cycle involving experiencing, reflecting, concept formation, and experimenting, whereas “Jerome Bruner” focused on the repetition and broadening of knowledge via the spiral curriculum approach. Finally, “Benjamin Bloom” and “John Biggs” made their contribution by aligning the learning outcomes, instructional methods, and assessments, stressing the importance of creating evidence that truly depicts what should be learned by students. Altogether, such approaches imply that evidence in an educational context is not only a set of grades or figures, but it is the data created as a result of asking questions, observing, experiencing, assessing, reflecting, and communicating.

Thinker	Key Idea	Role of Evidence
Socrates	Dialogic questioning	Questioning generates evidence during teaching
Dewey	Experience and reflection	Outcomes of an activity inform the next step
Piaget	Constructivism	Misconceptions are diagnostic evidence
Vygotsky	Zone of proximal development	Evidence locates the learner to calibrate support
Freire	Problem-posing education	Learners interpret evidence with the teacher
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Figure 3. Theoretical Foundations Linking Pedagogy, Learning, and Evidence
(Author, 2026)

4. What the Evidence Says About Innovative Pedagogy

Active learning has the strongest comparative evidence. The Freeman et al. (2014) meta-analysis reported roughly half a letter grade of improvement and failure rates that were about 1.5 times higher under lecturing. Two cautions matter. Many of the studies are from high-income countries, particularly from the United States, and transferring to other systems is a question of whether that can be done. Also, the term “active learning” refers to a wide range of practices, and the effects of any classroom average won't guarantee any individual classroom. PBL has been shown to help students develop flexible knowledge and self-directed learning skills (Hmelo-Silver, 2004), but Kirschner et al. (2006) claim that structure is important to avoid failure by novices. Flipped and blended models show mixed results. A meta-analysis across disciplines found positive effects that varied with design (Strelan et al., 2020), because they depend on whether students complete pre-class work and whether class time is truly redesigned. Online and blended courses also raise the question of whether the online part supports real interaction, which the Community of Inquiry framework describes through social, cognitive and teaching presence (Garrison et al., 1999).

Formative assessment and feedback have a long record of support. Black and Wiliam (1998, 2010) concluded that assessment used to adjust teaching and learning is one of the most reliable ways to raise achievement. Hattie and Timperley (2007) proposed that useful feedback answers three questions: where am I going, how am I going, and where to next. Sadler (1989) argued that learners need to know the goal, see where they stand and know how to close the gap. Nicol and Macfarlane-Dick (2006) linked good feedback to self-regulation, and Black and Wiliam (2009) developed a fuller theory of formative assessment. A later meta-analysis confirmed a moderate average effect of feedback, larger when it carried rich information beyond right and wrong (Wisniewski et al., 2020). Feedback aimed at strategy and self-regulation tends to be stronger than praise aimed at the person. Feedback that learners do not understand or use changes nothing, which is why later work stresses feedback literacy (Boud

& Molloy, 2013; Carless & Boud, 2018). Peer assessment can be reliable and useful in universities when it is well organised (Topping, 1998), and self-assessment supports self-regulation and self-efficacy (Panadero et al., 2017). Panadero (2017) compared six models of self-regulated learning and showed how they overlap. Zimmerman (2002) described self-regulation as a cycle of forethought, performance and reflection. It matters here because self-assessment and reflective journals move part of the interpretation from the teacher to the learner.

Inclusive approaches such as Universal Design for Learning (CAST, 2024) remind us that the same evidence can mean different things for different students. Learning analytics gives access to digital traces of activity, but engagement measures are not reliable stand-ins for deep learning. A review of analytics in higher education found limited evidence so far that it improves learning outcomes (Viberg et al., 2018), and Gašević et al. (2015) argue that analytics must be grounded in learning theory. Ifenthaler and Yau (2020) reviewed how analytics can support study success, and Slade and Prinsloo (2013) set out the ethical dilemmas around learner data. Practice testing and spaced practice are also among the study techniques with the strongest support (Dunlosky et al., 2013). Table 2 gives a compact overview.

Table 2. Major pedagogies, strength of evidence and key limits

Approach	Evidence base	Main limitation
Active learning	Strong: 225-study meta-analysis (Freeman et al., 2014)	Studies concentrated in high-income settings
Flipped classroom	Mixed, implementation-dependent	Relies on pre-class completion
Formative assessment	Strong, long-standing (Black & Wiliam, 1998, 2010)	Quality and uptake of feedback
Feedback	Synthesis (Hattie & Timperley, 2007)	Varies by focus and learner literacy
Self-regulated learning	Cyclical model (Zimmerman, 2002)	Strategies must be taught
Inclusive design (UDL)	Guidelines and case evidence (CAST, 2024)	Few large comparative studies
Learning analytics,	Promising, context-dependent	Engagement mistaken for learning
GenAI pedagogy,	Emerging (Belkina et al., 2025)	Mostly substitution-level use

5. From Evidence-Informed to Evidence-Producing Pedagogy

Evidence-Producing Pedagogy is here a systematic pedagogical approach in which the creation of learning evidence is intentionally designed to be reliable, and is interpreted, evaluated, and reused by educators and learners to enrich subsequent forms of learning. Four points are very distinctive. There is no 'accidental' evidence generation. Quality checks are stated tests, meaning that they precede actions. Interpretation is shared between teachers and learners, in line with Freire and Zimmerman. The cycle ends with a teaching decision change and not a report, with the loop closed.

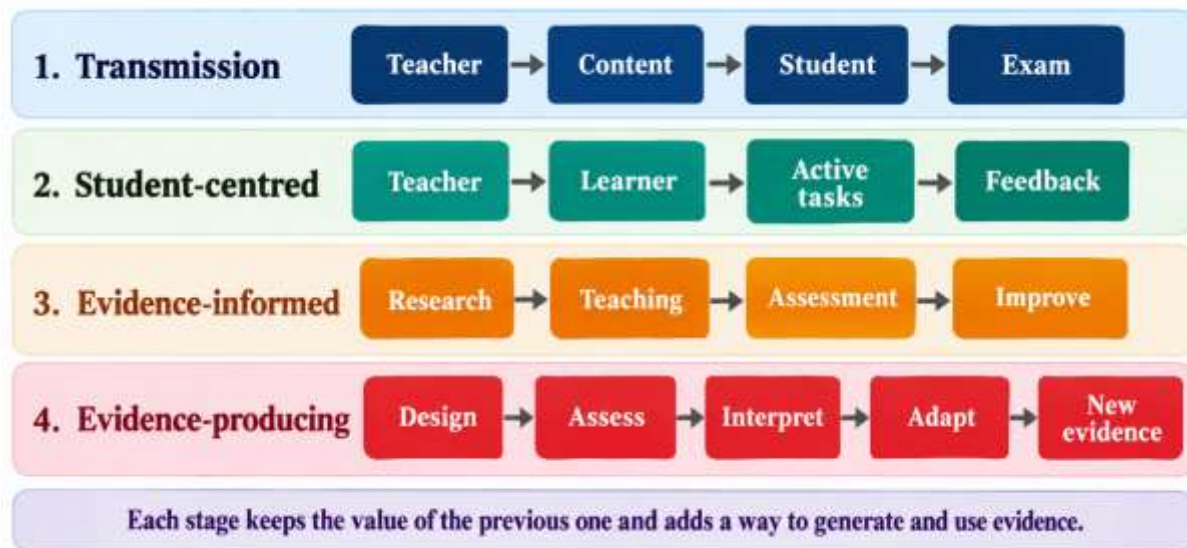


Figure 4. Evolution from transmission teaching to Evidence-Producing Pedagogy. Each stage keeps what came before and adds a way to generate and use evidence. (Author, 2026)

Evidence-Producing Pedagogy is defined here as a systematic pedagogical approach in which teaching, learning, assessment, reflection and educational technologies are deliberately designed to generate trustworthy learning evidence that is interpreted by educators and learners and used repeatedly to improve later teaching decisions. Four features stand out. Evidence generation is planned, not accidental. Trustworthiness is a stated test, so quality checks come before action. Interpretation is shared between teachers and learners, in line with Freire and Zimmerman. And the loop is closed, so the cycle ends in a changed teaching decision and not in a report.

Evidence can come from many channels: embedded formative tasks, classroom questioning, drafts and revisions, peer and self-assessment, concept inventories, observation, portfolios, student feedback on teaching, forum and learning-platform traces, AI tutoring interactions and small classroom studies. No single stream is enough, so triangulation is the safeguard. Figure 2 shows the chain that turns raw data into action. Each step needs deliberate work. A score becomes information once it is organised, evidence once it is judged reliable, valid and relevant to a question, and useful only when it is interpreted and leads to a decision.

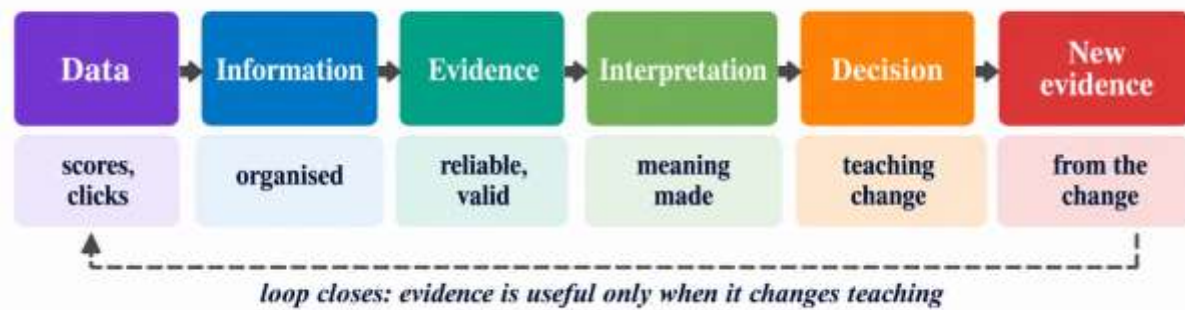


Figure 5. The chain from data to evidence to action. Every step requires deliberate work and the loop returns as new evidence. (Author, 2026)

6. The Evidence-Producing Pedagogy Framework (EPPF)

EPPF has eight connected dimensions, shown in Figure 6 and described in Table 3. It sits inside four contextual conditions: AI and analytics, student agency and inclusion, teacher reflection and development, and institutional support, ethics and academic integrity. Dimension 1 is the normative core. Evidence must never turn learners into mere data sources. Dimension 5 is the main safeguard against confusing data with evidence, since no source is treated as interpreting itself.

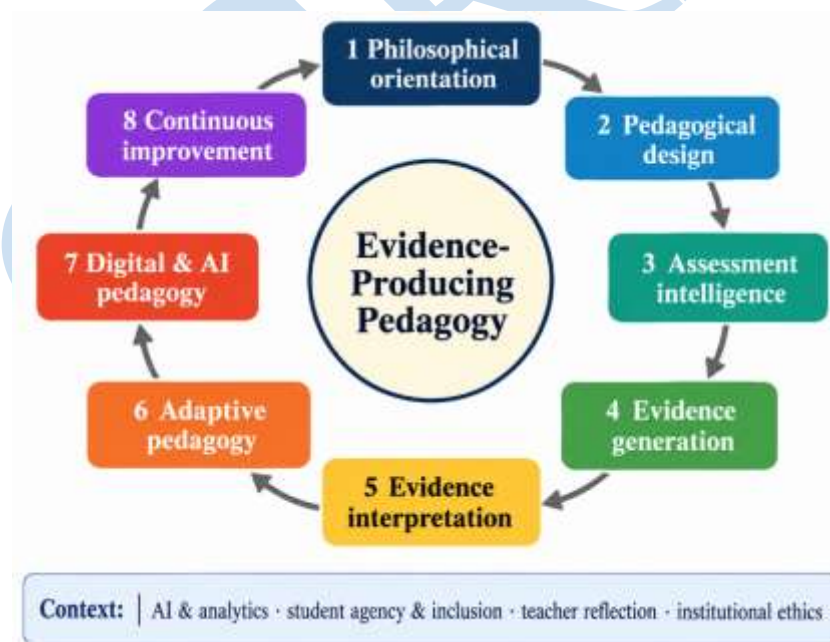


Figure 6. The Evidence-Producing Pedagogy Ecosystem: eight dimensions arranged as a continuous cycle. (Author, 2026)

Table 3. The Eight Dimensions of EPPF

Dimension	What it covers	Anchors
1 Philosophical orientation	Agency, inquiry, dialogue, democratic participation	Dewey, Freire
2 Pedagogical design	Active, problem-based, flipped and blended designs chosen for context	Freeman et al. (2014)
3 Assessment intelligence	Aligned diagnostic, formative, peer, self and authentic assessment	Biggs (1996); Black & Wiliam (1998)
4 Evidence generation	Plural channels; triangulation	Long & Siemens (2011)
5 Evidence interpretation	Teacher judgment, learner reflection, quality checks	Schön (1983); Zimmerman (2002)
6 Adaptive pedagogy	Scaffolding, remediation, enrichment based on evidence	Vygotsky; Bruner
7 Digital and AI pedagogy	AI as a tool under human oversight	Mishra & Koehler (2006); Belkina et al. (2025)
8 Continuous improvement	Teach, measure, interpret, reflect, adapt, re-teach	Kolb (1984)

EPPF does not replace existing frameworks. Constructive alignment supports the validity logic of Dimension 3. TPACK and SAMR guide the use of technology in Dimension 7. The Community of Inquiry helps read evidence from online settings. Universal Design for Learning keeps interpretation sensitive to learner variety. What EPPF adds is the joined-up cycle across all eight dimensions.

7. Artificial Intelligence and Evidence

GenAI can help and can harm. Intelligent tutors and feedback tools can produce individual diagnostic evidence at a scale no teacher could match by hand, and can deliver Hattie and Timperley's three feedback questions more often. Yet Zawacki-Richter et al. (2019) found early AI research paid little attention to educators and ethics, and García-López and Trujillo-Liñán (2025) highlight privacy, bias and inequality as repeated concerns. Broader reviews agree. Kasneci et al. (2023) discuss the opportunities and challenges of using LLM in education, Holmes and Tuomi (2022) trace the state of the art and practice, Bond et al. (2024) urge for more ethics, more collaboration and more rigour in the research process, and Chan (2023) presents a policy framework for universities. The design philosophy for EPP is that AI is a tool for evidence generation and interpretation and must be subject to human judgement and oversight by institutions. The primary trade-offs are stated in table 4.

Table 4. Opportunities and risks of AI in evidence-producing teaching

Area	Opportunity	Risk
Scale	Individual feedback for large classes	Loss of dialogue and subject depth
Speed	Rapid feedback cycles	Shallow engagement if feedback is not used
Diagnosis	Fine detection of misconceptions	Bias in how misconceptions are modelled
Personalization	Pathways fitted to needs	Privacy, surveillance and consent
Integrity	AI literacy supports responsible use	Outsourced thinking weakens assessment validity
Equity	Support outside class hours	Unequal devices and connectivity
Teacher role	More time for attitudes, , interpretation	Judgment displaced instead of supported

8. Faculty Development, SLOs, and Assessment

In as much as this paper is tied to a faculty development project, it is appropriate to question what the literature has to say about training teachers. Studies of faculty development in higher education report positive outcomes for faculty knowledge, attitudes and skills; some impact for practice; and fewer for student learning (Steinert et al., 2016). Postareff et al. (2007) found that shorter courses had less impact on teaching than longer courses. Desimone (2009) proposes that effective professional development has a content focus, active learning, coherence, sufficient duration and collective participation. The design is found to be an effective design that will cause follow-up and shared reflections after the event. Teachers should also have a knowledge base that brings together content, pedagogy and technology (Koehler et al., 2013). Student learning outcomes (SLOs) are the natural anchor for evidence. Harden (2002) explained that learning outcomes describe what learners can do at the end of study, in contrast to narrower instructional objectives. Tam (2014) reviewed the outcomes-based approach and noted both its value for quality and curriculum improvement and the risk of rigid, box-ticking use. Combined with constructive alignment (Biggs, 1996), clear SLOs let a teacher ask a precise question of any assessment: does this task show whether students reached this outcome? Table 5 summarizes what each strand of literature contributes.

Table 5. Faculty development, SLOs and assessment: what the literature offers

Strand	Key sources	Lesson for EPP
Faculty development	Steinert et al. (2016); Postareff et al. (2007); Desimone (2009)	Sustained, active, shared programmes work better than one-off events
SLOs and alignment	Harden (2002); Tam (2014); Biggs (1996)	Write outcomes as learner abilities and align tasks to them
Assessment and feedback	Black & Wiliam (2009); Wisniewski et al. (2020)	Use assessment to guide teaching, and help learners use feedback
AI in education	Kasneci et al. (2023); Bond et al. (2024); Chan (2023)	Adopt AI with policy, ethics and human oversight

9. Implementation and Institutional Needs

A staged route is more realistic than a single mandate. Figure 4 outlines four phases derived from the framework's logic, not from a trial. In orientation, staff learn the data–evidence–decision distinction and the EPPF vocabulary through existing development programmes. In design, courses are checked for alignment and at least one activity per unit is planned as an evidence-generating occasion. In integration, digital and AI tools are added and judged with SAMR and TPACK. In institutionalisation, routines such as teaching-review meetings, peer observation and analytics reviews become part of normal governance.

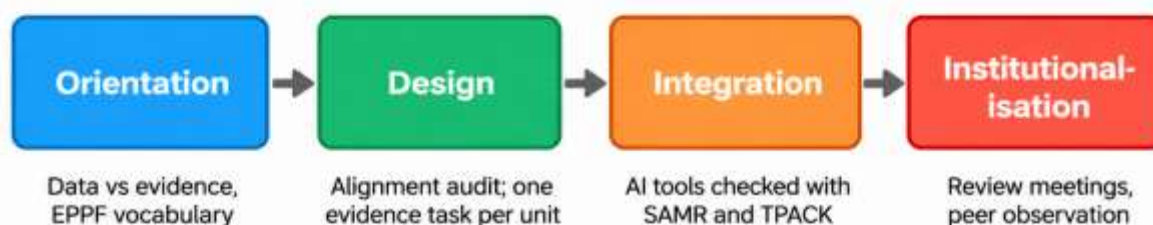


Figure 7. A four-phase implementation pathway for EPPF. (Author, 2026)

Institutions also need governance that interprets evidence and does not just collect it, data systems that protect privacy and consent, recognition of interpretation work in staff workload, sustained development in assessment and AI literacy, clear policy on AI in assessment, fair resourcing and research capacity. Teachers, for their part, need assessment literacy, data and evidence literacy, technological pedagogical judgement, reflective habits, inclusive interpretation and ethical awareness. These are propositions to be tested, not established findings.

Table 6. A practical evidence cycle for one course unit

Step	Teacher action	Example in a large class
Ask	Write one learning question for the unit	Where do students confuse a mean and a median?
Collect	Plan an evidence task	Five-minute paper-based quiz; show-of-hands poll
Check	Ask if the evidence is valid and reliable	Does the quiz match the outcome? Is the sample broad?
Interpret	Read results with students and a peer	Group discussion of common errors
Decide	Change the next lesson	Reteach with a worked example
Reflect	Note what changed and start again	Compare the next quiz with the first

10. Critical Tensions

A framework this broad can drift into optimism, so it must face its own tensions. Novelty, innovation, and effectiveness need not go together so novelty isn't evidence. The technological tools should be applied to support teaching and not to set it. Data are not evidence. Artificial Intelligence can complement but not supplant professional judgment. Personalisation is against privacy. Automated feedback is efficient but can be devoid of conversation and mentoring. Numbers alone can fail to capture meaning and standard metrics can fail to capture learner diversity. As such, these tensions are ongoing and need to be addressed and managed and thus are at the centre of EPPF, with philosophical orientation (Dimension 1) and interpretation (Dimension 5).

Table 7. Critical tensions and how EPPF responds

Tension	What can go wrong	EPPF response
Innovation vs. effectiveness	Novelty mistaken for impact	Test every innovation against evidence
Data vs. evidence	Dashboards without meaning	Quality check and interpretation (Dimension 5)
AI vs. human judgment	Automated decisions replace teachers	AI kept under human oversight (Dimension 7)
Personalization vs. privacy	Surveillance and bias	Consent, governance and agency (Dimension 1)
Efficiency vs. depth	Fast feedback, little dialogue	Blend automated and dialogic feedback
Standardization vs. diversity	Learners flattened into metrics	Inclusive, context-sensitive reading

11. Research Gaps and the South Asian Context

The literature reveals the following gaps: Relatively low attention to pedagogical theory in AI studies, not much attention to teachers' judgement as an interpretive resource, few studies focused on equity in AI-supported teaching, few long-term AI studies, relatively low number of studies using student-generated evidence, and weak link between research and classroom practice. Large class sizes, disjointed digital infrastructures in the region and examination-based cultures in Pakistan and South Asia determine what is possible in these gaps. Active-learning formats need adapting to large lecture halls. Low technology methods of evidence generation may be required, e.g. structured questioning, paper-based formative tasks. Special care must be taken with access to the devices and connectivity for AI adoption. There is no evidence that these conditions undermine EPPF; however, they require research through implementation, taking context into account.

Table 8. Priority research directions

Gap	Future research direction
Research–practice gap	Design-based implementation studies in real institutions
Single evidence source	Triangulated studies across formative, analytic and qualitative data
Short-term evidence	Multi-year cohort studies of adaptive teaching
Global South under-representation	Studies in Pakistan, South Asia and other resource-diverse settings
Teacher judgement	Analytics-only versus teacher-interpreted evidence
EPPF validation	Direct empirical testing of the eight dimensions

12. Method and Limitations

The paper utilizes the critical integrative review with the conceptual framework development approach. It is not a comprehensive review, no claims for exhaustive coverage are made. The paper is preceded by the KUST ORIC project and workshop, guiding the discussion themes for the review: AI in education, innovative pedagogy, SLO-based teaching and assessment. The workshop data is not reported. The sources were identified using specific searches in the largest databases and search engines to select peer-reviewed publications since approximately 2019 and to retain the most popular theoretical texts for AI claims. All sources cited for an empirical claim were verified in the original source and any sources that could not be verified were not included. These are the main limitations: The NASEER Framework is a proposed framework and it is not a tested model; the review is not comprehensive; EPPF is untested; a significant amount of the best evidence cited is from settings in high-income countries; and there is ongoing research into GenAI that is rapidly changing.

13. Discussion: Linking the Paper to the KUST ORIC Project

The central argument of the paper is that innovation should go hand in hand with evidence. This message gets a practical home in the KUST ORIC project & workshop with NUST. If faculty are able to learn about AI, innovative pedagogy, SLO-based teaching and assessment in a workshop and believe that they have adopted these new skills, but lack an indicator of whether they enhance student learning, they will experience the same problem as outlined in Section 2: new skills disappear after an initial exposure. EPPF gives a few ideas on how to bridge that gap. SLOs provide outcomes and constructive alignment (Biggs, 1996) connects outcomes to activities and assessment. All of the assessment methods that are taught in the workshop carry over into the evidence pathways of Dimension 3 and 4. AI tools are brought into with attention to integrity and equity and under Dimension 7. The evidence collected and used during the workshop continues after the workshop, a practice that is supported by Dimension 8, Sustainable practice.

Three insights follow. First, faculty development must not only be about technique but also about interpretation, as there is a need for trustworthy evidence to be judged (Schön, 1983). Second, one workshop is a beginning, not an end. Ongoing development and institutionalization of this work is required. Third, in a large-class, examination-centred setting such as many South Asian universities, low-technology evidence tools should sit beside AI tools. These points are propositions for the project to test, not findings.

14. Conclusion

Higher education does not lack innovative methods. It lacks dependable ways to learn from its own teaching. Evidence-producing pedagogy responds by treating the classroom as a continuing source of trustworthy evidence, interpreted by teachers and learners together and used to change the next lesson. The eight-dimension EPPF gathers philosophy, design, assessment, evidence, interpretation, adaptation, AI and improvement into one cycle without replacing established frameworks. Its value will be judged by the research it prompts. Priorities include testing the framework over several terms, building measures of evidence quality, comparing analytics-only with teacher-interpreted evidence, studying implementation in Pakistan and other resource-diverse systems, and carrying out a full systematic review.

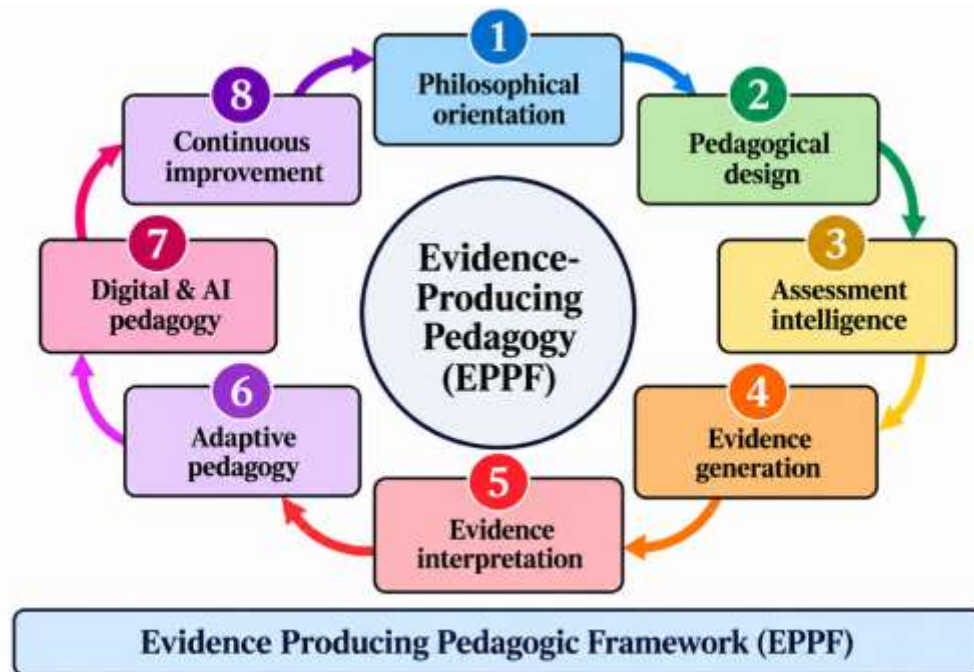


Figure 8. Evidence Producing Pedagogic Framework (EPPF) (Author, 2026)

The Evidence Producing Pedagogic Framework (EPPF) is significant in that it brings together teaching, assessment, evidence, reflection, and continuous improvement in a pragmatic loop. EPPF enables educators not only to implement innovative pedagogies but also to leverage classroom evidence to understand learner progress and subsequently improve their pedagogies.

EPPF promotes responsible deployment of digital technologies and AI in teaching and learning, ensuring that teacher discretion and learner involvement remain key factors. The significance of EPPF is rooted in its promotion of a culture of producing, interpreting, and improving based on the generated evidence.

The Strategies involved in the Evidence-Producing Pedagogy Framework (EPPF) aim to enhance purposefulness, responsiveness, and evidence-based practice in instruction. The process involves starting with philosophical orientation, which entails valuing inquiry, reflection, inclusion, and collaborative responsibility for learning. Such an approach is then transformed into pedagogical design by involving active learning experiences for students and relevant tasks to collect useful evidence of learning. Assessment intelligence makes sure that both formative and summative assessments are consistent with the intended learning outcomes and provide feedback to learners. Collection of evidence occurs through varied means of gathering information, such as the use of responses, classroom activities, conversations, assessments, and suitable digital technologies. EPPF stresses the analysis of evidence rather than the use of self-explanatory data.

The last three strategies revolve around converting the findings into useful actions within the classroom environment. Adaptive pedagogical practices encourage teachers to modify the processes of teaching, assessment, and learner support in accordance with evidence. The digital and AI pedagogical practices further extend this process by utilizing learning analytics and AI tools for giving feedback, personalized teaching, and gathering evidence in an ethical

manner. Lastly, continuous improvement completes the cycle of evidence-based pedagogical practices in which teachers are encouraged to assess their teaching strategies and improve in the future. In this way, the EPPF is not seen as one strategy but rather as a cycle of teaching and reflection.

Moreover, these frameworks are based on the understanding of teaching as a context-driven professional activity and not as a predetermined process. The approach that proves successful among one group of students will not necessarily prove successful among other students, which means that teachers have to analyze evidence and adapt their teaching methods according to the specifics of the classroom environment. Thus, EPPF promotes balance between evidence-based and professionally informed practices by providing direction through evidence and context provided by teachers and students.

Strategies for the Eight Factors of EPPF

The strategies for Evidence-Producing Pedagogy (EPPF) begin with a clear **philosophical orientation** that values inquiry, reflection and a shared purpose for evidence use. In **pedagogical design**, teachers use active, student-centred methods and design authentic tasks that generate meaningful evidence of learning. **Assessment intelligence** involves using formative and summative assessments aligned with learning outcomes and drawing on multiple sources of evidence. **Evidence is then generated** systematically through diverse classroom data such as student responses, work, discussions and outcomes, using both human and digital sources. In the **evidence interpretation** stage, teachers and learners make sense of the evidence together, using professional expertise and contextual judgement to avoid misinterpretation or bias.

The next set of strategies focus on using evidence to improve practice. **Adaptive pedagogy** means adjusting teaching, assessment and support based on evidence and providing personalised and inclusive learning pathways. **Digital and AI pedagogy** involves using learning analytics and AI tools to enhance teaching, while ensuring ethical, transparent and responsible use. Finally, **continuous improvement** is achieved by regularly evaluating the impact of changes, sharing effective approaches and building a culture of professional learning within and across institutions. Together, these strategies create a practical and sustainable cycle in which evidence from the classroom informs teaching, supports student learning and leads to ongoing improvement.

15. Linking the Evidence-Producing Pedagogy Framework (EPPF) with the Naseer Framework

The Evidence-Producing Pedagogy Framework (EPPF) offers a complete suite of tools that can be utilized to enhance the process of teaching, assessment, evidence production, analysis, and improvement. It assists teachers in going beyond just the use of innovative ways of teaching and encourages them to produce valuable evidence of learning on the part of students and then use the same evidence to improve future teaching. Nevertheless, to transform such classroom-level initiatives into a larger and more results-driven approach to student development, it would be possible to connect the EPPF to the Naseer Integrated Student Success Framework (Naseer Framework).

The Naseer Framework serves as a map to extrapolate the evidence collected via the EPPF process beyond the classroom environment. The Naseer Framework comprises four related components of student success, namely, Intellectual Development, Career-Path Readiness, Community Engagement, and Well-being Foundation. Evidence collected using the EPPF process, for instance, learning evidence, performance on assessments, engagement, feedback, participation, and competencies demonstrated, could guide decision-making in relation to these four categories. For instance, evidence of academic growth could guide intellectual development; evidence of performance and skills could guide career readiness; participation in group and community activities could guide civic engagement; and evidence of appropriate participation and learning experiences could guide the creation of conducive learning environments.

The application of the Naseer Framework as a results-oriented approach may thus help realize the practicality of using EPPF in institutions. It involves the following steps: EPPF collects evidence → interpretation of the evidence → the Naseer Framework structures the evidence in accordance with student success indicators → designing the proper interventions and support systems → evaluation of the results → generation of evidence. There is a continuous link between classroom practices and institutional goals. Some of the possible outcomes could be increased learning success, increased career preparedness and employability, increased civic engagement, and increased student well-being. In this regard, the EPPF framework acts as the practical tool for the generation and use of educational evidence, whereas the Naseer Framework acts as the wider roadmap for the conversion of educational evidence to holistic student success outcomes.

16. The NASEER Framework: A Possible Solution in the AI Age

This final section proposes the NASEER Framework as a possible way to turn the ideas above into a plan for faculty development in the AI age. It is offered in connection with the KUST ORIC project and is a conceptual proposal. It has not yet been tested. Its six components, shown in Figure 5, match the themes of the project and the workshop, and each is tied to the dimensions of EPPF.

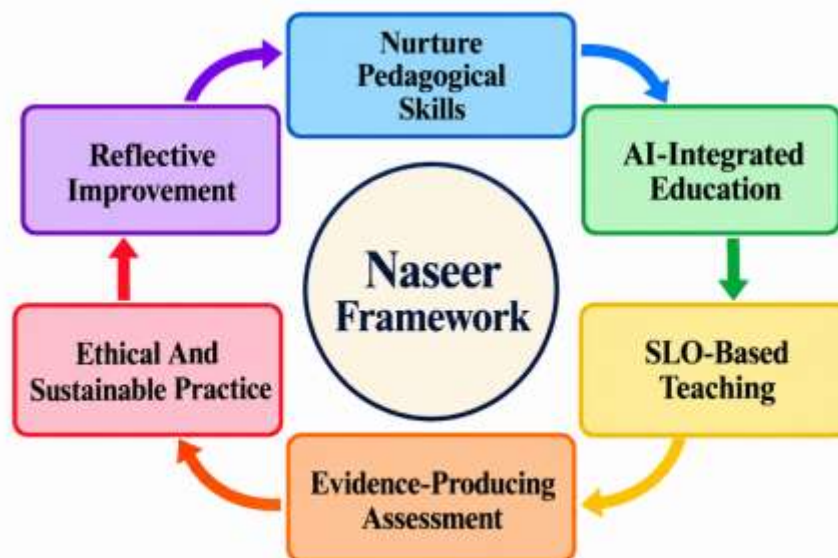


Figure 9. The NASEER Framework for faculty professional development in the AI age. (Author, 2026)

Table 9. The NASEER Framework, its project themes and links to EPPF

Component	Project theme	EPPF link and practice
N: Nurture pedagogical skills	Pedagogical skills; innovative practice	Dimension 2: active, collaborative and blended designs chosen for context
A: AI-integrated education	AI in education	Dimension 7: AI as a tool under human oversight, with AI literacy
S: SLO-based teaching	Student learning outcomes	Dimensions 2 and 3: outcomes aligned with activities and assessment
E: Evidence-producing assessment	Assessment techniques	Dimensions 3, 4 and 5: formative tasks, triangulation and interpretation
E: Ethical and sustainable practice	Sustainable practices	Dimensions 1 and 8: agency, integrity, equity and lasting habits
R: Reflective improvement	Holistic development	Dimensions 6 and 8: adapt, reflect and re-teach in cycles

17. Linking EPPF with the NASEER Framework: From Evidence to Student Success

The connection between *EPPF and the NASEER Framework*: From Evidence to Student Success is that The Evidence-Producing Pedagogy Framework (EPPF) represents a practical method for enhancing pedagogy and improving instruction, linking pedagogical design, assessment, evidence creation, evidence interpretation, and adaptation, pedagogy with digital tools and AI, and continuous improvement. The central argument is that teaching should not only convey content, it should also provide evidence of students' learning that is meaningful. Student responses, assessments, classroom participation, assignments, feedback, observations, learning analytics and other appropriate sources are all examples of evidence. The evidence is considered by teachers and students within its context in the classroom and then used to inform teachers' practice, assessment, feedback and support of learners. In this way, EPPF establishes a continuous cycle of teaching → evidence → interpretation → action → evaluation → new evidence. The framework thus is not focused on innovative solutions or technology adoption, but rather as a working tool for the production and application of learning evidence.

The *NASEER Integrated Student Success Framework (NASEER Framework)* offers a broader path forward to this classroom level evidence to comprehensive student development and measurable success. It focuses student growth on four key areas: Intellectual Development, Career-Path Readiness, Community Engagement, and Well-being Foundation. The evidence produced as a result of EPPF can be linked to these dimensions to support overall decisions related to education. For instance, assessments and problem solving can be evidence for intellectual development, evidence for career readiness can be provided from authentic projects and professional tasks, evidence for community engagement from collaborative activities and community-based activities, and evidence for student well-being and supportive educational practices can be provided from assessments and evidence of participation and learning environment. EPPF helps to educate on the process of creating and applying

evidence, and the Naseer Framework helps educate about the directions in which that evidence can be applied to support student success.

The alignment of the two frameworks provides a pathway that supports the connection from classroom practice to broader educational outcomes with a focus on results. The process is summarized as follows: Evidence is produced by EPPF, evidence is interpreted, the Naseer Framework structures the evidence around dimensions of student success, targeted action is taken, outcomes are assessed, and new evidence is fed back into practice and improvement. This comprehensive pathway can contribute to outcomes of higher learning achievement and deeper understanding, higher career readiness and employability, more community participation and social responsibility, and higher levels of student well-being. Thus, EPPF can be viewed as the action steps that create the evidence for students and the Naseer Framework as the plan for making educational evidence a comprehensive student-success outcome. The effectiveness of this integrated model needs to be tested ultimately on empirical studies in various programmes, disciplines and institutional settings.

18. Implementation of the Integrated Framework

Implementation can start at the classroom level and then scale up to the program and institutional levels. Faculty can start by using EPPF to define learning outcomes, plan relevant instructional activities, gather evidence through assessment and classroom interaction, and interpret the gathered evidence to make relevant instructional modifications. The evidence can then be used to map gaps across the four dimensions of the *NASEER Framework* to help define areas that require more attention academically, vocationally, in the community, and regarding well-being. Institutions can enhance this process by engaging in faculty development, developing common evidence-gathering instruments, reflective teaching, learning analytics, peer reviews, and evaluations. Implementation of the integrated framework can thus be defined as follows: Plan → Teach → Gather Evidence → Interpret → Adjust → Map Against Naseer Outcomes → Evaluate → Improve.

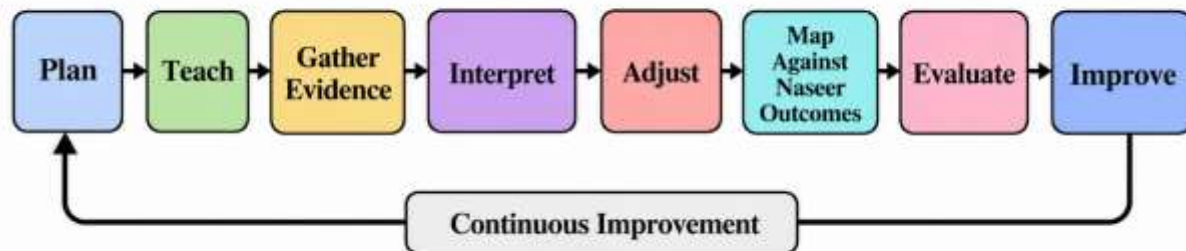


Figure 10. NASEER Framework: Evidence-Informed Continuous Improvement Cycle (Author, 2026)

The figure shows how the Evidence-Based Pedagogic Framework can be related to the Naseer Integrated Student Success Framework. The EPPF acts as the vehicle through which the evidence can be collected, analyzed, and acted upon from teaching, assessment, students' engagement, and learning processes. The evidence is then passed to the Naseer Framework, which acts as the framework within which the evidence will be organized based on the four major dimensions of students' development, including intellectual development, career path readiness, community engagement, and foundation for well-being. The whole process acts as

an integration of evidence into practice that results in better learning outcomes, better employability, community engagement, and well-being of the students. It is a feedback process where the outcomes are evaluated, and the evidence is taken back to the teaching and pedagogical process.

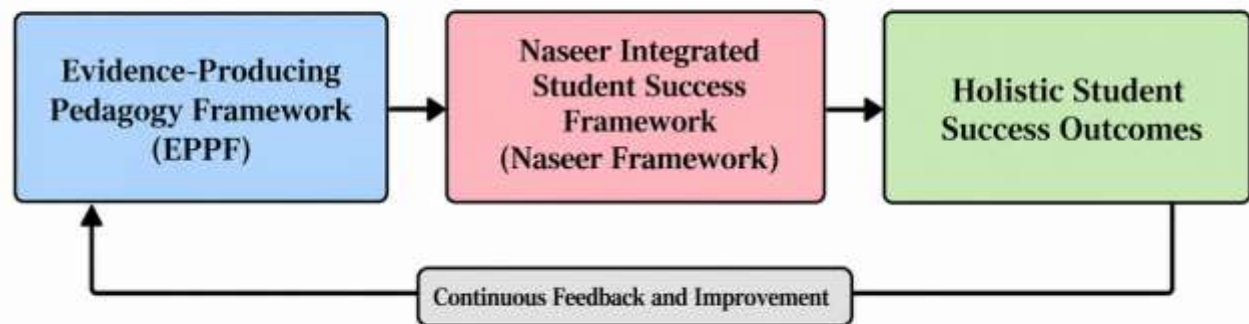


Figure 11. EPPF–NASEER Framework Integration for Holistic Student Success (Author, 2026)

The framework works as a cycle. First, faculty develop pedagogical skills (N), and then learn to use AI tools with caution (A). They then write clear SLOs (S) and design assessment that produces trustworthy evidence (E). They apply this within ethical and sustainable routines (E), and finish by reflecting on the evidence and adjusting their teaching (R). The cycle then begins again in the next term. A three-day workshop could follow this order. For example, the first day could focus on pedagogy and SLOs, the second on AI and assessment, and the third on evidence use, ethics, sustainability and personal action plans. This is a suggested arrangement, not a description of the actual programme.

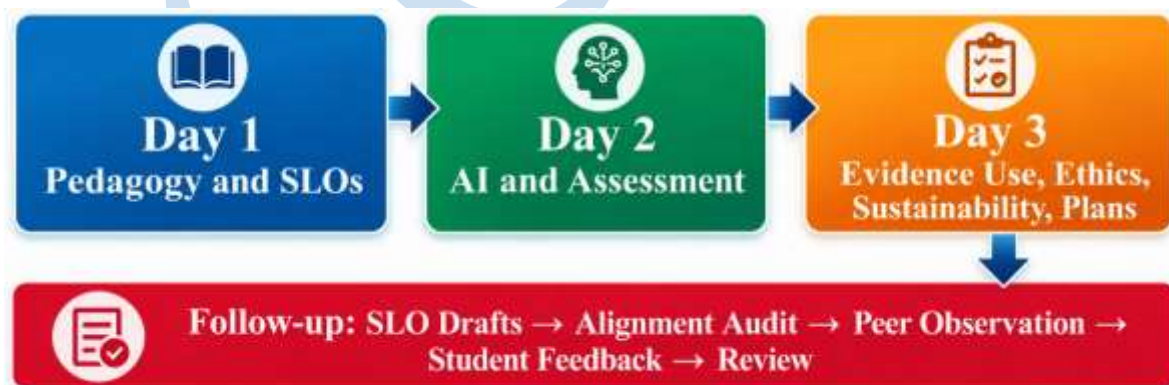


Figure 11. A suggested three-day flow for the workshop, with a follow-up evidence loop. This is a proposal, not the actual programme. (Author, 2026)

Table 10. A possible evidence plan for the workshop

Question	Possible evidence	When
Did participants write clearer SLOs?	Rubric-scored SLO drafts	Start and end of workshop
Do assessments match the SLOs?	Alignment audit of one course unit	One term later
Is AI used with care?	Short case tasks on integrity and bias; course AI statements	Workshop and follow-up
Did teaching change?	Peer observation; teaching-portfolio notes	During the next term
Did students notice?	Short student feedback on clarity and fairness	End of term
Did habits last?	Review meeting notes; evidence routines still in use	After two or three terms

The evidence plan follows the advice that faculty development should be judged on several levels, from participant views to changes in practice and, where possible, student learning (Steinert et al., 2016). It also applies the paper's own rule: each instrument is only useful if someone interprets the result and changes something.

Faculty must have tools skills in the "AI age". They must have the judgment to determine what AI can and cannot do as well as a "routine" that allows them to understand if their decisions are working to help students learn. NASEER answers this by keeping people at the centre and treating evidence as the link between skills and action. Its value can be tested through follow-up studies, such as comparing course evidence before and after training, tracking whether faculty keep evidence routines over several terms, and asking students about clarity and fairness. Priority should go to Pakistani and South Asian settings, where such evidence is scarce.

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