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The Multifaceted Value of Post-Classroom Questionnaires in Master Medical Education Programs: From Reflection to Continuous Improvement

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ABSTRACT

Introduction: Post-classroom questionnaires (PCQ) in graduate medical education may serve as more than satisfaction surveys; when grounded in educational theory and analyzed semiquantitatively, they *can be interpreted* as tools for reflective practice, Continuous Quality Improvement (CQI), and Outcome-Based Education (OBE).

Material and Methods: This study employed a descriptive semiquantitative program evaluation design within a Master Medical Education Program, analyzing routinely collected, anonymized learner feedback across multiple classroom sessions. Items addressed domains including program identity, onboarding, pedagogy, assessment, institutional support, and perceived value.

Results: A 51% response rate yielded patterns of consistently high endorsement for program mission, orientation, student-centered learning, and assessment-as-learning, while flipped classroom implementation, holistic competency development, and research/publication support received comparatively lower ratings. Institutional support was positively perceived, though tuition value was rated less favorably. These contrasts *may suggest* interpretive hypotheses of systemic misalignment, such as a potential resource–expectation gap in scholarly mentorship, or a pedagogical implementation trap in innovative teaching strategies. By emphasizing pattern recognition and relative contrasts rather than inferential claims, this evaluation *generates hypotheses* that warrant further exploration and can inform curricular refinement, faculty development, and policy adjustment.

Conclusion: Post-classroom questionnaires, when systematically embedded within CQI–OBE frameworks, *may thus function* as low-burden, high-impact instruments that foster reflective professionalism, evidence-informed decision-making, and sustainable excellence in postgraduate medical education.

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INTRODUCTION

In graduate medical education, post-classroom questionnaires are commonly used to capture learner feedback. However, their educational value extends well beyond simple satisfaction measurement. When grounded in educational theory and analyzed using a descriptive semiquantitative approach, these instruments can systematically surface patterns of learner experience that inform reflective practice, Continuous Quality Improvement (CQI), and Outcome-Based Education (OBE). By aggregating

learner perceptions across domains, post-classroom questionnaires link individual learning encounters with program-level accountability and improvement.

Despite their widespread use, PCQs are frequently analyzed in a superficial, satisfaction-focused manner, limiting their potential to drive meaningful curricular change. From a learning theory perspective, post-classroom questionnaires activate metacognitive and reflective processes, prompting learners to appraise instructional alignment, engagement, and personal learning strategies.

This function aligns with Kolb's experiential learning cycle, in which concrete experiences are transformed through reflection and conceptualization into future action [1–4], as well as Schön's reflection-on-action, which enables professionals to reinterpret educational experiences after their completion [5]. Adult learning theory further emphasizes that postgraduate learners are self-directed and experience-based, and therefore benefit from structured, timely feedback mechanisms that support self-regulation and professional identity formation [6–9].

Within a Continuous Quality Improvement (CQI) framework, post-classroom questionnaires function as structured feedback loops encompassing data collection, descriptive aggregation, reflective interpretation, and program adaptation. When analyzed semiquantitatively, these data highlight educationally meaningful patterns, such as domains of consistently high endorsement, areas of relative weakness, and contrasts across instructional or support components. Such pattern recognition supports iterative improvement while avoiding unwarranted inferential claims [10-16].

From an Outcome-Based Education (OBE) perspective, semiquantitative analysis of questionnaire data enables early identification of alignment or misalignment between intended learning outcomes, pedagogical strategies, assessment practices, and enabling infrastructure [17,18]. Rather than establishing causality, this approach provides actionable diagnostic insight to guide curricular refinement, resource allocation, and policy adjustment

When embedded within pedagogical, administrative, and governance structures, post-classroom questionnaires become low-burden yet high-impact evaluative tools, fostering reflective professionalism, evidence-informed decision-making, and sustainable excellence in graduate medical education. Figure 1 shows the proposed cycle of learner reflection, pattern recognition, institutional dialogue, and curricular refinement, modified from the input–output cycle.

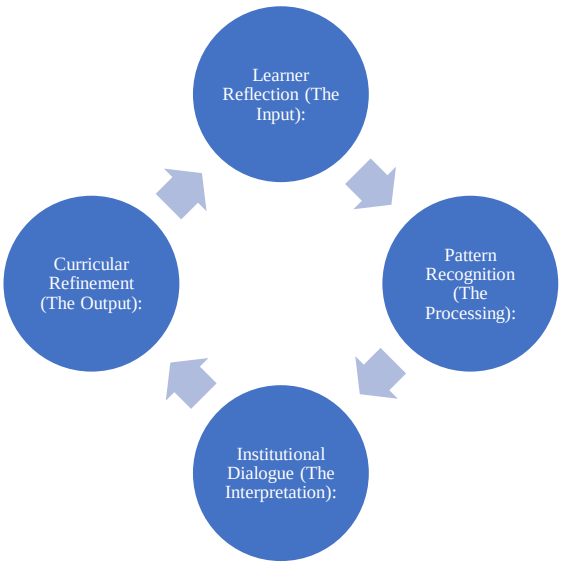


Figure 1. Proposed cycles of learner reflection, pattern recognition, institutional dialogue, and curricular refinement, modified from the input–output cycle.

MATERIAL AND METHODS

The study was conducted within a Master of Medical Education program attended by postgraduate learners, primarily practicing health professionals and educators. The program emphasizes postgraduate and residency-level learning and focuses on how the brain learns to enhance teaching effectiveness [9,15,16]. Data were collected during classroom sessions at the end of the first semester of 2025. Participation was voluntary and anonymous, and all responses were included in the analysis. A total of 26 MD participants were enrolled: 50% were specialists, 39% PhD holders, and 1 was a professor; 53% were female, with ages ranging from 28 to 53 years.

Consent was obtained during questionnaire completion.

The evaluation instrument was an institution-developed post-classroom questionnaire routinely used for educational quality assurance. The items were reviewed for content validity by a panel of medical education experts. Items covered program identity and mission, onboarding, curriculum content, instructional delivery, student-centered and outcome-based learning practices, assessment, learning resources, research and publication support, institutional support, and perceived value of tuition fees [19]. Table 1 shows Classification of Items in Questionnaires

Data were analyzed using a descriptive semiquantitative approach appropriate for ordinal data. Frequencies and proportions were used to identify patterns of agreement and contrast across domains, emphasizing educationally meaningful trends rather than inferential statistical testing. Findings were interpreted using adult learning theory, reflective practice frameworks, and CQI–OBE principles. The study analyzed aggregated, anonymized data collected as part of routine educational quality assurance activities.

RESULTS

A response rate of 51% (n=26 participants) was obtained from voluntary, anonymized post-classroom questionnaires. Results are presented using a descriptive semiquantitative framework, emphasizing patterns of agreement across items and domains rather than inferential comparisons.

Items addressing program identity and mission demonstrated consistently high levels of

Table 1. Classification of Items in Questionnaires

Classification	Items: no
Program Identity, Vision, and Mission Focus: graduate profile, future roles, agents of change, program goals, institutional motto.	1, 3, 4, 5, 8
Curriculum Content and Structure Focus: relevance, sequencing, density, conceptual depth of blocks/courses	2, 6, 7, 16, 17
Onboarding and Orientation Processes Focus: welcome notes, induction, explanations of program features, early guidance	9, 10, 11, 12
Core Pedagogy: Student-Centered, Outcome-Based, and Active Learning Includes: Student-Centered Learning (SCL), Outcome-Based Education (OBE), Learning contracts, Flipped classroom, Active discussion-based learning, Holistic competence development	13, 14, 15, 18, 19, 20
Assessment Practices (Assessment as Learning & Self-Assessment) Focus: assessment formats, formative intent, learner reflection	21, 22, 23
Research, Capstone Project, and Publication Support Focus: scholarly output, thesis, capstone, publication encouragement.	24, 25, 26
Perceived Value and Impact: Value of tuition fees, Transferability and application of learning,	27, 28
Institutional Support (Faculty, Administration, Facilities) Focus: infrastructure and human resources supporting learning.	29, 30, 31

agreement, indicating strong perceived alignment with the program's stated goal of developing agents of change. Onboarding and orientation processes were also favorably endorsed, suggesting effective expectation-setting and early curricular coherence. Domains related to core pedagogy, including Student-Centered Learning, Outcome-Based Education, and the use of learning contracts, showed generally positive endorsement. In contrast, flipped classroom implementation and perceived development of holistic competencies (e.g., leadership, communication, reflective skills) received comparatively lower levels of agreement, indicating variability in learners' experiences.

Assessment-related items revealed strong endorsement of contemporary principles such as self-assessment and assessment-as-learning. Conversely, research and publication support emerged as the lowest-endorsed domain across responses. Items related to institutional support demonstrated high satisfaction with faculty expertise and administrative processes; however, the perceived value of tuition fees was rated lower than other support domains, indicating a relative value–cost perception gap. Figure 2 shows a visualization of Pattern Recognition in Responses.

DISCUSSION

This semiquantitative evaluation provides a structured overview of learner perceptions while respecting the ordinal nature of Likert-type data and the study's formative intent. The 51% response rate is consistent with voluntary postgraduate evaluations; however, the findings should be interpreted as reflecting an engaged subset of learners rather than the entire cohort. This also gives a limitation to discuss non-response bias due to the anonymous model of filling the questionnaires [20–22].

High endorsement of program identity and mission suggests that the questionnaire functioned not only as an evaluative tool but also as a reflective trigger, supporting adult learning and Schön's reflection-on-action. These findings indicate coherence between institutional philosophy and the formation of learners' professional identity.

Lower endorsement of flipped classroom effectiveness and holistic skill development appears to reflect gaps in implementation and pedagogical scaffolding rather than a rejection of the underlying educational principles. Although learner-centered and active learning concepts were widely accepted in principle, their translation into practice varied considerably across settings. This variability highlights the need for more systematic faculty development, particularly in designing, facilitating, and aligning flipped classroom activities with intended learning outcomes. While flipped classrooms hold substantial promise for enhancing active learning in postgraduate medical education, their effectiveness is contingent upon mitigating time constraints, strengthening digital literacy, and adopting evidence-informed

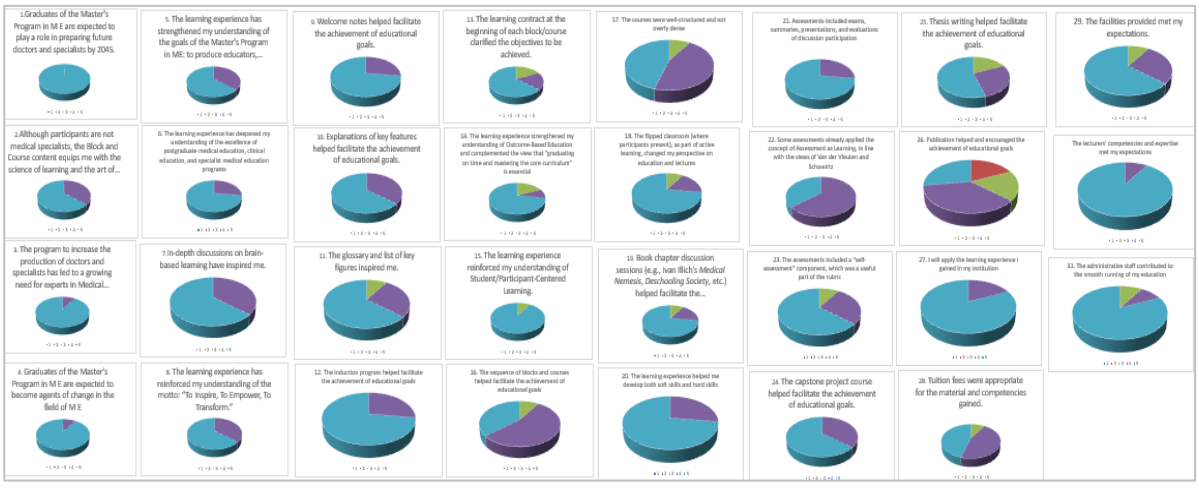


Figure 2. Visualization of Pattern Recognition in Responses

implementation strategies. Accordingly, institutions should provide structured pedagogical support, targeted faculty training, and flexible scheduling frameworks to ensure that flipped classroom models are implemented consistently and sustainably.

From a CQI perspective, these patterns highlight the need for clearer instructional design, targeted faculty development, and stronger alignment between learning activities and intended outcomes. The unexpected nature of these findings prompted faculty to implement immediate "Quick Win" changes.

The most salient and persistent finding low endorsement of research and publication support signals more than an isolated area of dissatisfaction; it reveals a structural misalignment between stated scholarly outcomes and the institutional conditions required to achieve them. Although programs formally espouse research productivity and international publication as core outcomes, particularly through policies mandating Scopus-indexed outputs, these expectations are not matched by proportional investments in mentorship, methodological guidance, protected time, or research infrastructure. This disconnect transforms scholarly activity from a developmental process into a compliance-driven requirement, undermining both educational intent and learner motivation.

From a systems perspective, this pattern exemplifies what Senge (1990) [13] describes as a *"system trap"*: a situation in which high-level performance demands are imposed without aligning the supporting structures, feedback loops, and capacity-building mechanisms necessary for success. Rather than stimulating scholarly excellence, such misalignment generates frustration, surface compliance, and disengagement outcomes that are antithetical to the principles of adult learning, self-directed learning, and outcome-based education [13,14,23].

In semiquantitative terms, the consistently lower endorsement of research support—when contrasted with higher ratings in curricular delivery or instructional processes—constitutes a meaningful cross-domain divergence with high practical significance. This divergence suggests that learners are not rejecting the value of research itself, but rather signaling the absence of a viable developmental pathway from novice researcher to publishable scholar. The perceived inadequacy of research support also provides a plausible explanation for the lower perceived value of tuition fees, as learners implicitly evaluate tuition not only in terms of content delivery but also in relation to access to mentorship, academic capital, and scholarly opportunities.

Importantly, this finding carries implications beyond the local context. Across postgraduate medical education systems globally, increasing pressure to publish in high-impact journals has outpaced investments in faculty development, research coaching, and protected scholarly time. Without deliberate structural alignment, publication mandates risk becoming symbolic indicators of excellence rather than authentic outcomes of a supportive academic ecosystem. Addressing this gap requires a shift from outcome enforcement to outcome enablement—through tiered mentorship models, embedded research curricula, accessible statistical and editorial support, and recognition of scholarly development as a longitudinal educational process rather than a terminal requirement [24–27].

Overall, the findings demonstrate how semiquantitative analysis of routine feedback can yield actionable intelligence for both pedagogical refinement and system-level intervention without reliance on inferential statistics [20–27].

Limitations of the Study

This study has several limitations. The voluntary nature of the survey yielded a 51% response rate, raising the possibility of self-selection bias and underrepresentation of less engaged learners. As a single-site study within one Master of Medical Education program, findings are highly contextual and intended for internal CQI rather than broad generalization. Reliance on anonymized, cross-sectional survey data limited depth; while Likert items identified gaps, they did not explain underlying causes, and the absence of qualitative methods restricted nuance. Results reflect learner perceptions rather than objective performance, so caution is needed in interpreting educational effectiveness. Additionally, the institution-developed questionnaire lacked psychometric validation (e.g., reliability, construct

validity), constraining measurement rigor. Finally, limited data prevented statistical analysis, and no formal consent was obtained.

CONCLUSION

Using a descriptive semiquantitative approach, this study illustrates how routinely collected post-classroom questionnaires *may function* as valuable instruments for reflective practice, Continuous Quality Improvement, and Outcome-Based Education alignment in postgraduate medical education.

Patterns observed in the data *suggest* strong perceived effectiveness of core instructional delivery and assessment philosophy, while comparatively lower ratings in research and publication support, holistic competency development, and tuition value *may indicate* areas of systemic misalignment. These contrasts *could reflect* interpretive hypotheses, such as a potential resource–expectation gap in scholarly mentorship and publication support. A possible pedagogical implementation trap in flipped classroom strategies. A tension between institutional support and perceived program value.

By focusing on educationally meaningful patterns and relative contrasts, rather than statistical inference, this evaluation *generates hypotheses* that warrant further exploration. Such hypotheses can guide targeted interventions, particularly in strengthening scholarly mentorship and aligning institutional expectations with enabling resources.

When systematically analyzed and linked to responsive action, post-classroom questionnaires *may extend* beyond evaluation to support organizational learning and cultivate reflective, research-capable, and socially accountable medical educators.

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CONFLICT OF INTEREST

The author declares that there is no conflict of interest.

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