

Comparing Lecture, Reflection, and Active Learning Approaches for Enhancing Medical Professionalism Among Undergraduate Medical Students in Thailand

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Abstract

Background: Medical professionalism is crucial in the practice of medicine. Managing medical professionalism presents challenges to ensure that medical students develop a comprehensive sense of professionalism.

Objectives: This research aimed to compare pretest and posttest scores of medical professionalism among students who were randomly assigned to one of three instructional approaches—lecture-based learning, reflection-based learning, and active learning—and to evaluate the relative effectiveness of these methods in promoting professionalism.

Methods: The study was conducted among 36 fourth-year medical students enrolled in a psychiatry course during the 2023 academic year. Three teaching modalities were implemented: (1) lecture-based learning, (2) reflection-based learning using the film *Patch Adams*, and (3) active learning integrating reflection, role modeling, and case-based scenarios. Medical professionalism was assessed using the Medical Professionalism Scale (MPS), which evaluates six dimensions: altruism, accountability, excellence, duty, honor and integrity, and respect for others.

Results: No statistically significant pretest–posttest differences were found in the Lecture-based and Reflection-based learning groups. In contrast, the active learning approach produced significant posttest improvements in four key dimensions—Altruism, Accountability, Duty, and Respect for Others ($p < 0.05$)—with medium-to-large effect sizes. These gains were independent of students' baseline professionalism, indicating that active learning facilitated professional development regardless of initial competency levels.

Conclusion: An integrated active learning model combining reflection, role modeling, and scenario-based discussion effectively enhances professionalism in psychiatry education. It should be selectively applied to courses emphasizing ethics, empathy, and patient-centered care, with continuous evaluation to sustain professional identity.

Keywords: Medical Professionalism; Active Learning; Medical Education

Background

Medical professionalism represents values and behaviors that foster public trust in physicians (1, 2). It has been recognized as one of the essential core competencies in medical education worldwide, influencing patient outcomes, healthcare quality, and physician well-being (3, 4). In recent times, this issue has garnered significant attention as reports from the United States, Europe, and Asia have documented medical errors and patient safety concerns linked to lapses in professionalism (5, 6). For example, a global

survey indicated that unprofessional behavior is a contributing factor in nearly 10–15% of serious medical errors (7). Furthermore, Thailand has faced a physician migration crisis, in which a substantial proportion of doctors have resigned from the civil service system to work in private hospitals or abroad. This trend has been linked not only to workload and compensation issues but also to dissatisfaction with professional values and work environments (1). Therefore, the development of medical professionalism among physicians is of utmost importance, which should begin with educational

management and teaching processes designed to promote comprehensive professional identity formation. In the context of Thailand, the teaching and educational management for producing physicians has been highly successful in preparing graduates capable of diagnosing and rehabilitating patients who access health services. However, the physician density in Thailand remains below the OECD average (0.8 vs. 3.6 per 1,000 population), and there continue to be challenges in providing holistic health services, including preventive and health promotion services (8, 9). Importantly, physician shortages and migration highlight not only workforce quantity issues but also the need to strengthen the quality of medical training. Ensuring that physicians embody professionalism can help improve retention, patient trust, and the delivery of holistic health services. This connection underscores why medical professionalism must be embedded and reinforced within medical teaching and training, alongside clinical practice. Teaching medical professionalism presents challenges for educators due to the unique characteristics of professionalism, which differ from other professions and are closely related to compensation and societal expectations. Consequently, medical professionalism is highly specific, resulting in a non-static educational management model that must be continuously developed to align with the circumstances and context of each educational institution (10, 11). Previous studies have shown that most medical students tend to learn about professionalism through direct experiences with role models, which has proven to be an effective teaching method (7). Reflection has been incorporated into the teaching and learning process to enable medical students to contemplate their experiences and foster internal growth. Additionally, instruction is supplemented with case scenarios and team-based approaches to enhance students' understanding of context and teamwork skills (12-14).

The teaching and educational management of professionalism should define cultural contexts and create an environment that supports professional behavior. Instructors should be trained to effectively teach and assess observable behaviors of students during the learning process. Moreover, this teaching process should involve the continuous development of assessment tools for professionalism, which remains a challenging issue, as there is currently no clear or widely accepted method of evaluation (5, 10, 15). Currently, teaching approaches for medical students are continuously being developed to align with changing contexts and circumstances (11, 14, 16). The focus is on

equipping medical students with knowledge and skills through novel instructional methodologies, such as Active Learning, which emphasizes hands-on practice using a variety of teaching techniques. Previous studies have shown that students who engage in active learning have higher examination scores compared to those who learn through traditional lectures. However, when given a choice, students still prefer traditional lecture models, as they feel it enhances their understanding after the class (17, 18). Despite these advances, there remains a clear gap in the literature regarding the direct comparison of teaching models—specifically lecture-based, reflection-based, and active-learning approaches—for fostering professionalism in undergraduate medical education. For instance, studies by Guraya et al. (13) and Buhumaid et al. (16) have examined reflective or active-learning methods independently, yet a direct, head-to-head comparison among these approaches remains limited. Most existing studies have examined these approaches in isolation or focused primarily on knowledge acquisition and academic performance rather than on professionalism outcomes (11, 13, 16). Very few studies have investigated whether active learning can enhance the broader dimensions of professionalism, such as professional attitudes, values, behaviors, and teamwork, beyond its well-documented effects on examination scores. Furthermore, little evidence exists from diverse cultural contexts, including Southeast Asian countries like Thailand, where sociocultural factors may significantly influence professional identity formation and the effectiveness of professionalism training approaches (19, 20, 21). What makes the present study innovative is its direct, head-to-head comparison of teaching approaches—lecture, reflection, and active learning—within the same cohort of Thai medical students, its emphasis on professionalism dimensions (values, attitudes, and behaviors, not just knowledge), and its incorporation of reflection combined with contextualized, case-based teaching strategies tailored to Thai cultural and educational contexts (16, 20, 21). Addressing this gap is crucial to guide educators in selecting teaching methods that not only enhance knowledge but also foster the values, attitudes, and behaviors that define medical professionalism.

As an educator in psychiatry for medical students, the researcher recognizes that traditional lecture formats alone are insufficient to promote the level of professionalism expected of future physicians. This personal observation aligns with the study's objective—to identify and compare instructional

models that best enhance medical professionalism among students. Accordingly, the researcher aims to examine changes in students' professionalism scores between pre-test and post-test through lecture-based, reflection-based, and active learning methodologies, and to compare the overall levels of professionalism across these instructional models.

Objectives

This research aimed to compare pretest and posttest scores of medical professionalism among students exposed to different instructional approaches—lecture-based learning, reflection-based learning, and active learning—and to evaluate the relative effectiveness of these methods in promoting professionalism.

Methods

Study design: A quasi-experimental pre-test/post-test comparative educational intervention study was conducted using different instructional models within the psychiatry course, including: 1) Lecture-based learning, 2) Reflection-based learning on the film “Patch Adams,” and 3) Active learning that emphasized integrating reflection, role models, and case scenarios. All 36 students were randomly assigned to one of the three instructional methods using a simple randomization procedure to ensure balanced group sizes (approximately 12 students per group). This random allocation minimized selection bias and maintained comparability among instructional conditions. To maintain consistency across groups, all instructional sessions were conducted within the same course schedule, by the same instructor, and using equivalent assessment procedures. Additionally, the researcher provided students with opportunities for feedback regarding the educational management to ensure transparency and fairness throughout the process.

Participants: This research examined teaching models that promote medical professionalism among 36 fourth-year medical students enrolled in the psychiatry course during the academic year 2023. The total population consisted of 36 students, and thus the entire cohort was included as the study sample. The researcher obtained informed consent from all participants for data collection, and participation in the study was voluntary; students could withdraw from the study or drop the course without any impact on their academic performance. The sample size was determined by the total number of students enrolled in the psychiatry course during the study period. As this was a full-cohort study of all eligible students, no additional recruitment

was conducted. A post-hoc sensitivity analysis indicated that with $N = 36$ (12 per group), $\alpha = 0.05$, and power = 0.80, the study was sufficiently powered to detect medium-to-large effect sizes ($f = 0.35$). This suggests that the sample size was adequate for detecting meaningful effects while acknowledging reduced sensitivity for smaller effects. This study was conducted within a single psychiatry course because professionalism training is formally integrated into this module at the institution, providing a consistent context for intervention and assessment. While this limits generalizability across all medical courses, it allowed for controlled delivery of the three instructional methods within a uniform curriculum structure. Data analysis was performed by a statistician blinded to the group assignments to minimize potential bias during data processing. However, full blinding of the course instructor was not feasible due to the educational context, and this was noted as a study limitation.

Setting

The teaching of professionalism: In teaching medical professionalism, the researcher prepared the necessary components of the course, including a structured lesson plan for each instructional method, course content, films, the Medical Professionalism Scale (MPS), and an online assessment. During the initial teaching session, the researcher explained the instructional process and sought consent for data collection. Subsequently, medical students completed the Medical Professionalism Scale (MPS) before the class. Each instructional method was conducted in a 3-hour session, with identical learning objectives focused on understanding and applying the six dimensions of professionalism: Altruism, Accountability, Excellence, Duty, Honor and Integrity, and Respect for Others. The sessions were spaced one week apart to minimize carryover effects and allow for reflective consolidation between formats. The teaching methods were divided into three formats as follows:

1) Lecture-based learning: The researcher delivered a structured 90-minute lecture covering the definitions, principles, and dimensions of medical professionalism, supported by PowerPoint slides and clinical examples. The remaining time was used for Q&A and guided discussion, where students analyzed short case vignettes related to ethical decision-making and professionalism lapses observed in clinical practice.

2) Reflection-based learning: The researcher initiated the session by having students watch selected scenes from the film “Patch Adams” (approximately 45 minutes), focusing on doctor–patient empathy,

ethical conflict, and teamwork. Students then engaged in guided reflection for 60 minutes, writing short reflective notes on their learning experiences. In the final segment, the researcher facilitated a discussion linking these reflections to the six dimensions of professionalism, emphasizing how compassion, respect, and accountability manifest in clinical behavior.

3) Active learning: Students were asked to watch “Patch Adams” at home prior to the session. The class began with a 45-minute small-group reflection on learned experiences, followed by a “Role Model” activity, where students shared personal examples of professional role models and analyzed their behaviors using the MPS framework. The researcher then conducted a case-based scenario discussion (60 minutes) using three real-life cases drawn from psychiatry and general medical settings, including:

A physician facing ethical conflict between patient confidentiality and family pressure.

A team-based scenario illustrating accountability and interprofessional communication.

A case highlighting altruism and emotional resilience in managing difficult patients.

Students worked collaboratively to identify professionalism issues, propose solutions, and reflect on behavioral implications. The final 30 minutes were dedicated to group synthesis and reflective journaling on key takeaways.

Upon completion of the teaching session, students reflected on their thoughts following the activities and completed the Medical Professionalism Scale (MPS) after the class.

Questionnaire: A 32-item Medical Professionalism Scale (MPS) was utilized in this study (9). The MPS, a 6-point Likert-type scale, assessed six dimensions of medical professionalism as follows:

- 1) Altruism (6 items)
- 2) Accountability (5 items)
- 3) Excellence (5 items)
- 4) Duty (5 items)
- 5) Honor and Integrity (5 items)
- 6) Respect for Others (5 items)

The MPS was originally developed and validated for use in Thai medical students by Sumalrot et al. (2017) demonstrating strong construct validity and reliability (Cronbach's alpha = 0.92). This instrument has since been applied in multiple Thai studies on professionalism and is considered an appropriate and culturally relevant tool for assessing professionalism in medical education in Thailand (9).

Statistical analysis: All analyses were performed using the Statistical Package for the Social Sciences (SPSS, Version 26). Prior to inferential testing, the normality of change scores ($\Delta = \text{Post-Pre}$) was examined using the Shapiro-Wilk test, along with an inspection of skewness and kurtosis values to verify the suitability of parametric analyses for a small sample size. Levene's test was used to assess the homogeneity of variances. The primary outcome was the overall Mean Professionalism Scale (MPS) score. A one-way ANCOVA was conducted with post-test MPS scores as the dependent variable, teaching approach (lecture, reflection, active learning) as the fixed factor, and pre-test scores as a covariate (model: $\text{Post} \sim \text{Group} + \text{Pre}$). Results were reported as $F(df_1, df_2)$, p-values, partial eta squared (η^2), 95% confidence intervals, and estimated marginal means (EMMeans) adjusted using the Bonferroni-Holm correction. For the six subdimensions of professionalism (altruism, accountability, excellence, duty, honor/integrity, and respect for others), a MANOVA was first conducted to examine overall differences among instructional methods. When a significant multivariate effect was found, follow-up repeated-measures ANOVAs were performed for each dimension, applying Holm or Benjamini-Hochberg corrections to control for multiple comparisons. Effect sizes were expressed as η^2 , and pairwise contrasts were reported using Hedges' g (or Cohen's d_n) with 95% confidence intervals. Paired-sample t-tests were employed for within-method pre-post comparisons, with corresponding Cohen's d_n (d_z) values and 95% CIs computed to interpret the magnitude of pre-post changes. There were no missing data; all 36 participants completed both pre- and post-assessments under each instructional condition. Each instructional method involved approximately 12 students per rotation, which may have limited statistical power and increased the risk of Type II error. However, the post-hoc sensitivity analysis confirmed that the achieved power (0.80) was adequate for detecting medium-to-large effects, and all key outcomes were accompanied by effect sizes and confidence intervals to ensure interpretability and transparency.

Results

The effects of three teaching approaches—lecture, reflection, and active learning—on students' posttest Mean Professionalism Scale (MPS) scores (while controlling for pretest scores) were examined using a one-way ANCOVA. The analysis revealed a statistically

significant overall model, $F(5, 29) = 24.12, p < 0.001$, with an adjusted R^2 of 0.773, indicating that approximately 77.3% of the variance in posttest scores was explained by the model. The pretest MPS score was a significant covariate, $F(1, 29) = 49.65, p < .001$, suggesting that students' initial professionalism levels were strongly associated with their posttest outcomes. Importantly, there was a significant main effect of teaching approach, $F(2, 29) = 5.41, p = 0.10, \eta^2 = .272$, indicating that the type of instructional method had a meaningful influence on students' professionalism development after controlling for baseline differences. A preliminary one-way ANOVA was first conducted to verify group equivalence at baseline. The results indicated no significant differences in pretest MPS scores across the three instructional groups, $F(2, 32) = 3.307, p = 0.059$ (Table 1), thereby satisfying the assumption required for ANCOVA that groups did not differ significantly on the covariate. These results, presented in Table 2. Table 3 presents the estimated marginal means and 95% confidence intervals for posttest MPS scores adjusted for pretest performance. The Active Learning group achieved the highest adjusted mean posttest score ($M = 185.03, SE = 1.63, 95\% CI [182.24, 187.82]$), followed by the Reflection group ($M = 175.44, SE = 1.46, 95\% CI [172.44, 178.43]$) and the Lecture group ($M = 174.84, SE = 1.55, 95\% CI [171.65, 178.02]$). Post hoc pairwise comparisons using the Bonferroni–Holm adjustment indicated that the Active Learning condition produced significantly higher posttest scores than both the Lecture and Reflection conditions, whereas no statistically significant difference was found between the Lecture and Reflection groups.

The effects of the three teaching approaches on six dimensions of professionalism (altruism, accountability, excellence, duty, honor and integrity, and respect for others) were examined using a multivariate analysis of covariance (MANCOVA) with pretest subsdimension scores entered as covariates to control for baseline differences. This analysis was conducted on posttest scores rather than change scores, ensuring comparability across groups after accounting for pretest performance. The overall multivariate test revealed a statistically significant effect of teaching approach on the combined dependent variables, Wilks' $\Lambda = 0.682, F(12, 56) = 1.87, p < .05, \eta^2 = 0.29$, indicating that the instructional methods collectively influenced students' professionalism development. Follow-up univariate analyses showed that significant differences emerged in three dimensions: altruism ($F(2, 33) = 4.29, p = .022$), duty ($F(2, 33) = 3.30, p = .040$), and respect for others

($F(2, 33) = 3.39, p = .046$). In all three cases, students taught through the active learning approach demonstrated the greatest mean improvements (altruism: $M = 0.50, SD = 0.43, 95\% CI [0.24, 0.77]$; duty: $M = 0.38, SD = 0.54, 95\% CI [0.18, 0.58]$; respect for others: $M = 0.19, SD = 0.26, 95\% CI [0.02, 0.37]$) compared with those in the lecture and reflection groups. No significant differences were found for accountability ($p = 0.523$), excellence ($p = 0.378$), or honor and integrity ($p = .546$). These results are presented in Table 4.

The within-group changes in Mean Professionalism Scale (MPS) subsdimension scores before and after instruction under each teaching approach (lecture, reflection, and active learning) were examined, and the results are summarized in Table 5. To further explore whether posttest performance was dependent on baseline professionalism levels, pre–post Pearson correlation coefficients were also calculated for each group and dimension.

Across all six dimensions, significant pre- to posttest improvements were observed primarily in the active learning condition. Specifically, substantial gains were found in altruism ($p = .005, \text{Cohen's } d = 1.57, 95\% CI [0.96, 2.18]$), accountability ($p = .033, d = 0.73, 95\% CI [0.28, 1.18]$), duty ($p = .008, d = 1.08, 95\% CI [0.59, 1.57]$), and respect for others ($p = .026, d = 0.75, 95\% CI [0.30, 1.20]$). These represent medium-to-large effect sizes, indicating meaningful improvements in professionalism following the active learning intervention. Importantly, the correlation analysis revealed strong and significant pre–post relationships in the lecture ($r = .75-.92, p < 0.01$) and reflection ($r = 0.62-.89, p < 0.05$) groups, suggesting that students' posttest scores largely reflected their initial levels. In contrast, correlations within the active learning group were weak and nonsignificant across all dimensions ($r = 0.14-0.54, p > 0.05$), indicating that the benefits of active learning were largely independent of baseline professionalism scores.

In contrast, neither the lecture nor reflection approaches produced statistically significant pre- to posttest changes across any dimension ($p > 0.05$), and no significant differences were observed for excellence ($p > 0.05$) or honor and integrity ($p > 0.05$) under any teaching approach.

Discussion

This research conducted teaching regarding medical professionalism in a psychiatry course using different instructional methods, including 1) Lecture-based

learning, 2) Reflection-based learning on the film *Patch Adams*, and 3) Active Learning that integrated Reflection, Role Model, and Case Scenario. Data was collected from fourth-year medical students during the academic years 2023, assessing medical professionalism using the Medical Professionalism Scale, which consists of six dimensions: Altruism, Accountability, Excellence, Duty, Honor and Integrity, and Respect for others. All 36 students were randomly assigned to one of the three instructional methods using a simple randomization procedure to ensure balanced group sizes (approximately 120 students per group). This random allocation minimized selection bias and maintained comparability among instructional conditions. The findings revealed that both lecture-based and reflection-based learning methods produced no significant differences in MPS scores between the pretest and posttest across all dimensions. However, these results should be interpreted within the context of this short-term intervention. The lack of measurable improvement does not imply that lecture- or reflection-based methods are inherently ineffective, but rather that they were less effective under the limited time frame and design of this study. Professionalism requires not only cognitive understanding but also affective engagement and behavioral modeling—elements that may be less emphasized in purely didactic or film-based reflection formats. One explanation is that lectures are primarily teacher-centered and emphasize knowledge transmission rather than value internalization or behavioral practice. As a result, students may memorize principles of professionalism without experiencing the emotional or ethical dimensions that drive genuine professional growth. Similarly, while reflection through film may be thought-provoking, it often lacks opportunities for dialogue, feedback, or real-life application. Consequently, these approaches may raise awareness but provide limited opportunities for students to translate abstract values into enduring professional behaviors. This finding is consistent with prior studies showing that didactic or observational teaching alone seldom produces behavioral change (2, 3, 12). To reduce redundancy, the discussion of short duration and limited experiential exposure has been streamlined here: professionalism develops gradually through sustained reinforcement and interactive learning experiences (5). In contrast, the active learning approach significantly improved students' MPS scores in the dimensions of altruism, accountability, duty, and respect for others, demonstrating medium-to-large effect sizes. Active learning fosters self-directed

preparation before class and promotes interactive, student-centered engagement during instruction. Instructors stimulate critical thinking and self-reflection by posing thought-provoking questions that encourage deeper exploration of professional values. These findings are consistent with previous studies that highlight the integration of knowledge, attitude, skills, and identity through participatory learning, as well as the positive impact of team-based and case-driven instruction on students' professional awareness. Exposure to exemplary role models and authentic case scenarios further supports the internalization of professional values, helping students translate theoretical understanding into practical behavior (10, 13). This approach also corresponds with evidence from meta-analyses in Medical Teacher and Academic Medicine, which demonstrate that active and case-based learning outperform traditional methods in improving empathy, accountability, and ethical reasoning (10, 12). Similarly, previous studies have demonstrated that reflective and case-based learning approaches effectively enhance professional competencies, including interpersonal skills and ethical reasoning, across diverse educational contexts (16, 19, 21), consistent with the present study's finding that active learning yielded the highest posttest MPS scores compared with lecture-based instruction. However, the results from this study should be interpreted cautiously within its specific educational setting. In longer or more immersive programs, reflection-based strategies have also been shown to yield positive outcomes, suggesting that the effectiveness of any method may depend on implementation depth and institutional support. Overall, the active learning approach produced the greatest gains in professionalism outcomes. By emphasizing engagement, self-directed preparation, critical reflection, and role modeling, it facilitates both cognitive and affective learning. Through discussions, case analyses, and exposure to authentic clinical scenarios, students connect professional values to real-world practice—transforming abstract principles into professional identity formation. This pattern reflects the concept of transformative learning, in which reflection and experience interact to produce lasting behavioral change (11, 12, 15). Importantly, in the Thai context, these findings hold particular relevance. The active learning model—through its emphasis on empathy, collaboration, and moral reflection—can contribute to addressing broader national concerns such as physician migration and professional dissatisfaction. By fostering stronger professional identity and intrinsic

motivation among medical trainees, active learning may enhance career satisfaction and commitment to patient-centered care, helping to retain compassionate physicians within the Thai healthcare system.

The correlational analyses further clarified these learning dynamics. In the lecture- and reflection-based groups, posttest professionalism scores were largely predicted by pretest levels, indicating that students with higher baseline professionalism tended to maintain stronger outcomes. In contrast, in the active learning group, posttest outcomes were independent of baseline scores, suggesting that this approach enables all learners—regardless of starting point—to achieve meaningful development. This result supports Dornan’s experiential learning model, which posits that learning is socially situated and transformative rather than dependent on pre-existing attitudes (22). Such adaptability underscores the inclusive and equitable nature of active learning in fostering professionalism (14). Despite these promising results, several limitations must be acknowledged. First, the study employed a randomized quasi-experimental design, which minimized selection bias but was constrained by the small sample size ($n = 36$; ~12 students per group), limiting generalizability. Second, potential confounders such as gender and prior experience were not controlled, though random assignment likely reduced systematic bias. Third, professionalism was assessed using a self-report scale (MPS) without complementary objective measures, such as faculty ratings or observed behavior. Fourth, the study focused on a single institution and short-term course, which limits external validity. Nonetheless, the use of random assignment, identical learning objectives, and consistent instruction supported internal validity and reliable group comparisons. Future research should involve larger, multi-institutional samples and mixed methods (e.g., longitudinal follow-up and qualitative inquiry) to capture professionalism’s gradual, multidimensional development.

Overall, the results suggest that active learning should not be applied uniformly across all areas of medical education but rather be strategically targeted to disciplines that emphasize ethical decision-making, empathy, and clinical judgment—such as psychiatry, internal medicine, and community health. In these contexts, professionalism training benefits most from structured role modeling, case-based reflection, and scenario-driven learning activities that simulate authentic patient interactions. Within Thailand’s evolving medical education landscape, integrating active learning modules could strengthen professionalism,

reinforce ethical standards, and support the national goal of cultivating resilient, service-oriented physicians. Faculty development programs should therefore prepare instructors to facilitate reflective dialogue, model professional behavior, and provide formative feedback (5, 6). Furthermore, institutional policies should create supportive learning environments that visibly model professionalism and embed active learning strategies into clerkships and communication skills curricula. These measures will help ensure that Thai medical students develop not only professional knowledge but also enduring ethical commitment and compassion in clinical practice (10-12).

Conclusion

In conclusion, this study demonstrates that the integrated active learning approach—combining reflection, role modeling, and case-based scenarios—was the only instructional method to produce statistically significant and meaningful improvements in key professional competencies, specifically altruism, accountability, duty, and respect for others. These findings underscore that professionalism development is most effectively achieved through structured experiential and participatory learning rather than through passive, lecture-based or observational approaches. This core outcome provides strong preliminary evidence that active learning fosters measurable growth in professionalism by engaging both cognitive and affective domains. Importantly, its success in the present study appears closely tied to the psychiatry course context, which emphasizes empathy, ethical reasoning, and patient-centered communication. Such context-specific integration highlights the value of aligning active learning with disciplines that naturally promote interpersonal and ethical dimensions of medical practice. Ongoing evaluation of such interventions is recommended to further validate their impact, refine teaching strategies, and ensure long-term sustainability. Future research should extend this model across diverse medical disciplines and institutions to examine scalability, faculty readiness, and curriculum alignment that support reflective dialogue, role modeling, and authentic clinical learning. Taken together, these findings offer compelling evidence for strategically embedding active learning in professionalism education, providing a promising pathway for cultivating the cognitive, affective, and behavioral foundations of professional identity formation among future physicians.

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References

1. The Royal College of Pathologists. Definition of medical professionalism. Assessment department. London: The Royal College of Pathologists; 2018.
2. Randall VF, Foster CW, Olsen CH, Warwick AB, Fernandez KA, Crouch G. Defining medical professionalism across the years of training and experience at the Uniformed Services University of the Health Sciences. *Mil Med.* 2016 Oct;181(10):1294-1299. doi: [10.7205/MILMED-D-15-00438](https://doi.org/10.7205/MILMED-D-15-00438). [PMID: [27753566](https://pubmed.ncbi.nlm.nih.gov/27753566/)]
3. Talbott JA. Professionalism: why now, what is it, how do we do something? *J Cancer Educ.* 2006 Fall;21(3):118-22. doi: [10.1207/s15430154jce2103_4](https://doi.org/10.1207/s15430154jce2103_4). [PMID: [17371171](https://pubmed.ncbi.nlm.nih.gov/17371171/)]
4. Hesketh EA, Bagnall G, Buckley EG, Friedman M, Goodall E, Harden RM, et al. A framework for developing excellence as a clinical educator. *Med Educ.* 2001 Jun;35(6):555-64. doi: [10.1046/j.1365-2923.2001.00920.x](https://doi.org/10.1046/j.1365-2923.2001.00920.x). [PMID: [11380858](https://pubmed.ncbi.nlm.nih.gov/11380858/)]
5. Goodwin AM, Oliver SW, McInnes I, Millar KF, Collins K, Paton C. Professionalism in medical education: the state of the art. *Int J Med Educ.* 2024 Apr 29;15:44-47. doi: [10.5116/ijme.6626.583a](https://doi.org/10.5116/ijme.6626.583a). [PMID: [38686507](https://pubmed.ncbi.nlm.nih.gov/38686507/)] [PMCID: [PMC11285029](https://pubmed.ncbi.nlm.nih.gov/PMC11285029/)]
6. Shrivastava SR, Shrivastava P. Structured framework for teaching professionalism to medical students. *Med J Dr DY Patil Vidyapeeth.* 2020;13(2):104-5. doi: [10.4103/mjdrdypu.mjdrdypu_299_19](https://doi.org/10.4103/mjdrdypu.mjdrdypu_299_19).
7. Koh EYH, Koh KK, Renganathan Y, Krishna L. Role modelling in professional identity formation: a systematic scoping review. *BMC Med Educ.* 2023 Mar 29;23(1):194. doi: [10.1186/s12909-023-04144-0](https://doi.org/10.1186/s12909-023-04144-0). [PMID: [36991373](https://pubmed.ncbi.nlm.nih.gov/36991373/)] [PMCID: [PMC10052869](https://pubmed.ncbi.nlm.nih.gov/PMC10052869/)]
8. Raitskaya L, Tikhonova E. Skills and competencies in higher education and beyond. *Journal of Language and Education.* 2019; 5(4):4-8. doi: [10.17323/jle.2019.10186](https://doi.org/10.17323/jle.2019.10186).
9. Sumalrot T, Supparerkchaisakul N, Ngamthipwatthana T. Medical professionalism: Development and validation of Medical Professionalism Scale (MPS). *Journal of Behavioral Science for Development.* 2018; 10(1):126-45.
10. Buhumaid R, Otaki F, Czabanowska K, Stanley A, Ezimokhai M, Jackson L, et al. Professionalism-training in undergraduate medical education in a multi-cultural, multi-ethnic setting in the Gulf Region: an exploration of reflective essays. *BMC Med Educ.* 2024 Feb 6;24(1):117. doi: [10.1186/s12909-024-05103-z](https://doi.org/10.1186/s12909-024-05103-z). [PMID: [38321450](https://pubmed.ncbi.nlm.nih.gov/38321450/)] [PMCID: [PMC10848390](https://pubmed.ncbi.nlm.nih.gov/PMC10848390/)]
11. Panda S, Das A, Das R, Shullai WK, Sharma N, Sarma A. Teaching and learning medical professionalism: an input from experienced faculty and young graduates in a tertiary care institute. *Maedica (Bucur).* 2022 Jun;17(2):371-379. doi: [10.26574/maedica.2022.17.2.371](https://doi.org/10.26574/maedica.2022.17.2.371). [PMID: [36032628](https://pubmed.ncbi.nlm.nih.gov/36032628/)] [PMCID: [PMC9375877](https://pubmed.ncbi.nlm.nih.gov/PMC9375877/)]
12. Mianehsaz E, Saber A, Tabatabaee SM, Faghihi A. Teaching medical professionalism with a scenario-based approach using role-playing and reflection: a step towards promoting integration of theory and practice. *J Adv Med Educ Prof.* 2023 Jan;11(1): 42-49. doi: [10.30476/JAMP.2022.95605.1651](https://doi.org/10.30476/JAMP.2022.95605.1651). [PMID: [36685147](https://pubmed.ncbi.nlm.nih.gov/36685147/)] [PMCID: [PMC9846097](https://pubmed.ncbi.nlm.nih.gov/PMC9846097/)]
13. Guraya SS, Guraya SY, Doubell FR, Mathew B, Clarke E, Ryan Á, et al. Understanding medical professionalism using express team-based learning: A qualitative case-based study. *Med Educ Online.* 2023 Dec;28(1):2235793. doi: [10.1080/10872981.2023.2235793](https://doi.org/10.1080/10872981.2023.2235793). [PMID: [37463323](https://pubmed.ncbi.nlm.nih.gov/37463323/)] [PMCID: [PMC10355686](https://pubmed.ncbi.nlm.nih.gov/PMC10355686/)]
14. Page M, Crampton P, Viney R, Rich A, Griffin A. Teaching medical professionalism: A qualitative exploration of persuasive communication as an educational strategy. *BMC Med Educ.* 2020 Mar 17;20(1):74. doi: [10.1186/s12909-020-1993-0](https://doi.org/10.1186/s12909-020-1993-0). [PMID: [32178669](https://pubmed.ncbi.nlm.nih.gov/32178669/)] [PMCID: [PMC7077012](https://pubmed.ncbi.nlm.nih.gov/PMC7077012/)]
15. Al Gahtani HMS, Jahrami HA, Silverman HJ. Perceptions of medical students towards the practice of professionalism at the Arabian Gulf University. *BMC Med Educ.* 2021 Jan 8;21(1): 38. doi: [10.1186/s12909-020-02464-z](https://doi.org/10.1186/s12909-020-02464-z). [PMID: [33419419](https://pubmed.ncbi.nlm.nih.gov/33419419/)] [PMCID: [PMC7792125](https://pubmed.ncbi.nlm.nih.gov/PMC7792125/)]
16. Buhumaid R, Otaki F, Czabanowska K, Stanley A, Ezimokhai M, Jackson L, et al. Professionalism-training in undergraduate medical education in a multi-cultural, multi-ethnic setting in the Gulf Region: an exploration of reflective essays. *BMC Med Educ.* 2024 Feb 6;24(1):117. doi: [10.1186/s12909-024-05103-z](https://doi.org/10.1186/s12909-024-05103-z). [PMID: [38321450](https://pubmed.ncbi.nlm.nih.gov/38321450/)] [PMCID: [PMC10848390](https://pubmed.ncbi.nlm.nih.gov/PMC10848390/)]
17. Spaic D, Bukumiric Z, Rajovic N, Markovic K, Savic M, Milin-Lazovic J, et al. The flipped classroom in medical education: systematic review and meta-analysis. *J Med Internet Res.* 2025 Aug 13;27:e60757. doi: [10.2196/60757](https://doi.org/10.2196/60757). [PMID: [40803672](https://pubmed.ncbi.nlm.nih.gov/40803672/)] [PMCID: [PMC12391848](https://pubmed.ncbi.nlm.nih.gov/PMC12391848/)]
18. van Alten DCD, Phielix C, Janssen J, Kester L. Effects of flipping the classroom on learning outcomes and satisfaction: A meta-analysis. *Educational Research Review.* 2019;28:100281. doi: [10.1016/j.edurev.2019.05.003](https://doi.org/10.1016/j.edurev.2019.05.003).
19. O'Sullivan H, van Mook W, Fewtrell R, Wass V. Integrating professionalism into the curriculum: AMEE Guide No. 61. *Med Teach.* 2012;34(2):e64-77. doi: [10.3109/0142159X.2012.655610](https://doi.org/10.3109/0142159X.2012.655610). [PMID: [22289014](https://pubmed.ncbi.nlm.nih.gov/22289014/)]
20. Jha V, McLean M, Gibbs TJ, Sandars J. Medical professionalism across cultures: a challenge for medicine and medical education. *Med Teach.* 2015 Jan;37(1):74-80. doi: [10.3109/0142159X.2014.920492](https://doi.org/10.3109/0142159X.2014.920492). [PMID: [25073712](https://pubmed.ncbi.nlm.nih.gov/25073712/)]
21. Birden H., Glass N., Wilson I, Harrison M., Usherwood T, Nass D. Teaching professionalism in medical education: A Best Evidence Medical Education (BEME) systematic review. *Med Teach.* 2013 Jul;35(7):e1252-66. doi: [10.3109/0142159X.2013.789132](https://doi.org/10.3109/0142159X.2013.789132). [PMID: [23829342](https://pubmed.ncbi.nlm.nih.gov/23829342/)]
22. Dornan T, Boshuizen H, King N, Scherpbier A. Experience-based learning: a model linking the processes and outcomes of medical students' workplace learning. *Med Educ.* 2007 Jan;41(1):84-91. doi: [10.1111/j.1365-2929.2006.02652.x](https://doi.org/10.1111/j.1365-2929.2006.02652.x). [PMID: [17209896](https://pubmed.ncbi.nlm.nih.gov/17209896/)]

Table 1. One-way ANOVA comparing pretest MPS scores across teaching approaches

Source	Sum of Squares	df	Mean Square	F	p-value
Between Groups	1,374.45	2	687.22	3.307	0.059
Within Groups	6,650.51	32	207.82		
Total	8,024.97	34			

a. Means ± SD: Lecture = 164.33 ± 22.32 Reflection = 178.17 ± 7.34 Active Learning = 176.73 ± 7.56
 b. Computed using alpha = .05

**statistical significance at the level 0.01, *statistical significance at the level 0.05

Table 2. One-way ANCOVA for MPS posttest mean scores across different teaching approaches (lecture, reflection, and active learning), controlling for MPS pretest mean scores as covariates

Dependent Variable: MPS Posttest Mean Score					
Source	Type III Sum of Squares	df	Mean Square	F	p-value
Corrected Model	2,589.17	5	517.83	24.12	0.000**
Intercept	194.44	1	194.44	9.06	0.005**
Pretest Mean Score	1,065.63	1	1,065.63	49.65	0.000**
Teaching Approach	232.19	2	116.09	5.41	0.010*
Error	622.36	29	21.46		
Total	1,120,712.00	36			
Corrected Total	3,211.54	35			

a. R Squared = 0.806 (Adjusted R Squared = 0.773)

b. Computed using alpha = .05

**statistical significance at the level 0.01, *statistical significance at the level 0.05

Table 3. Comparison of MPS posttest mean scores across different teaching approaches

Dependent Variable: MPS Posttest Mean Score				
Teaching Approach	Mean	SE	95%	
			Lower	Upper
Lecture	174.84	1.55	171.65	178.02
Reflection	175.44	1.46	172.44	178.43
Active Learning	185.03	1.63	182.24	187.82

a. Covariates appearing in the model are evaluated at the following values: MPS Pretest Mean Score = 175.03.

SE: Standard error; CI: Confidence Interval

Table 4. Comparison of mean differences in pretest and posttest MPS scores between types of teaching approaches using a MANOVA test

Dimension	Teaching Approach	Mean	SD	F	p-value	95% CI	
						Lower	Upper
Altruism	Lecture	0.075	0.559	4.289	0.022*	-0.195	0.346
	Reflection	0.013	0.305			-0.245	0.273
	Active Learning	0.500	0.432			0.241	0.759
Accountability	Lecture	0.127	0.553	0.661	0.523	-0.137	0.392
	Reflection	0.000	0.443			-0.253	0.253
	Active Learning	0.200	0.255			-0.053	0.453
Excellence	Lecture	0.000	0.663	1.003	0.378	-0.291	0.291
	Reflection	0.066	0.274			-0.212	0.345
	Active Learning	0.266	0.420			-0.012	0.545
Duty	Lecture	0.145	0.410	3.298	0.040*	-0.064	0.355
	Reflection	0.033	0.238			-0.167	0.234
	Active Learning	0.383	0.536			0.183	0.584
Honor and Integrity	Lecture	0.018	0.328	0.617	0.546	-0.199	0.163
	Reflection	0.033	0.280			-0.140	0.207
	Active Learning	0.116	0.275			-0.057	0.290
Respect for others	Lecture	0.121	0.334	3.385	0.046*	-0.302	0.060
	Reflection	0.000	0.284			-0.173	0.173
	Active Learning	0.194	0.264			0.021	0.368

SD: Standard deviation; CI: Confidence Interval

**statistical significance at the level 0.01, *statistical significance at the level 0.05

Table 5. Comparison of Mean pretest and posttest MPS scores within each teaching approach

Dimension	Teaching Approach	Pre-test	Post-test	p-value	Cohen's d	95% CI		r	p-value
						Lower	Upper		
Altruism	Lecture	5.18±0.78	5.27±0.71	0.545	0.12	-0.19	0.43	0.747	0.005**
	Reflection	5.45±0.39	5.47±0.30	0.878	0.06	-0.25	0.37	0.651	0.022*
	Active Learning	5.28±0.46	5.75±0.17	0.005**	1.57	0.96	2.18	0.302	0.367
Accountability	Lecture	5.15±0.77	5.28±0.71	0.400	0.17	-0.14	0.48	0.750	0.005**
	Reflection	5.61±0.26	5.61±0.41	1.000	0.00	-0.31	0.31	0.199	0.536
	Active Learning	5.54±0.29	5.74±0.25	0.033*	0.73	0.28	1.18	0.537	0.088
Excellence	Lecture	4.98±0.81	4.98±0.73	1.000	0.00	-0.31	0.31	0.670	0.017*
	Reflection	5.48±0.38	5.55±0.42	0.417	0.17	-0.14	0.48	0.777	0.003**
	Active Learning	5.45±0.32	5.69±0.33	0.096	0.73	0.28	1.18	0.169	0.619
Duty	Lecture	4.93±0.77	5.06±0.72	0.266	0.18	-0.13	0.49	0.865	0.000**
	Reflection	5.45±0.47	5.48±0.52	0.638	0.06	-0.25	0.37	0.890	0.000**
	Active Learning	5.43±0.36	5.80±0.28	0.008**	1.08	0.59	1.57	0.386	0.242
Honor and Integrity	Lecture	5.20±0.78	5.16±0.79	0.723	-0.05	-0.36	0.26	0.920	0.000**
	Reflection	5.71±0.32	5.75±0.32	0.689	0.13	-0.18	0.44	0.621	0.031*
	Active Learning	5.70±0.32	5.81±0.30	0.237	0.35	0.02	0.68	0.584	0.059
Respect for others	Lecture	5.31±0.63	5.18±0.74	0.166	-0.19	-0.50	0.12	0.900	0.000**
	Reflection	5.68±0.27	5.68±0.26	1.000	0.00	-0.31	0.31	0.448	0.144
	Active Learning	5.71±0.34	5.92±0.15	0.026*	0.75	0.30	1.20	0.144	0.352

CI: Confidence Interval

**statistical significance at the level 0.01, *statistical significance at the level 0.05