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Original Research Article

Effectiveness of a Faculty Development Programme in Improving Faculty Understanding of Aetcom in the MBBS Curriculum: A Quasi-Experimental Pretest–Posttest Study

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Abstract

Background: Attitude, Ethics and Communication (AETCOM) is the formal affective domain spine as part of competency-based undergraduate medical education in India but the translation of AETCOM into the classroom highly depends upon the faculty readiness. In many educational establishments, there is faculty report of uncertainty in relation to AETCOM competences, teaching/learning practices and assessment practices resulting in variability in their implementation.

Methods: A single-group quasi-experimental study was carried out in Chhindwara Institute of Medical Sciences, Chhindwara, MP, and India. Faculty involved in undergraduate teaching were enrolled for a 3-day structured Faculty Development Programme (FDP) on AETCOM. Understanding was evaluated by using a 30 questions AETCOM Faculty Understanding Questionnaire (AFUQ; score range 0-120) and a 25 questions knowledge test (0-25), at baseline (T0), immediately post FDPs (T1) and at 12 weeks (T2). Secondary outcomes were self-efficacy for facilitation and assessment (10-item scale, 10-50) and implementation products (session plans, assessment blueprints). Paired comparisons and repeated measures analyses were conducted; effect sizes were reported.

Results: Of 54 eligible faculty, 48 participated (mean age 38.9±7.6 yrs; 54.2% female). Mean, AFUQ increased during and was maintained at T1 (58.1±10.9 at T0 vs. 94.7±9.8 at T1 and 88.3±10.7 at T2) and remained significant ($p<0.001$; $\eta p2=0.62$). Knowledge of 19.8±2.7 were increased from 11.3±3.4 (P<.001; Cohen's $d=2.79$). Self-efficacy improved from 27.6±5.9 to 40.9±4.8 ($p<0.001$). Faculty developed 36 AETCOM micro-session plans and a common assessment blueprint focusing on workplace-based assessment and embodied writing addressing previously reported issues of dependence on written exam

Conclusion: A structured FDP led to large and sustained gains in faculty understanding and readiness to implement AETCOM. Institutionalization of longitudinal mentoring and assessment support could yield a 'solidification and decrease of variability' effect.

Keywords: AETCOM; faculty development; competency based medical education; professionalism; ethics; communication skills.

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Introduction

Competency-based medical education (CBME) has transformed undergraduate education globally as it incorporates new approaches to medical schools worldwide by prioritizing outcomes, visible skills and programmatic evaluation over time-related progression [1,2]. Within CBME, the affective domain (professional identity formation, ethical reasoning, empathy, and communication) has gained a growing amount of attention given its direct correlation with patient safety, trust, adherence, and experience of care [3]. Yet, finding ways to translate the outcomes of the affective domain into teachable, assessable competencies is a challenging task, a task that is often made difficult by the context sensitivity of these competencies and the necessity of deliberate facilitation (rather

than didactic delivery) [4]. In India, the integration of AETCOM was planned to be a structured longitudinal framework to nurture the attitudes, ethics and communication as explicit competencies throughout the course of years in the MBBS. Sunder Lal and Sehgal defined AETCOM as a new mandating progressive set of modules embedded across phases with a thrust on self-directed learning and competency-based assessment [5]. However, the successful operationalization of such a curriculum is linked not only to curricular documents, but also to the ability of faculty to facilitate small group learning, role-plays, narrative reflection, feedback, and workplace-based assessments [6]. Faculty development, therefore, becomes the implementation "engine" of AETCOM.

Evidence from medical education shows that faculty development interventions can increase teaching effectiveness and educational outcomes, especially when they are interactive and practice-based and promote communities of practice [7,8]. In the Indian context, experience with AETCOM so far shows practical constraints (uncertainty about assessment, discomfort with facilitating ethical dilemmas and differential exposure to training) is leading to heterogenous practice. For instance, according to Ghosh and Bir, while faculty agreed on the need for AETCOM assessment, many doubted about the validity of written/theory examinations in assessing attitudes and communication, which should be approached with practice and simulations [9]. Complementing this, Jain and colleagues showed that structured AETCOM training strengthened communication competencies of interns working in peripheral health settings, supporting the premise that methodical training yields measurable gains of skills [10]. Besides, more generalised critiques of newly introduced bioethics components in undergraduate curricula in India highlight constraints including the availability of the trained faculty, disaggregated markets of pedagogical approaches, and competing curricular priorities [11].

Despite these signals, there is not yet much empirical work quantifying in what gratitude a focused FDP can change faculty understanding of AETCOM competencies and confidence in teaching and assessing them, particularly with retention beyond immediate post-workshop testing. The present study therefore assessed the effectiveness of a structured FDP in improving faculty understanding of AETCOM in an MBBS program with immediate and 12-week follow-up assessment. We hypothesized that the FDP would result in (i) significant advancement of understanding of AETCOM and knowledge, (ii) enhanced self-efficacy of facilitation and assessment and (iii) tangible outputs of implementation (session plans and assessment blueprints) consistent with competency-based principles.

Materials and Methods

Study design, setting and duration: A single group quasi-experimental pretest and post-test study with a 12-week follow-up was performed at Chhindwara Institute of Medical Sciences, Chhindwara, MP, and India.

Participants and methods of recruiting: Faculty involved in undergraduate MBBS teaching in pre-clinical, para-clinical and clinical departments were invited through Medical Education Unit. Inclusion criteria included the following: (i) appointment as teaching faculty (tutor/assistant professor and up), and (ii) direct involvement in the task of undergrad teaching. Exclusion criteria were: (i) previous formal AETCOM training in a preceding 12 months, and (ii) being unable to attend a ≥80% of FDP sessions.

Ethics and consent: Institutional Ethics Committee approval was sought before the start of the study. Written informed consent was secured from all participants and data were anonymized with the use of unique codes.

Intervention: Faculty Development Programme (FDP)

The FDP was distributed over 3 consecutive days (18 contact hours) and was consistent with the principles of adult learning. It included:

1. AETCOM overview & competency mapping (competencies, phases & integration planning)
2. Ethics facilitation workshops (consent and confidentiality case-based small group discussions, end of life issues)
3. Communication skills training (role play, structured feedback, difficult conversations)
4. Teaching-learning approaches (CBL/SGD, facilitation of reflective writing, narrative debriefing)
5. Assessment training (mini-CEX style observation, OSCE/OSPE station, communication, reflective portfolio/logbook rubrics)
6. Microteaching and feedback (every participant facilitated a 10 minute AETCOM micro-session with peer-feedback)

Outcome measures and measuring instruments

Primary outcome: Faculty knowledge of AETCOM using AETCOM Faculty Understanding Questionnaire (AFUQ) (30 items; 4 point Likert; 0-120), structured under four domains, including competency clarity, pedagogy, assessment, integration/logbook processes. Content validity was

determined by review by experts (medical educationists and AETCOM-trained faculty), and internal consistency was high in this group (Cronbach's alpha=0.89).

Secondary outcomes: Knowledge test * 25 single-best answer multiple-choice questions (MCQ) mapped to AETCOM learning objectives (0-25).

Self-efficacy for facilitation, feedback, and assessment was measured using a 10-item scale rated on a 5-point Likert format (1 = not confident at all to 5 = highly confident), with total scores ranging from 10 to 50. Higher scores indicated greater perceived self-efficacy. I feel confident about providing facilitation for my lessons. < 4 Feeling confident about facilitating students. < 3 Not quite confident, but will try to provide feedback in several ways. < 2 somewhat confident to provide feedback and assessment today. < 1 Not confident at all.

Session plan (lesson plan) for FGD/Focus group discussion or individual educator consultation.

Assessments were done at baseline (T0), immediately after FDP (T1) and 12 weeks (T2).

Statistical Analysis: Data were analyzed by using the Statistical Package in Social Sciences (SPSS) v26 (IBM, Armonk, NY) (placeholder). Continuous variables were summarised as mean±SD or median (IQR) according to distribution.

Pre - post differences were compared by paired t-test or Wilcoxon signed-rank test depending on the case. Repeated measures ANOVA (or Friedman test) was used to evaluate a change over T0, T1, T2), effect sizes were expressed in terms of Cohen's d and partial eta-squared. Statistical significance was defined as $p<0.05$ (two-sided).

Results

Table 1: Participant characteristics (N=48)

Characteristic	Value
Age, years (mean±SD)	38.9±7.6
Female, n (%)	26 (54.2)
Designation, n (%)	Tutor/Demonstrator 8 (16.7); Assistant Professor 21 (43.8); Associate Professor 12 (25.0); Professor 7 (14.6)
Department group, n (%)	Pre-clinical 14 (29.2); Para-clinical 12 (25.0); Clinical 22 (45.8)
Teaching experience, years (median [IQR])	7 [4–12]
Prior formal training in medical education (any), n (%)	28 (58.3)

The cohort reflected a typical institutional mix of faculty levels and disciplines, with nearly half drawn from clinical departments, supporting generalizability across teaching contexts. While over half had attended some form of medical education training, baseline scores (Table 2) still indicated gaps specific to AETCOM—particularly assessment literacy—suggesting that generic training does not automatically translate into confidence with affective-domain competencies. This profile also allowed examination of FDP impact beyond a novice-only sample.

Table 2: Change in Overall Scores across Time (T0, T1, T2)

Outcome	T0 Baseline (n=48) mean±SD	T1 Post-FDP (n=48) mean±SD	T2 12 weeks (n=44) mean±SD	p-value (T0 vs T1)
AFUQ total (0–120)	58.1±10.9	94.7±9.8	88.3±10.7	<0.001
Knowledge test (0–25)	11.3±3.4	19.8±2.7	18.1±3.0	<0.001
Self-efficacy (10–50)	27.6±5.9	40.9±4.8	38.7±5.1	<0.001

All three outcomes demonstrated statistically and educationally significant improvement immediately after FDP, with very large effect sizes and consistent directionality across understanding, knowledge, and confidence. The modest decline at 12 weeks suggests expected “decay” in the absence of reinforcement, yet sustained superiority over baseline indicates meaningful retention. Notably, self-efficacy remained high at follow-up, implying that faculty continued to feel capable of facilitating and assessing AETCOM even after returning to routine teaching demands.

Table 3: Domain-Wise Afuq Scores (0–30 per Domain)

Domain	T0 mean±SD	T1 mean±SD	Mean change	p-value
Competency clarity	15.2±3.2	23.4±2.9	+8.2	<0.001
Pedagogy (methods/feedback)	14.6±3.4	23.1±3.0	+8.5	<0.001
Assessment literacy	12.1±3.8	24.0±3.1	+11.9	<0.001
Integration/logbook	16.2±3.1	24.2±2.8	+8.0	<0.001

The largest gain occurred in assessment literacy, highlighting the FDP's practical emphasis on observable behaviors, structured feedback, and reflective evidence rather than theory-only testing. This pattern aligns with faculty concerns reported in the AETCOM literature regarding the limitations of written exams for assessing attitudes and communication [9]. Improvements in pedagogy and competency clarity further indicate that faculty not only learned "what AETCOM is" but also "how to teach it" using interactive, learner-centered strategies.

Table 4: Implementation Outputs and Participant Feedback (Post-Fdp)

Indicator	Result
Micro-session plans produced (mapped to competencies)	36
Departments contributing ≥1 plan	14/18 (77.8%)
Communication OSCE/role-play stations drafted	12
Reflective writing prompts developed	18
Faculty endorsing FDP as "highly relevant", n (%)	43 (89.6)
Faculty requesting longitudinal mentoring, n (%)	39 (81.3)

Beyond score changes, the FDP generated concrete curricular assets (session plans, OSCE stations, and reflective prompts), and indicating translation from understanding to implementation behavior. High endorsement of relevance suggests the content matched perceived needs, while the strong demand for mentoring signals awareness that one-off workshops may not be sufficient for sustained institutional change. The breadth of departmental participation also suggests feasibility of horizontal integration, a core expectation of AETCOM implementation across phases.

Figure 1. Participant flow

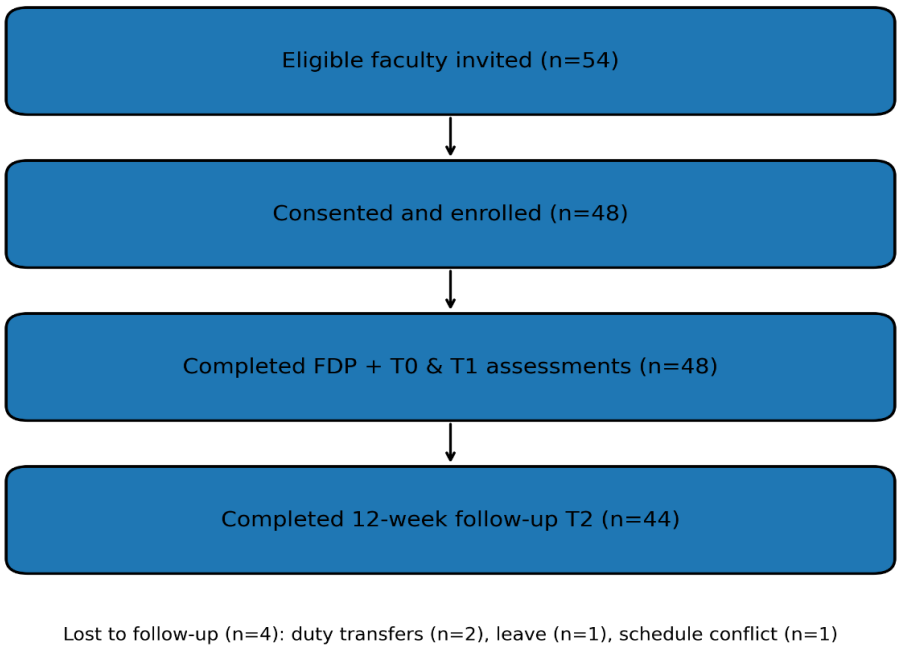

Figure 1: Participant flow

The study achieved high participation and retention, supporting the acceptability of the FDP format within routine institutional constraints.

Attrition was low and attributable to logistical issues rather than intervention dissatisfaction, strengthening internal validity for observed improvements. The flow also suggests that a centrally coordinated MEU-led FDP can reach a broad faculty base with feasible follow-up, a key operational consideration for scaling AETCOM capacity-building across institutions.

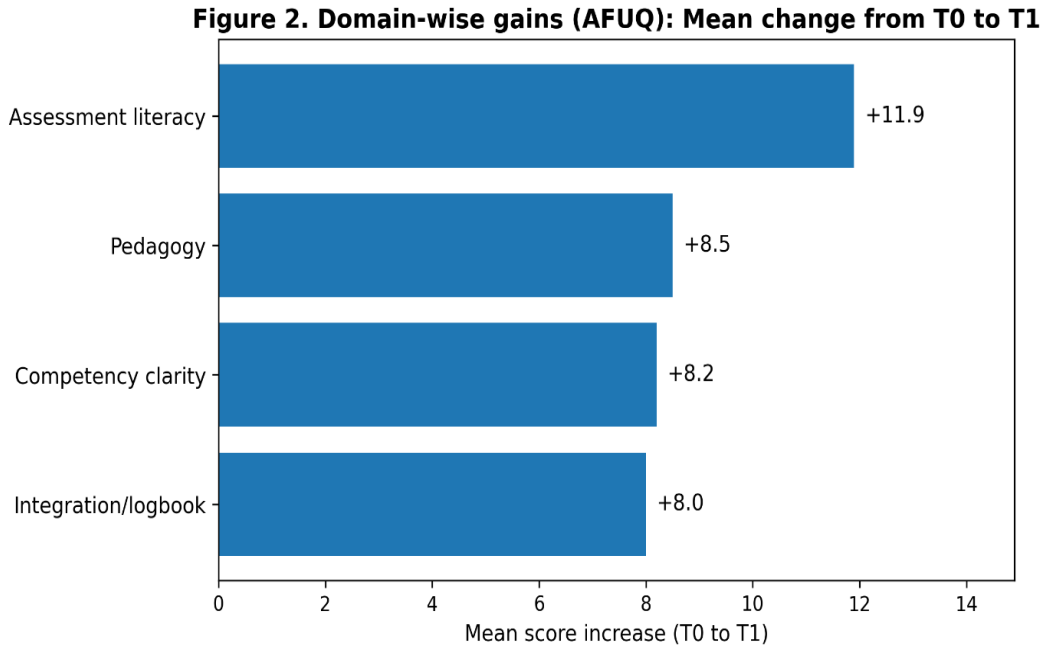

Figure 2: Domain-wise gains (mean change from T0 to T1; AFUQ)

The visual profile underscores that the FDP's strongest impact centered on assessment capability—often the most technically challenging element of AETCOM delivery. This is educationally important because assessment drives learning behavior; improvements here can shift teaching away from passive content coverage toward observed performance, feedback, and reflection. The relatively uniform gains across domains indicate that the FDP functioned as a comprehensive readiness package rather than a narrow "communication skills" workshop alone.

Discussion

This study showed that structured, interactive FDP resulted in large gains in faculty understanding of AETCOM, AETCOM competences and self-efficacy for facilitation and assessment with meaningful retention (12 weeks). These results are also consistent with the broader faculty development literature that demonstrates the effectiveness of well-designed interventions [particularly when those interventions place an emphasis on active learning and practice] against improving educational outcomes [7,8]. Steinert's work points to the importance of faculty development which should go beyond the transfer of information to include experiential learning, feedback, and community building [7,8].

The domain-wise results are particularly instructive. Assessment literacy had the largest increase and followed known tensions in assessing competencies in the affective domain. Ghosh and Bir found faculty skepticism about using written examinations as a useful tool to evaluate attitudes and communication and have called for real-world or simulated practical approaches [9]. The current FDP explicitly trained faculty about workplace-based assessment ideas, modeled structured observation and modeled reflective evidence, and these are likely causes for the disproportionate improvement in this area. In competency-based frameworks assessment is at the core, "increased competence in assessment can provide a white paper to enhance competence of teaching and interaction of the learners" [1,4].

Our results also conform to the indications on the learner-level when it comes to structured AETCOM exposure providing measurable communication improvements. Jain et al. reported improved communication skills of the interns after methodical AETCOM between the interns in peripheral postings [10]. While our study evaluated faculty rather than learners, both of these sets of results point to a common mechanism: ability growth occurs as a result of structured, purposeful practice with feedback (rather than passive exposure).

Implementation outputs - session plans and assessment blueprints - indication that FDPs can have institutional resources and not just individual learning. This addresses a typical barrier found in analysis of the recently instituted bioethics/ethics teaching components in India: insufficient trained faculty, differing approaches, and lack of certainty in operations [11].

The sustained (if somewhat watered-down) scores on follow up reinforce another lesson of faculty development research: without reinforcement, gains can decay. This supports moving away from a "single workshop" model in favor of longitudinal

mentorship, peer observation and communities of practice, which are recommended in modern paradigms of faculty development [8].

The study has practical implications for medical colleges to place AETCOM on scale. First, first and foremost, FDPs should focus training on assessment and feedback, a process that is often the most difficult to embrace in an intuitive sense as better ability to assess can shift teaching behavior and learner effort. Second, the incorporation of structured outputs (e.g. shared session repositories, blueprint templates, rubric banks) can standardize practice across departments and minimize inter-unit variability. Third, there is the need for follow-up boosters or mentoring to help maintain gains, especially those for areas that will need continued practice such as facilitation of ethical dilemmas and reflective debriefing.

Limitations

The study had a number of limitations. It was carried out in one institution, with no control group, which reduces certainty of causation and transferability. Outcomes were based in part on the use of self-report instruments which may overestimate competence. Follow-up was limited to 12 weeks longer-term retention and downstream effects on student performance were not measured. Future multicenter controlled studies should test whether faculty gains result in improvement of student AETCOM competencies and improvements in patient-facing outcomes.

Conclusion

A structured and interactive Faculty Development Programme enhanced the understanding, knowledge, and confidence of faculty with respect to AETCOM implementation, in an MBBS curriculum, to a substantial and sustained extent, and also in a sustained manner. Gains were strongest in the assessment literacy, which addresses a known challenge for assessing attitude and communication competencies.

In addition to raising scores, the FDP produced practical institutional assets (session plans and assessment blueprints) for early readiness for implementation. In order to carry out and scale such benefits among health practitioners, institutions are encouraged to complement an initial set of FDPs with longitudinal mentoring, with communities of peers and industry colleagues, and with periodic refresher sessions in order to strengthen the affective-domain spine of competency-based medical education.

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