

Interdisciplinary Islamic Religious Education Teaching Materials Development Model Based on Needs Analysis in Medical Education

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Abstract

The transformation of twenty-first-century medical education demands the systematic integration of clinical competence, moral integrity, and social sensitivity; however, the implementation of Islamic Religious Education (PAI) in many universities remains predominantly normative–doctrinal and insufficiently aligned with the professional needs of medical students. This study aims to develop an interdisciplinary model of PAI teaching materials with a focus on religious moderation, based on a comprehensive needs analysis in medical education. Adopting a research and development (R&D) approach, the study was conducted in the Medical Education Program, Faculty of Medicine and Health Sciences, University of Mataram. The needs analysis was implemented in multiple stages through document review of existing teaching materials, classroom observations, interviews with policymakers and lecturers, and questionnaires administered to 32 students. Qualitative data were analyzed thematically, while quantitative data were processed using descriptive statistics. The findings reveal structural and substantive gaps in the previous teaching materials, particularly in professional relevance, integration of religious moderation values, and alignment between learning outcomes and learning strategies. Students also indicated a need for reinforcement at the levels of conceptual understanding, practical application, and value internalization in the affective domain. In response, a teaching material model was developed by reformulating learning outcomes into eight core competencies and systematically

integrating nine religious moderation values in each chapter. The content is contextualized with contemporary medical issues such as assisted reproductive technology, vaccination, and emerging and reemerging infectious diseases, and is supported by active learning strategies based on small group discussions and reflective projects. Validation results show that the developed model is perceived as more systematic, contextual, and professionally relevant for medical students. This research contributes to strengthening value integration frameworks in professional education by demonstrating that religious moderation can be operationalized through teaching material design grounded in constructive alignment and interdisciplinary approaches. The model has the potential to be replicated in other health study programs within pluralistic societies to foster competent, reflective, and inclusive health professionals.

Keywords: Development Model; Teaching Materials; Islamic Religious Education; Religious Moderation; Medical Education Curriculum

INTRODUCTION

Medical education in the 21st century faces the demands of not only producing clinically competent graduates, but also having high moral integrity and social sensitivity (Frenk et al. 2010; Safadi and Abushaikha 2021). The transformation of the global health system, the complexity of bioethical issues, and the increasing social and cultural diversity of patients demand physicians who are able to make ethical and contextual professional decisions (Han et al. 2019). The study reports that the quality of health services is largely determined by the capacity of medical personnel to integrate technical competencies and human values (Frenk et al. 2010). Therefore, medical education can no longer be understood solely as a process of biomedical knowledge transfer, but as a complete professional formation.

The ethical and value dimensions in medical education are becoming increasingly important amid increasing moral dilemmas in contemporary medical practice. Issues such as organ transplantation, assisted reproductive technology, vaccinations, and artificial intelligence-based interventions present ethical questions that cannot always be answered through a purely clinical approach (Han et al. 2019; Gonzalo et al. 2020). In this context, value education serves as a foundation in building a moral judgment framework for medical students (Singh et al. 2023). Without systematic integration of values, the learning process

risks producing professionals who are technically competent but weak in ethical considerations.

Islamic Religious Education (PAI) in public universities has a strategic position in shaping the character and moral orientation of students (Saputra 2024). Normatively, PAI is designed to develop the spiritual, ethical, and social dimensions of students in order to be able to contribute constructively to community life (Sari, Hayani, and Nurlaili 2023). However, the implementation of PAI in many higher education institutions still tends to be normative-doctrinal and less integrated with the disciplines that students are studying (K et al. 2024). The insynchronization between PAI material and professional needs often causes learning to lose contextual relevance (Rishan, Rehani, and Arief 2024).

The gap between the substance of PAI and the professional scientific context is a serious challenge in medical education (Aswiranti et al. 2024). Medical students are faced with a dense curriculum, block learning system, and high academic pressure, so they need concise, applicative, and contextual learning materials (Sukendar, Hartanti, and Shitarukmi 2024). If PAI is not designed adaptively to these characteristics, then this course has the potential to be perceived as a mere administrative complement (Aswiranti et al. 2024). Previous research has shown that the relevance of the curriculum to professional needs is a key factor in increasing student motivation and engagement (Lertsakulbunlue et al. 2025).

The interdisciplinary approach offers a conceptual framework for bridging the gap between religious science and medical science (Muhammad Faisal 2022; Susanti and Riskiyah 2022). Interdisciplinarity is not simply combining the two fields in parallel, but building a mutually enriching conceptual dialogue between normative values and professional practice (Brooks 2022). In the context of medical education, this approach allows students to understand how Islamic principles can provide ethical orientation in clinical practice. (Khalid et al. 2025). Therefore, PAI no longer stands as a separate discipline, but as a source of moral reflection in medical decision-making.

In addition to scientific integration, Indonesia's pluralistic social context demands the strengthening of the value of religious moderation in higher education. According to the Religious Moderation Book Review Team of the Ministry of Religion of the Republic of Indonesia (2019), Religious moderation is understood as a religious attitude that is fair, balanced, tolerant, and rejects violence in responding to differences. In a multicultural society, health workers interact with patients from various religious, ethnic, and cultural

backgrounds, so strong diversity competencies are needed (Liu, Miles, and Li 2022; Cipta et al. 2024). Education that does not instill the value of moderation risks reinforcing an exclusivist attitude that is counterproductive to inclusive health care (Sudrajat, Supiana, and Zakiah 2021).

The integration of religious moderation in the PAI curriculum has direct relevance to the formation of doctors' professionalism. Medical professionalism includes a commitment to patient well-being, respect for human dignity, and social responsibility (Gosal, Manampiring, and Waha 2022). Values such as justice, balance, deliberation, and non-violence are in line with the principles of medical ethics such as beneficence, non-maleficence, autonomy, and justice (Fitri et al. 2025). Therefore, the development of teaching materials that contain religious moderation is not just an ideological response, but a rational pedagogical need.

Although the urgency of integrating values in medical education has been widely discussed, research on the model of developing PAI teaching materials based on needs analysis in the context of medicine is still limited. Aulia, Anwar, and Nursaleh (2025) examine the integration of multimedia and OBE in PAI teaching materials to improve learning outcomes and student competence. Lubis and Albina (2025) examine the development of PAI teaching materials with a needs-based systematic approach to significantly increase student motivation and understanding. Bahsoan et al (2026) identify and analyze the need for the development of Islamic Religious Education (PAI) teaching materials that integrate Gorontalo local wisdom at Gorontalo State University. So, most studies focus on the effectiveness of learning methods or evaluation of learning outcomes, while the design aspect of teaching materials as pedagogical instruments receives less systematic attention, especially in the context of medical education.

Needs analysis (*needs assessment*) is the foundation for the development of curriculum and teaching materials that are responsive to the learning context and competency demands. This approach allows designers to identify gaps between actual conditions and expected competencies, both at the student, institutional, and stakeholder levels (Choi and Park 2024). In professional education such as medicine, the need is not only academic, but also includes the ethical and social demands inherent in the profession (Breindahl et al. 2023). Therefore, the development of PAI teaching materials needs to be based on a comprehensive mapping of needs.

A systematic teaching material development model provides a framework to ensure coherence between objectives, materials, methods, and evaluations. The educational development model generally includes stages of analysis, design, development, implementation, and evaluation as a continuous cyclical process (Hidayat et al. 2021). The application of this kind of model in the context of interdisciplinary PAI allows the integration of moderation values to be carried out in a structured manner, rather than simply as a thematic addition (Mariani et al. 2026). Thus, each component of the teaching material is designed to support the achievement of measurable competencies.

In the perspective of constructivist pedagogy, students are seen as active learners who build meaning through the interaction between experience and new knowledge (Saputro and Pakpahan 2021). Teaching materials need to be designed to encourage critical reflection, collaborative discussion, and contextual application (Uzana and Khobir 2025). In medical education, this strategy is in line with case-based learning and problem-based learning that have become mainstream. The integration of this approach in interdisciplinary PAI has the potential to increase the relevance and depth of student understanding.

The urgency of developing this model is also reinforced by the need to strengthen social cohesion in pluralistic societies. Higher education has a strategic role in preventing radicalism and intolerance through the internalization of inclusive and dialogical values. In the context of the health profession, intolerant attitudes can have a direct impact on the quality of service and patient safety (Trullàs et al. 2022). Therefore, religious moderation education in the medical education environment has broad social implications.

Based on this presentation, it can be identified that there is a gap between the need for medical education that requires the integration of moderate values and the availability of a systematic and needs-based teaching material model of PAI. This gap shows the need for the formulation of a development model that is able to bridge the normative dimension of religion and the demands of medical professionalism. Without a structured model, value integration tends to be sporadic and unmeasurable. Therefore, this research has become relevant academically as well as practically.

This research aims to develop a model of interdisciplinary Islamic Religious Education teaching materials with religious moderation content designed based on the analysis of needs in medical education. This model is expected to be able to produce learning tools that are coherent, contextual, and in harmony with the characteristics of medical

students. In addition, this research seeks to make a conceptual contribution to the development of value education in a professional context. As such, the study offers an innovative framework that can be replicated or adapted in other higher education institutions.

METHODS

This research uses a Research and Development (R&D) approach to develop an interdisciplinary model of Islamic Religious Education (PAI) teaching materials with religious moderation based on needs analysis in medical education. The research was carried out at the Medical Education, Faculty of Medicine and Health Sciences, University of Mataram which organizes the Medical and Pharmacy Education Study Program, involving students, faculty policy makers, fellow PAI lecturers, and academic documents as data sources. The initial stage was focused on multi-level needs analysis through the review of previously used teaching materials, lecture observations, open interviews, and the distribution of questionnaires to 32 students. Analysis of the documents shows that the previous teaching materials have not met the self-instructional, self-contained, and contextual characteristics of the medical discipline and have not systematically integrated the value of moderation. Interviews with policy makers emphasized the need to strengthen professional materials such as Muslim physician profiles, contemporary medical technology, vaccinations, and emerging and reemerging infectious diseases (EIDs), while fellow lecturers recommended a participatory learning approach and the renewal of the juridical foundation. The student questionnaire identifies the need to strengthen aspects of understanding and application, affective development based on moderation values, and active learning to support creativity. Qualitative data were analysed thematically and quantitative data were analysed using descriptive statistics. Based on these findings, a model was designed by reformulating learning outcomes into eight core competencies for the effectiveness of the block system and integrating nine moderation values in each chapter. The initial product in the form of a 190-page Draft 1 was developed and validated by peers and policy makers to ensure coherence, substance, and professional relevance. The source triangulation process is used to improve validity, so that the resulting model is systematic, contextual, and based on medical education needs.

RESULTS

The results of the study show that the development of an interdisciplinary Islamic Religious Education (PAI) teaching material model containing religious moderation in medical education is based on the findings of structural, substantial, and pedagogical gaps in previous learning. Document analysis of the teaching materials used shows that the material is arranged in ten subjects with general descriptions, does not meet the characteristics of self-instructional, self-contained, and stand-alone, and has not been equipped with course reviews, instructional analysis, and a systematic evaluation system (Documentation of the learning tool of MK PAI, 2021). In addition, Qur'anic verses and hadith are only presented in the form of translations without the original text, so students still need additional references to comprehensively understand the material (PAI teaching material documentation, 2021). These findings suggest that previous teaching materials have not been designed to support independent learning and have not been explicitly integrated with the medical discipline.

At the level of learning outcomes, it was found that most of the goals are still at the cognitive level of "knowing" and have not developed at the stage of understanding contextually or analysing (CPMK MK PAI Documentation, 2021). Some units are not equipped with an introduction and summary, and the student's task plan is considered to be less aligned with the learning objectives. Observation of the lecture process shows the dominance of the lecture method in large classes with a time allocation of 2 credits in the block system, so that dialogue interaction and project-based learning are not optimal (Observation of learning from MK PAI, 2021). This condition shows the need for a thorough reconstruction of the structure and approach of teaching materials.

The results of interviews with faculty policy makers emphasized the importance of strengthening the professional relevance of teaching materials. The Vice Dean for Academic Affairs stated that "Muslim doctor profile material needs to be added so that students have an ideal picture of the integration of faith and the medical profession" (Informant 4, April 25, 2022). The Head of the Study Program also recommended replacing the theme of "contemporary issues" with "contemporary medical technology" to be more precise and deepening the discussion of IVF and artificial insemination (Informant 6, April 25, 2022). The Head of the Pharmacy Study Program added that "the discussion of vaccines and immunization, especially in the context of Covid-19, needs to be included in the perspective

of Islam, medicine, and legislation" (Informant 4, Written online interview, April 26, 2022). Meanwhile, the Head of the Medical Education Study Program suggested the addition of Emerging and Reemerging Infectious Diseases (EIDs) material, including human-microbial relationships and the role of Muslim health workers in education and handling of outbreaks (Informant Interview 5, April 27, 2022). These quotes show that the need to strengthen professional substance is a top priority in model development.

Input from fellow PAI lecturers strengthens the pedagogical dimension of development. A lecturer stated that "the FGD method should be changed to Small Group Discussion so that student participation is more equitable and structured" (Informant Interview 3, April 25, 2022). In addition, he emphasized that "the juridical foundation of national education used needs to be updated because it is no longer relevant to the current regulations" (Informant 4, Interview, April 25, 2022). These findings suggest that the developed model must be responsive to regulatory changes and active learning strategies.

The analysis of student needs provides a more comprehensive picture of learning preferences. Academic documentation shows that the majority of students come from high school backgrounds and have studied PAI for more than four years (FK academic documentation, 2021). However, the results of the questionnaire showed that 75% of students wanted reinforcement at the level of understanding, and 53.1% at the level of application in the cognitive realm (Student Needs Questionnaire, 2022). In the affective domain, 50% of students emphasized the importance of receiving grades, and 46.9% on value-based characterization, while in the psychomotor domain, 50% of students wanted learning with guided responses (Student Needs Questionnaire, 2022). In the aspect of creativity, students expressed the need for flexibility (65.6%) and fluency (59.4%) in developing ideas (Student needs questionnaire, 2022) (see figure 1). These results show that students need learning that is not only cognitive, but also emphasizes internalization of values and the development of reflective skills.

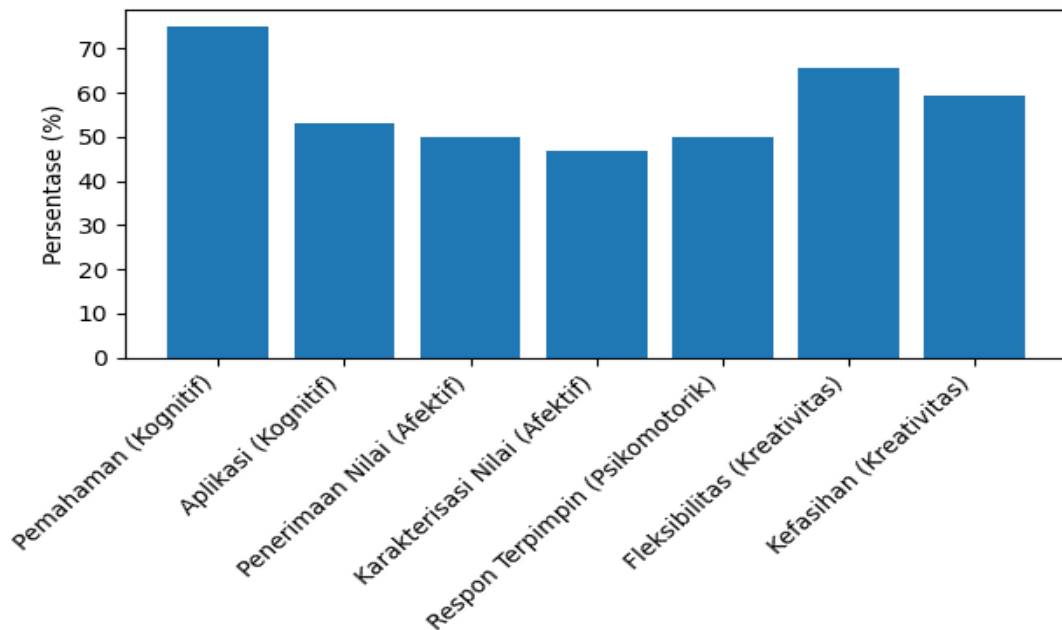


Figure 1: Distribution of students' learning needs across cognitive, affective, psychomotor, and creativity domains

Based on the overall findings, a reformulation of the structure of the teaching materials was carried out by reducing the final competencies from ten to eight to increase the effectiveness of learning time (Documentation of the development draft, 2022). The new structure integrates the values of religious moderation such as *tawassuth* (*be in the middle*), *tasamuh* (*tolerance*), *i'tidal* (*conscionable*), anti-violence, deliberation, love of the homeland, cultural friendliness, exemplary, and reform into every subject. The initial product in the form of Draft 1 is organized into three main parts: the introduction, the content of the eight interdisciplinary chapters, and the conclusion (Development draft documentation, 2022).

The validation results showed that the developed model was considered more systematic and relevant than the previous teaching materials. Policymakers stated that contemporary medical technology materials have been "more in line with the professional needs of current medical students" (Informant 2, Interview, 2022), while fellow lecturers assessed that the approach of small group discussions and project assignments "favors active learning and internalization of values" (Informant 1, Interview, 2022). Overall, the results of the study show that needs analysis-based development results in significant transformations in pedagogical structures, strengthening professional relevance, systematic integration of religious moderation values, and conformity with the characteristics of medical students.

DISCUSSION

The results of this study show that the development of an interdisciplinary Islamic Religious Education (PAI) teaching material model with religious moderation based on needs analysis has resulted in significant structural and conceptual changes in the context of medical education. These findings not only reflect the technical improvement of the teaching materials, but also show the epistemological repositioning of PAI from a separate normative approach to a contextual and professional integrative approach. Within the framework of theory constructive alignment (Biggs and Tang 2010), the change can be understood as an effort to harmonize learning outcomes, material content, learning strategies, and evaluations to suit the characteristics of medical students who are in a block system and have a high academic load. The reduction of competencies from ten to eight and the deepening of substance on professional issues reflect this alignment process, so that teaching materials are no longer descriptive, but oriented towards the mastery of contextual competencies.

From a theoretical perspective interdisciplinary integration (Szostak 2022), the results of this study show that the integration between Islamic values and medical practice is not just a thematic collaboration, but a conceptual integration that results in a new synthesis. Previously, PAI and medicine materials were in parallel relationships; Now the two are brought together on concrete issues such as vaccination, organ transplantation, and infectious diseases. This integration suggests that religion can serve as an ethical framework in medical decision-making, rather than as a separate domain from clinical practice. Thus, this model shifts the paradigm from "religion as supplementary material" to "religion as a reflective perspective" in medical education.

These findings are in line with research Stuart O'Brien (2015) and Heydari and Beigzadeh (2024) which affirms the importance of reflective education in shaping the professional identity of medical students. Stuart O'Brien (2015) It shows that the integration of moral values in the formal curriculum strengthens the formation of professionalism rooted in empathy and social responsibility. The results of the current research support this view by showing that students want reinforcement in the affective realm and internalization of values, not just cognitive mastery. By incorporating moderation values such as fairness, tolerance, and balance in each subject, this model expands the space for ethical reflection in medical learning.

However, these findings also need to be dialogued with a more critical view of the integration of religion in professional education. Some studies argue that medical education should focus on universal professional ethics without associating it with specific religious traditions, in order to maintain neutrality and plurality (Beauchamp and Childress 2019; Jegan and Dierickx 2023). In this perspective, religious integration can give rise to exclusivity or normative bias if it is not managed through the principles of inclusion and protection of access to services for all patients (Haque 2023; Arthur et al. 2019). The results of the current study show that these risks can be minimized through a religious moderation approach that emphasizes tolerance, non-violence, and love of the homeland as universal values compatible with global medical ethics. Thus, this model does not promote religious exclusivity, but reinforces the humanistic dimension of medical professionalism (Jegan and Dierickx 2023).

This discussion becomes even more relevant when compared to studies showing that contextual learning in medical education improves knowledge transfer to clinical practice. The findings of this study support these results by showing that students are more responsive to PAI material that is directly related to the reality of medicine. In contrast, normative approaches without professional context tend to be perceived as an additional curriculum burden. Therefore, the needs analysis-based model provides empirical legitimacy to the importance of contextualizing values in professional education.

Within the framework of constructivist learning theory, the method's shift from dominant lectures to small group discussions and project assignments showed an increase in student active participation (Fosnot 2013; Badge et al. 2024). Research results Freeman et al. (2014) demonstrating the effectiveness of active learning over traditional lectures reinforces the relevance of this methodological change. By integrating the value of moderation in case discussion and project reflection activities, this model allows students to build meaning dialogically and collaboratively (Badge et al. 2024; Montrezor and Passos 2024). This is also in line with the competence-based approach of medical education which emphasizes the simultaneous integration of knowledge, skills, and attitudes (Harden 2018).

On the other hand, some literature warns that curriculum changes without evaluation of long-term impacts risk resulting in unsustainable innovation (Sadeq et al. 2025). In this context, this research is still in the initial development and validation stage, so the effectiveness of the model on changes in students' professional behaviour needs to be further tested through longitudinal design. Nevertheless, strengthening the internal coherence of

teaching materials and the systematic integration of moderation values provides a strong basis for wider implementation.

Conceptually, the results of this study contribute to two domains of study at once. First, in the study of Islamic education, this study shows that PAI can be repositioned as an instrument for the formation of context-based professionalism, not just the strengthening of doctrine. Second, in the medical education literature, this research enriches the discourse on the integration of cultural and religious values in the formation of an inclusive professional identity. This integration becomes important in a pluralistic society, where doctors interact with patients from a wide range of social and religious backgrounds.

Overall, this discussion shows that the needs analysis-based teaching material development model is able to answer the contextual challenges of medical education in a systematic and reflective way. By combining the theories of constructive alignment and interdisciplinary integration, as well as in dialogue with literature that supports and criticizes the integration of religion in professional education, this study shows that the approach of religious moderation can be a bridge between normative values and universal medical ethics. This model is not only a curriculum innovation, but also a strategic step in shaping competent, reflective and inclusive medical professionals.

This research has significant theoretical, pedagogical, and practical implications for the development of higher education, especially in medical education in the context of plural society. Theoretically, this model expands the framework of value integration in professional education by showing that religious moderation can be operationally systematically through the design of teaching materials based on needs analysis and constructive alignment, thereby enriching the literature on the integration of ethics, religion, and medical professionalism. Pedagogically, these findings affirm the importance of designing teaching materials that are contextual, interdisciplinary, and in harmony with the characteristics of block systems and large classes, thereby encouraging a shift from normative-doctrinal learning to reflective, dialogical, and case-based learning. In practical terms, the model developed can be replicated or adapted by other health study programs as a framework for the integration of moderate values in the curriculum without sacrificing global professional standards, as well as being a preventive instrument against exclusivity and intolerance in health services. Thus, the main implication of this study lies in strengthening the cohesion between clinical competence,

social sensitivity, and moral integrity in the formation of the professional identity of health workers.

CONCLUSION

This study shows that the development of Islamic Religious Education (PAI) teaching materials in medical education requires conceptual and structural reconstruction based on multi-level needs analysis. The findings of the preliminary analysis identified substantial and pedagogical gaps in the previous teaching materials, especially in the aspects of professional relevance, integration of religious moderation values, and alignment between learning outcomes, learning strategies, and evaluation systems. The gap confirms that normative-doctrinal approaches that are not integrated with the medical context tend to reduce the effectiveness of internalizing values and relevance of learning for students in a dense block system.

The model developed through the Research and Development (R&D) approach resulted in the reformulation of competencies into eight core achievements that are more contextual, integrative, and measurable, by systematically internalizing the nine values of religious moderation in each chapter. This integration is not only thematic, but conceptual, by positioning Islamic values as a reflective framework in medical decision-making, especially on issues of contemporary medical technology, vaccination, and emerging and reemerging infectious diseases. The validation results showed that the resulting model was judged to be more coherent, professionally relevant, and supported active learning through small group discussions and project-based assignments

Theoretically, this research contributes to the development of a framework for integrating values in professional education by showing that religious moderation can be operationally systematically through constructive alignment and interdisciplinary approaches. This study expands the literature on Islamic education by repositioning PAI as an instrument for the formation of contextual professionalism, while enriching the discourse of medical education on the integration of ethics, culture, and religion in the formation of an inclusive professional identity.

Pedagogically, these findings affirm the importance of designing teaching materials that are self-instructional, contextual, and in line with the characteristics of the block curriculum. A needs-based approach has been proven to be able to increase the internal

coherence of the curriculum and strengthen the integration of cognitive, affective, and psychomotor domains in value learning. Practically, this model has the potential for replication in other health study programs in the context of plural society, as a framework for the integration of moderate values without sacrificing universal medical ethical standards.

However, this research is still in the early stages of development and validation. Longitudinal implementation tests are needed to evaluate the impact of the model on the formation of professional identity, clinical ethical behaviours, and diversity sensitivity in real practice. Further research can also explore cross-institutional comparisons or quantitative measurements of the model's impact on professional competency achievement.

Overall, this study emphasizes that the systematic integration of religious moderation values in needs analysis-based PAI teaching materials is not just a curriculum innovation, but a relevant pedagogical strategy to form clinically competent, ethically reflective, and inclusive doctors in the context of a multicultural society.

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