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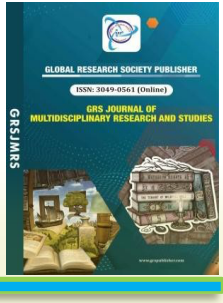

Advancing Faculty Competence through a Vocationally Inspired Competency-Based Education and Training (CBET) Model: A Framework for Faculty Development in Hybrid Teaching Context

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Abstract: The rapid shift to hybrid and online learning has challenged faculty to redesign teaching for digitally mediated environments. Traditional faculty development program (FDP), often limited to awareness or knowledge acquisition, seldom lead to sustained behavioral change. The current paper presents a new framework for Competency-Based Faculty Development (CB-FDF) grounded in Competency-Based Education and Training (CBET) Level 4 principles and vocational training philosophy, emphasizing performance, reflection, long-term retention and real-world application. Implemented within a structured Faculty Development Programme, faculty demonstrated competence by redesigning existing face-to-face lessons for hybrid delivery. The program followed vocational-style learning cycles of guided instruction, supervised practice, authentic task performance, microteaching and reflective feedback. Findings revealed improved pedagogical confidence, skill integration, and teaching transformation. The proposed CB-FDF framework provides an evidence-informed, replicable model for competency-based faculty development applicable across disciplines, particularly in institutions transitioning to hybrid education or preparing for accreditation under competency-based outcome standards.

Keywords: *Competency-based Education, Training, Faculty development, Reflection, Authentic and Sustainable,*

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Cite this Article

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Introduction

The post Covid-19 pandemic global transformation of higher and health professions education toward hybrid and online modalities has amplified the need for faculty who can design, deliver, and assess learning using technology-enhanced methods. Most medical faculty receive little or no training about how to be effective teachers, even when they assume major educational leadership roles (Srinivasan M, et al., 2011). Many educators possess deep disciplinary expertise but lack structured competence in technology integration, online pedagogy, and learner engagement within digital spaces (Harden, 2002; Mishra & Koehler, 2006). Faculty development (FD) initiatives have long been recognized as catalysts for professional growth (Steinert et al., 2006). However, many remain content-heavy and practice-light, providing information rather than fostering demonstrable teaching competence with transferable skills for real world practice. Post-workshop attrition of skills and inconsistent translation to practice are well documented (Clyne B. et al., 2021).

This challenge mirrors the gap often seen in vocational education before the introduction of Competency-Based Education and Training (CBET). CBET originated in the vocational sector to ensure that trainees could perform to standard in real or simulated workplace settings (Misko J. & Circelli M. 2022). Its essence lies not in theoretical understanding but in the ability to perform consistently and reflectively in authentic contexts. Translating this philosophy into faculty development reframes teaching itself as a practice-based profession requiring demonstrable competence, feedback, and iterative improvement, much like any skilled trade or clinical discipline would need to practice. This paper therefore proposes a Competency-Based Faculty Development Framework (CB-FDF), inspired by CBET Level 4 principles and vocational training pedagogy. The framework was piloted through a faculty development program emphasizing online hybrid lesson design as the authentic performance task incorporating Technological, Pedagogical and Content Knowledge (TPACK) and Gagne's 9-Events instructional strategy. The goal was not the structuring of lesson plan rather the process of faculty development for sustainable teaching competence through practice, reflection, and evidence-based assessment.

Faculty development faced with the unprecedented challenges of post Covid-19 pandemic and the faculty readiness for an emergency remote teaching and practice transfer has become imperative for institutions in medical education (Salajeghe, 2022). Faculty development has evolved from episodic workshops to more structured, longitudinal approaches aimed at cultivating professional identity and teaching expertise (Steinert et al., 2016). Yet, many programs still emphasize theoretical inputs, pedagogy,

assessment design, or educational technology without ensuring application in practice. The gap between knowing about teaching and teaching effectively persists. Sustained competence requires opportunities for practice, feedback, and reflection within authentic teaching contexts in an experiential learning model based on core principles derived from vocational learning. As health professions education increasingly aligns with Competency-Based Medical Education (CBME), parallel development models are needed for educators themselves, ensuring that those who assess competence also embody it in their teaching (Parrish & Sadera, 2019).

Competency-Based Education and Training (CBET) is an educational philosophy that defines, teaches, and assesses competence as observable ability to perform tasks to established standards. Rooted in vocational and technical education, CBET emphasizes performance, standards, feedback, and contextual application (Hager, Gonczi, & Athanasou, 1994). CBET Level 4 specifically represents demonstrated mastery, where learners synthesize, innovate, and perform independently in complex situations comparable with a bachelor level of diploma (Sultan et al., 2020). Applied to faculty development, CBET Level 4 requires faculty to demonstrate teaching competence for instance, by designing, implementing, and justifying a hybrid learning experience supported by reflection and feedback (Apple et al., 2002).

Vocational training principles and their relevance to faculty development has been explored for long-term impact of training. Often the faculty development programmes are focused on immediate impact measured with pretest/posttest exercises in a workshop. Vocational training is characterized by a "learn-by-doing" model emphasizing supervised practice, performance verification, and feedback loops. Learning is cyclical: instruction → demonstration → practice → feedback → mastery → reflection of a typical experiential learning approach
In contrast, many higher education FDPs stop at the first two stages of information delivery and demonstration without the subsequent practice and verification phases that lead to behavioral and institutional change observed and evaluated using any evaluation model such as Kirkpatrick 4-level and ADDIE evaluation. Integrating vocational principles into faculty development ensures that faculty learning mirrors the skill-building cycle of competent professionals:

1. Authentic Task Performance: Real teaching challenges (e.g., hybrid lesson planning).
2. Practice under Supervision: Structured guidance and feedback (microteaching).
3. Reflection and Correction: Encouraging metacognitive awareness and improvement.
4. Competence Validation: Assessment based on performance, not participation.

Such an approach encourages long-term retention, self-efficacy, and sustainable transformation; addressing the recurring critique that faculty attend workshops but rarely apply new skills in sustained ways (Caspersen J, 2015). Faculty development for online hybrid teaching demands integrated expertise across pedagogy, content, and technology—captured in the TPACK framework (Mishra & Koehler, 2006). Faculty must align learning outcomes, delivery methods, and assessment strategies across modalities. Traditional faculty preparation rarely addresses this integration i n authentic, performance-based contexts. A competency-based, vocationally inspired framework provides a pragmatic pathway for developing hybrid teaching readiness through iterative performance and feedback, supporting accreditation requirements, emphasizes teaching competence, alignment, and continuous quality improvement.

Methodology

Research Design: A descriptive action research design guided the development, implementation, and evaluation of a CBET Level 4 Faculty Development Program. The purpose was to cultivate demonstrable teaching competence using authentic, performance-based assessment aligned with vocational training methodology of CBET.

Participants: Faculty members across preclinical and basic medical science of Pre-medical (PM) and MD programmes (n = 8) voluntarily participated. All had prior teaching experience but varied exposure to educational technology or instructional design for hybrid learning. A prerequisite to this faculty development training was those already attended the pre-course workshop on small group teaching of TBL.

Program Structure: The program consisted of four progressive phases:

1. **Competency Mapping:** Faculty competencies were identified through literature and institutional benchmarking needs assessment surveys including outcome alignment, hybrid pedagogy, content and technological knowledge, learner engagement, and reflective practice (see table 1). Interview-based thematic analysis of faculty needs assessment provided insight and gaps of knowledge and skills into design and development of online lesson plan for faculty training (see table 2).
2. **Guided Learning Modules:** Short, interactive modules introduced CBET concepts, backward design, integrated small group teaching, Workplace-based Assessment (WPBA), TPACK integration, and online hybrid assessment principles.
3. **Performance Task:** Each participant redesigned a face-to-face lesson into a hybrid format, integrating digital tools, pedagogical strategies and content knowledge appropriate for hybrid delivery.
4. **Assessment and Reflection:** Faculty submitted their redesigned lesson plans with accompanying reflective narratives (ePoster presentation) describing the rationale, challenges, and anticipated impact.

This design replicated vocational training cycles demonstration, guided practice, assessment, and feedback ensuring active, skill-based learning rather than passive instruction.

Assessment Rubric

A four-domain rubric (Emerging → Competent → Proficient → Mastery) assessed participants in:

- **Pedagogical alignment:** Integration of learning outcomes, teaching methods, and assessment.
- **Technology integration:** Effective and purposeful use of digital tools.

- **Learner engagement:** Strategies for motivation, interaction, and feedback.
- **Reflective practice:** Evidence of insight and professional growth.

Rubrics were validated by educational experts and used both for formative feedback and summative evaluation of competence attainment.

Table 1: Summary of TPACK section of the needs analysis item 1-10 with outcome response trend and key insight

Survey Item	Focus Area	Response Trend	Key Insight
Item 1-10	Faculty awareness of TPACK, digital tools selection, Survey format and faculty readiness for digitalization and AI	Gaps in knowledge Agree to Strongly agree	Faculty recognize the need for integrated lesson planning using TPACK for both F2F and online modes
Item 11-20	Instructional design of Gagne's nine event	Strongly Agree	Faculty value using digital tools effectively to match pedagogical strategies and learning outcomes
Item 21-25	Digital and interactive tool and approach to digitalization	Agree	Faculty prefer curated tools and support over being burdened with too many tech options
Item 26-30	Hypothetico-deductive reasoning	Gaps in knowledge Agree to Strongly agree	Practice of in-class application and peer evaluation team-based learning
Item 31-35	Think-aloud practiced in didactic lectures	Strongly Agree	Faculty require guidance on embedding think-aloud in traditional lecture format
Item 36-40	Faculty and peer development	High interest and volunteer service	Training on tools and techniques for digital content creation

Table 2: Interview-based thematic analysis of faculty needs assessment for insight into design and development of online lesson plan for faculty training

Interview Focus Area	Verbatim Response	Initial Code(s)	Theme	Response (Rating)
TPACK Awareness	I've vaguely heard about TPACK, but I don't really know how to apply it in my subject area.	Lack of familiarity, need for training	Gap in faculty awareness	Negative (7/7)
Gagné's Nine Events	I'm sure we do some of these things instinctively, but I've never had formal training in Gagné's model.	Implicit use, Lacking structure	Instructional strategy Awareness	Mixed (4/3)
Hypothetico-deductive Method	We use this in clinical setting but not in classroom teaching. Nobody trained us to do that.	Know its theoretical importance but not clear application	Reflective teaching practice	Mixed (4/3)
Think-Aloud Strategy	I tend to probe through open ended question, but I didn't know this as a theory.	Informal strategy not in use and a low pedagogical awareness	Clinical integration deficit	Negative (6/7)

Digital Tools Usability	I mostly use PowerPoint and CARE; other tools seem too complex without training.	Limited usage, IT discomfort and need training	Digital competency in teaching	Negative (5/7)
Survey Experience	A lot of questions asked in survey and more or less all were relevant	Survey items relevant, interview appreciated being involved	Survey utilization a strength	Positive (5/7)
Feedback from Surveys	The survey was long, but at least someone was interested in our opinions.	Length a concern, however, interview good for feedback	Faculty Engagement	Mixed (4/7)

Data Sources and Analysis

Data were collected from a number of sources summarized in table below (see table 3):

- Pre/post self-assessment of hybrid teaching confidence for immediate impact.
- Rubric-based performance ratings (assignments, ePortfolio and ePoster presentation as the quantitative evidence of competence).
- Reflective narratives (qualitative evidence of transformation).

The data analysis approach was adopted differently as per the quantitative and qualitative data collection (see table 4). Quantitative data were analyzed descriptively for means and the standard deviations progressively from week 1 to week 8 (see table 5). The qualitative reflections underwent thematic analysis of Braun and Clarke (see table 6).

Results

Quantitative Findings: Rubric scores showed progressive improvement across weeks of training and methods with most participants achieving Level 4 mastery in at least three domains (see table 5). Mean self-efficacy scores in hybrid teaching increased significantly from baseline to post-program assessment (see table 7).

Qualitative Findings: Four themes emerged from the qualitative findings is encouraging of this faculty development model inspired from the Competency Based Education and Training:

1. **Transformation of Teaching Identity:** Faculty shifted from viewing teaching as content delivery to designing learner-centered experiences.
2. **Confidence through Practice:** Iterative feedback and application enhanced technological and pedagogical self-efficacy.
3. **Reflective Growth:** Structured reflection deepened awareness of teaching choices and outcomes.
4. **Sustainability:** Participants expressed commitment to ongoing peer mentoring and continuous improvement.

Table 3: Summary of the quantitative and qualitative data sources, instruments, purpose and samples

Data Source	Instrument / Tool	Purpose / What Was Measured	Sample / Notes
Faculty Reflections	Written reflection prompts	Personal learning experiences, perceived changes in teaching practice	All participants after each session
Assignments	Structured assignment (formative and summative)	Formative and summative assignments using rubrics	All participants after training sessions
Performance Tasks	Design and development of ePoster and presentation	Lesson plan design presentation and evaluation	All participants evaluated individually using rubric
Post-training Evaluations	Knowledge tests / competency evaluation	Changes in knowledge and skills pre/post-test, Kirkpatric model	All faculty participants
ePortfolio	Audio/video recordings, digital logs	Implementation fidelity, participation levels	Selected sessions; logged digitally

Table 4: The approaches to data analysis and the analysis technique used and the outcome achieved

Data Type	Analysis Technique	Output
Questionnaire-based survey	Data collection using 4-point Likert scale	Identification of gaps in knowledge and skills
Interview transcripts and reflections	Thematic Analysis using Braun and Clarke's 6 steps (see table 16)	Themes about design rationale, challenges, faculty needs
Documents and lesson plans	Content analysis with deductive codes based on TPACK, Gagné's model	Evidence of model integration in training materials

Field notes and observation	Narrative synthesis / Event mapping	Visual timeline or process map of program development
Training materials/tools	Descriptive summary and categorization	List of resources aligned with each instructional model

Table 5: Average weekly competency scores pattern during the 10-week faculty development program

Week	Mean Competency Score (Assignment on a 5-point Likert Scale)	% Score
1	2.0	40%
2	2.3	46
3	2.7	54
4	3.0	60
5	3.3	66
6	3.6	72
7	3.9	78
8	4.1	82
9	4.2	84
10	4.3	86

Table 6: Thematic analysis adopted for Braun and Clarke's six steps procedure with examples provided

Step	Description	Purpose	Example
1. Familiarization with the data	Read and re-read the data; immerse yourself fully; note initial ideas.	To understand the depth and breadth of the content.	A researcher reads interview transcripts from medical students about clinical stress and notes down ideas like "feeling unprepared" or "lack of support."
2. Generating initial codes	Systematically interesting features of codes across the entire dataset.	To organize raw data into few meaningful groups.	Codes such as fear of making mistakes, no time for reflection, peer support helpful, confusing expectations.
3. Searching for themes	Collate codes into potential themes and subthemes.	To start identifying broader patterns.	Codes are grouped under themes like: "Emotional Responses", "Support Systems", and "Barriers to Learning."
4. Reviewing themes	Check if the themes work across the data set. Revise or merge themes if needed.	To refine the thematic map and ensure coherence.	The theme "Support Systems" may be split into two: "Peer Support" and "Supervisor Guidance" after review.
5. Defining and naming themes	Define the essence of each theme and give it a name.	To clarify what each theme captures and how it relates to research question	Theme: "Emotional Turbulence in Clinical Years" - captures anxiety, fear, and emotional exhaustion during rotation
6. Producing the report	Final write-up, including vivid examples and analytical narrative.	To present findings that answer the research question compellingly.	"Students expressed fear of harming patients due to lack of preparedness, as one noted: 'I was afraid I'd make a mistake and hurt someone.' "

Table 7: Pre-course F2F Conventional and Post-course TPACK anchored competency scores for online hybrid lesson plan

Competency	Conventional F2F Lesson Plan Mean (SD)	TPACK Anchored Lesson Plan Mean (SD)	Improvement (%)
Lesson Plan Adapted Structure	2.3 (0.8)	4.2 (0.5)	82%
Technology Integration	1.8 (0.6)	4.0 (0.6)	122%
Pedagogy Alignment	2.5 (0.7)	4.1 (0.4)	64%
Reflective Practice	2.0 (0.9)	4.3 (0.5)	115%

The thematic analysis (Braun & Clarke, 2006) generated a transferable quantitatively scalable measure to identify emergent patterns of change, confidence, and perceived applicability (see table 8). These outcomes illustrate the vocational character of CBET-based faculty development, where practice and performance consolidate competence over time.

Table 8: Key themes as obtained from faculty reflections and problem-solving assignments by trainee

Theme	Illustrative Quote	Attainment
Increased Confidence in Online Hybrid Teaching	"I now feel capable of transforming my lectures into interactive online sessions, though faced a number of challenges in acquiring technology"	50%
Pedagogical Awareness	"Using Gagne's framework helped me structure my lesson with clear objectives and would like to have more such workshops"	87.5
Technology Adoption	"I learned new tools that I can integrate seamlessly into my teaching, however, prefer gradual capacity building	75%
Reflective Problem-Solving	"The hypothetico-deductive tasks forced me to anticipate and resolve teaching challenges."	87.5%

Discussion

From attendance to competence the Competency-based Faculty Development Framework (CB-FDF) shifts the measure of faculty development success from participation to performance. Unlike traditional workshops that often end with certificates of attendance, this framework emphasizes evidence of applied competence, aligning with both CBME and institutional quality assurance systems. By embracing its vocational heritage and educational relevance, CBET repositions teaching as a craft honed through repeated, reflective practice. The vocational analogy is powerful concept grounded in competency-based education and training to design and develop vocational inspired faculty training programme focused on hands-on skill acquisition. Just as healthcare trainees develop clinical competence through supervised, performance-based learning, educators must cultivate pedagogical mastery through authentic, practice-driven teaching experiences. This vocationally inspired, competency-based approach promotes sustained professional growth and excellence, addressing the limitations of traditional faculty development models that emphasize short-term outcomes over long-term practice transformation.

Structured reflection as sustained learning mechanism served as the "assessment for growth" component (Sellheim, D., & Weddle). Faculty learned to articulate pedagogical reasoning, recognize gaps, and plan improvement. Structured reflection function as the "assessment for growth" component, enabling faculty to engage in continuous self-evaluation and professional inquiry (Efu, 2022). Through reflective dialogue and documentation, educators articulate their pedagogical reasoning, identify areas for enhancement, and formulate actionable improvement plans. This process resonates with Schön's (1983) notion of the reflective practitioner, where professional competence evolves through an ongoing cycle of reflection-in-action and reflection-on-action, a transforming experience into sustained learning and pedagogical refinement. Implicating the institution and accreditation perspectives emphasis is not only on future practice to meet the standards but also on continuous quality improvement and demonstrable faculty competence. The CB-FDF aligns seamlessly with these expectations, offering a transparent, assessable pathway for faculty readiness in hybrid and competency-based curricula.

The results are consistent with existing research, emphasizing that faculty development programs grounded in instructional design theory produce more sustainable behavioral change (Steinert et al., 2016; Bates & Sangrà, 2011). Prior studies have noted that workshops focusing solely on digital tool training often fail to Prior studies have noted that workshops focusing solely on digital tool training often fail to generate long-term impact because they neglect pedagogical and contextual integration (Koehler & Mishra, 2009). However, Technological, pedagogical and content knowledge (TPACK) based interventions enhance the ability of educators to select and use technology judiciously, ensuring that technology complements rather than dominates faculty training is imperative for faculty development programme in future. The results demonstrate that faculty members who engaged in CBET activities showed measurable growth in their ability to integrate

technological tools within the framework of pedagogical intent and content precision. This suggests that future faculty development initiatives should adopt a layered methodology, beginning with awareness and exploration of the faculty needs assessment, followed by guided application of training workshops or courses determined to address the gaps identifies through the needs assessment surveys. Implementation challenges in future practice may include time commitment, variable digital literacy, and the need for mentor training in CBET assessment. However, institutional adoption of this framework as part of ongoing professional development can create sustainable teaching excellence. Future studies may explore longitudinal effects, scalability, and cross-disciplinary adaptation.

Conclusion:

Competency-Based Education and Training (CBET), rooted in vocational practice, offers a transformative model for faculty development in higher and health professions education. When applied at Level 4, CBET moves faculty beyond theoretical understanding toward demonstrated teaching mastery. The Competency-Based Faculty Development Framework (CB-FDF) developed in this study redefines faculty development as an experiential, performance-based, and reflective process rather than a series of workshops in isolation from each other. Faculty become active learners, engaging in authentic teaching tasks, reflective feedback, and iterative competence validation. By adopting vocational principles of practice, feedback, and mastery, institutions can ensure that faculty development produces long-term teaching transformation, closing the persistent gap between knowing and doing. This model offers a scalable, evidence-informed approach to cultivating sustainable educational excellence in the hybrid learning era.

Recommendation:

The Proposed Competency-Based Faculty Development Framework (CB-FDF)

The CB-FDF synthesizes CBET Level 4 principles with vocational training pedagogy to produce sustained teaching competence. It comprises five interrelated stages, forming a continuous improvement cycle (Figure 1).

1. **Competency Definition and Mapping**: Define clear, observable teaching competencies based on faculty needs assessment aligned with institutional outcomes and educational standards.
2. **Structured Learning and Demonstration**: Provide guided instructions well reviewed and exemplars of competent practice (e.g., hybrid course exemplars) prior to launching.
3. **Authentic Performance and Practice**: Engage faculty in authentic tasks aligned with workplace demonstrating competence such as redesigning a lesson facilitating hybrid learning.
4. **Reflection and Feedback Integration**: Incorporate peer review and reflective analysis to foster self-awareness and adaptability, a way to experiential learning moving information from short term to long term memories.
5. **Competence Validation and Advancement**: Evaluate performance using standardized rubrics and evaluation models for short-term, mid-term and long-term impact of training provided with targeted coaching to advance proficiency levels.
6. **Continuing Quality Improvement: CQI** will strengthen the framework by linking it to institutional sustainability and reflective practice cycles

This model draws its philosophical base from vocational learning cycles, ensuring doing, feedback, and mastery become central to faculty learning. The framework bridges the gap between theory and practice, yielding tangible improvement in teaching performance. The framework adapts vocational education principles of demonstration, guided practice, feedback, reflection, and continuous quality improvement into faculty development for sustainable teaching competence (see figure 1). It emphasizes authentic performance and iterative skill refinement aligned to Competency-Based Education and Training (CBET) Level 4 outcomes. The proposed model cover key preparatory and evaluative criteria such as needs assessment, development of training programme, review process, promotion, implementation and assessment with pre/post-test, hands-on, assignments and evaluation report for impact (see figure 2). The proposal is further enriched with extra elements like learning objectives clarity, participant engagement strategy, resource requirement, follow-up/mentorship, and certification/recognition. Here's a structured version and the model is scalable for different faculty groups, disciplines, and course lengths. It promotes competency-based, reflective, and technology-enhanced teaching practices by providing a framework for future faculty development programs, bridging traditional lesson planning and modern online pedagogy (see figure 3).

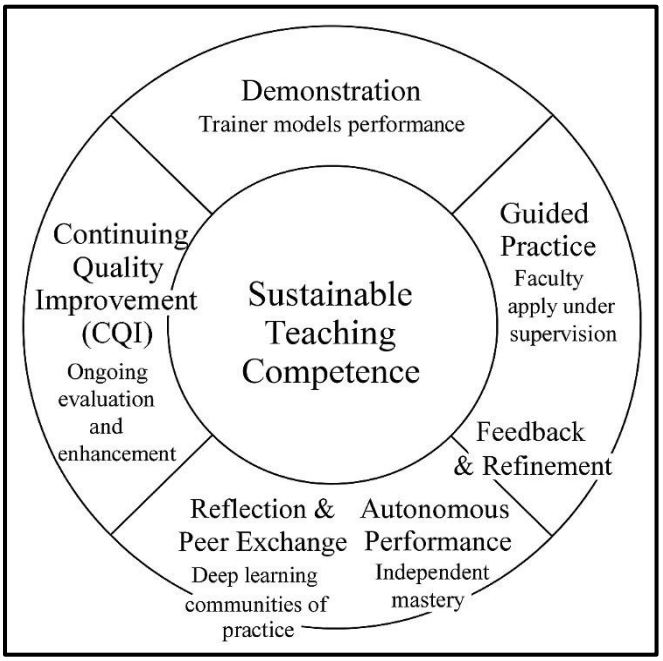

Figure 1: Vocationally inspired competency-based Faculty Development Framework (CB-FDF).

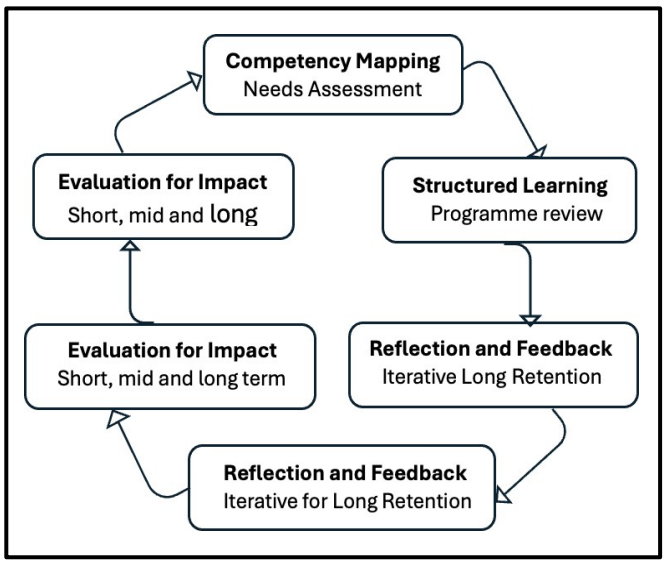

Figure 2: The structured components for competency-based faculty development programme.

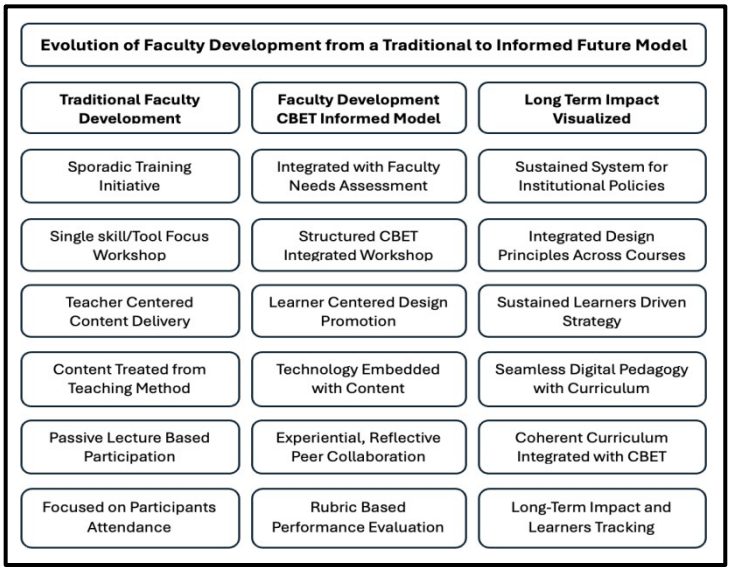

Figure 3: Research driven comprehensive faculty development framework for hybrid CBET.

The proposed model also aligns evaluation strategies with CBET principles, ensuring measurable impacts (see table 9). A three phased strategy adapted for future faculty development programme illustrates the focal area, the core activities and integrated technology and instructional design with short-term and long-term impacts (see table 10). A CBET based faculty development as how faculty professional training design and preparation should differ depending on its duration (1-day, 2–3 days, 1-week, >1 week) is summarized (see table 11). This framework conceptualizes faculty development as a process of skill acquisition modelled after vocational training, emphasizing the transfer of competence through practice, feedback, and reflection (Sellheim, & Weddle, 2015). The framework ensures faculty development through stages of demonstration, guided practice, feedback and refinement, autonomous performance, and peer exchange, and continuing quality improvement, supported by authentic contexts and communities of practice. By institutionalizing this approach to faculty development, educational programs can cultivate a culture of instructional excellence that empowers faculty to innovate, reflect, and continuously enhance the learning experience. In the long term, such a model not only strengthens faculty capacity but also contributes to improved learner outcomes, greater curricular coherence, and alignment with global trends in competency-based medical education.

Table 9: Evolution of faculty development from traditional training to CBET-informed future model

Dimension	Traditional Faculty Development	CBET/TPACK-Gagne-Informed Future Model	Short-Term Impact (Observed)	Long-Term Projection (Visualized)

Design Orientation	Isolated workshops focused on single skills or tools	Structured competency-based programs integrating TPACK and Gagné's instructional design	Improved instructional sequencing and lesson structure	Systematic integration of design principles across courses
Pedagogical Focus	Teacher-centered content delivery	Learner-centered design promoting engagement and feedback loops	Greater learner engagement and reflection in faculty lesson plans	Sustained learner-driven pedagogy institutionalized in practice
Technology Integration	Technology as add-on or optional	Technology embedded purposefully with content and pedagogy	Increased confidence and meaningful use of technology	Seamless digital pedagogy aligned with curriculum outcomes
Content Alignment	Content treated separately from teaching methods	Content contextualized through TPACK framework for relevance and application	Clearer linkage between objectives, content, and technology tools	Coherent curriculum-wide integration of content and pedagogy
Faculty Learning Mode	Passive, lecture-based participation	Experiential, reflective, and peer-collaborative learning	More active participation and collaboration	Continuous learning culture embedded through mentoring and peer exchange
Assessment of Learning	Focused on attendance or participation	Evaluated using performance rubrics, reflective tasks, and artifact review	Tangible evidence of pedagogical growth and innovation	Long-term tracking of teaching impact on student learning outcomes
Institutional Support	Sporadic training initiatives	Integrated within institutional QA and professional development systems	Emerging institutional commitment to continuous development	Sustained system for faculty growth linked to accreditation and academic excellence

Table 10: Future faculty development programs proposed to follow a three-phased methodology

Phase	**Focus Area**	**Core Activity/ Methodology**	**Integration of TPACK and Gagné's Model**	**Expected Short-Term Impact**	**Expected Long-Term Impact**
Phase I- Foundational Orientation	Awareness and conceptual understanding	- Introductory workshops on TPACK and Gagné's Nine Events of Instruction - Faculty self-assessment of TPACK profiles - Reflective discussions on current teaching practices	- TPACK introduced as a conceptual framework for technology–pedagogy–content integration - Gagné's events used to contextualize learning sequence and motivation	- Increased awareness of instructional design principles - Recognition of technology's pedagogical value	-Development of reflective teaching mindset - Foundation for design-oriented teaching culture

Phase II - Applied Instructional Design	Practice and implementation	- Design studios for lesson planning using TPACK framework - Mapping of Gagné's events to instructional sequence - Collaborative peer review of digital learning plans	- Practical application of TPACK for course design - Operationalization of Gagné's sequence in lesson delivery	- Enhanced instructional coherence - More purposeful technology use - Improved classroom engagement	- Institutional adoption of design-based teaching - Consistency in technology-integrated pedagogy
Phase III- Sustained Evaluation and Mentorship	Reflection, mentoring, and evaluation	- Longitudinal mentoring and peer coaching - Use of performance analytics and reflective logs - Continuous feedback cycles and portfolio updates	- Ongoing application of TPACK as reflective framework - Evaluation guided by Gagné's feedback and retention stages	- Sustained professional growth - Strengthened faculty collaboration	- Evidence-based teaching culture - Curriculum innovation and continuous quality improvement

Table 11: Faculty development training design and preparation matrix based on duration of the raining

Criteria	1-Day FD Training	2–3 Days FD Training	1-Week FD Training	>1 Week FD Training
Needs Assessment (Identify Gaps)	Quick online/paper survey; targeted to one theme	Broader survey; multiple domains; prioritize 2–3 themes	Comprehensive survey with stakeholder input; map to curriculum needs	Formal needs analysis; alignment with institutional strategy & accreditation
Promotion (Flyer/Invitation)	Single flyer/email; brief outline	Detailed flyer/program schedule	Multi-page brochure with sessions, objectives, facilitators	Extensive promotional package; full prospectus, website, FAQs
Learning Objectives and Outcomes	General; achievable within hours	Clear outcomes linked to 2–3 competencies	Broad outcomes with session-specific objectives	Comprehensive competency framework; aligned with long-term faculty development
Pre-test/Post-test (Impact)	Short quiz/poll (5–10 items)	Structured test; case vignettes	Detailed test with application-based items	Multiple assessments (MCQs, OSCE-style, portfolio)
Hands-on Activities (Competence)	Limited demo/single activity	Multiple short workshops or group work	Daily hands-on sessions; skill labs	Extensive practice; field work, simulations, teaching practicum
Assignments (Assessment of Learning)	None or reflective takeaway	Small group presentations or reflective writing	Individual assignments (lesson plan, assessment design)	Major projects, teaching portfolio, curriculum redesign
Participant Engagement	Icebreaker, Q and A	Interactive group work, role play	Peer teaching, problem-based tasks	Long-term mentorship, peer-observation, journal clubs
Resources and Materials	Slides and handouts	Session packs, templates	Toolkits, manuals, online access	LMS integration, e-modules, library resources

Review and Evaluation (Report)	Immediate feedback form	Structured evaluation + facilitator feedback	Daily feedback + end-of-week synthesis	Continuous evaluation, mid-course review, final impact report
Follow-up and Mentorship	None (or optional online link)	Email follow-up, resource sharing	Scheduled virtual meetings, peer sharing	Formal mentoring program, long-term tracking
Certification/ Recognition	Certificate of attendance	Certificate of completion	Certificate with competence evidence	Advanced certification/diploma, CPD credits
Sustainability and Institutional Impact	Minimal; awareness-raising	Skill upgrade in focused domains	Development of teaching competence across areas	Institutional capacity building, leadership, policy impact

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