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Development OQEAC-Based Academic Supervision Management Model: Enhancing Quality and Performance

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ABSTRACT: This study aimed to develop a scientifically-grounded academic supervision model using the OQEAC (Observing, Questioning, Experimenting, Associating, Communicating) framework to enhance the quality of teaching and professional development in Madrasah Ibtidaiyah in Tulang Bawang, Indonesia. The model was designed to address gaps identified in the existing academic supervision system, including inadequate teacher planning, ineffective learning processes, and the lack of authentic assessment practices. A systematic, evidence-based approach was employed to ensure that the model was tailored to meet the specific needs of teachers. After an in-depth literature review, needs analysis, and expert validation, a pilot trial was conducted with teachers and supervisors, yielding positive feedback on the model's practicality and effectiveness. The study's findings contribute to the growing body of research on improving academic supervision in Indonesia, offering an innovative, structured, and contextually relevant model for enhancing teacher competency and promoting continuous professional development. Future research is suggested to expand this model's application to other educational contexts, particularly in urban and rural schools across Indonesia.

Penelitian ini bertujuan untuk mengembangkan model supervisi akademik yang berlandaskan keilmuan dengan menggunakan kerangka OQEAC yang meliputi tahapan observing, questioning, experimenting, associating, dan communicating guna meningkatkan

kualitas pembelajaran serta pengembangan profesional guru di Madrasah Ibtidaiyah di Kabupaten Tulang Bawang, Indonesia. Model ini dikembangkan sebagai respons terhadap berbagai permasalahan dalam praktik supervisi akademik yang masih ditemukan di lapangan, antara lain lemahnya perencanaan pembelajaran oleh guru, kurang efektifnya pelaksanaan pembelajaran di kelas, serta belum optimalnya penerapan penilaian autentik dalam proses pembelajaran.

Pengembangan model dilakukan melalui pendekatan yang sistematis dan berbasis bukti agar sesuai dengan kebutuhan nyata guru dan pengawas madrasah. Tahapan penelitian meliputi kajian literatur secara mendalam, analisis kebutuhan, serta validasi oleh para ahli. Setelah melalui tahap tersebut, dilakukan uji coba terbatas dengan melibatkan guru dan pengawas, yang menghasilkan umpan balik positif terkait kepraktisan dan efektivitas model supervisi yang dikembangkan dalam mendukung peningkatan kualitas pembelajaran dan kompetensi profesional guru.

Temuan penelitian ini berkontribusi terhadap penguatan kajian supervisi akademik di Indonesia dengan menawarkan model supervisi yang inovatif, terstruktur, dan kontekstual. Model supervisi berbasis OQEAC dipandang tidak hanya berfungsi sebagai instrumen pengendalian mutu pembelajaran, tetapi juga sebagai sarana pembinaan yang mendorong refleksi, kolaborasi, dan pengembangan profesional guru secara berkelanjutan. Oleh karena itu, penelitian selanjutnya disarankan untuk memperluas penerapan model ini pada konteks pendidikan yang lebih beragam, baik di wilayah perkotaan maupun perdesaan di Indonesia, guna menguji keberlanjutan dan dampak implementasinya secara lebih luas.

Keywords: Academic Supervision; OQEAC Model; Educational Quality; Teacher Professional Development; Madrasah Ibtidaiyah

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INTRODUCTION

Educational quality is a critical driver of societal development, impacting everything from individual success to national prosperity. Globally, improving educational outcomes has remained a key focus for policymakers, educators, and researchers alike. Central to this is the enhancement of teaching quality, which directly influences student achievement and future societal engagement. In the context of teacher development, academic supervision plays a vital role in ensuring that teaching standards remain high, and it provides a mechanism for fostering continuous professional growth (Edi et al., 2024; Wang et al., 2024; Zhao et al., 2023). Systematic, reflective, and

evidence-based supervisory practices are not only necessary to improve the quality of teaching but are also integral to supporting the broader goals of educational reform (McLure & Aldridge, 2023; Ralebese et al., 2025). However, despite its significance, academic supervision often encounters challenges, such as inconsistent practices, inadequate feedback mechanisms, and the absence of standardized approaches that genuinely meet the unique needs of teachers (Funa & Gabay, 2025; Rokhman et al., 2024; Warhamni et al., 2024).

This issue is particularly relevant in Indonesia, where educational reforms have been ongoing, especially under the "Merdeka Belajar" initiative, which aims to foster greater teacher autonomy and create more dynamic and inclusive educational environments (Baharuddin & Burhan, 2025; Hunaepi & Suharta, 2024). Despite significant efforts to enhance teacher quality through professional development programs and academic supervision, the implementation of effective supervision in Indonesian schools remains largely traditional, with a failure to integrate modern, evidence-based pedagogical frameworks (Sofo et al., 2012; Tri Yuli Lestari & Fisman Bedi, 2025). To address these issues, there is a pressing need for a more structured, scientifically grounded model of academic supervision capable of effectively addressing these gaps and supporting long-term improvements in teaching quality.

This study draws on several key theories and models that underlie the academic supervision process. The Reflection Model of Supervision, developed by Zeichner and Liston (2013), emphasizes the importance of reflective practice as a core component of teacher development. The model suggests that both supervisors and teachers should engage in continuous cycles of observation, feedback, and reflection to improve teaching practices. Additionally, Vygotsky's Sociocultural Theory provides a useful lens for understanding the role of social interaction and scaffolding in learning (Vygotsky, 1978). Vygotsky's theory suggests that academic supervision should go beyond individual teacher development to focus on collaborative and communal learning environments that enhance both teacher and student growth. Finally, the OQEAC Framework (Observing, Questioning, Experimenting, Associating, and Communicating) offers a more structured approach to academic supervision. This framework integrates observation, inquiry, experimentation, conceptual linking, and communication, providing a comprehensive methodology for effective teacher supervision (Arlianty et al., 2017; Rokhman et al., 2024). While this framework holds promise, its application in the

context of Indonesian education has been limited, thereby presenting an opportunity for this study to explore its potential advantages.

The role of academic supervision in improving teaching quality has been the subject of numerous studies. Internationally, there is a growing body of research that emphasizes the effectiveness of supervision models that incorporate systematic feedback, reflective practices, and teacher collaboration. For example, a study by Wisniewski, Zierer, and Hattie (2020) demonstrated that feedback is one of the most influential factors on student achievement, underscoring its significance in the context of teacher development. Hubers, D.Endedijk, and Van Veen (2022) showed that sustained professional development, which includes effective supervision, significantly improves teaching practices and overall student outcomes.

Recent research in Indonesia has highlighted the pressing need for improvements in academic supervision. A study by Winarno, Fitria, and Fitriani (2021) revealed that many existing supervision practices in Indonesia lack the necessary structure and scientific foundation to be truly effective in enhancing teacher competencies. Setyaningsih and Suchyadi (2021) and Hasanudin et al. (2025) further pointed out that many Indonesian teachers continue to face difficulties with the traditional, top-down approach to supervision, which often fails to provide opportunities for collaboration and reflective practice. This indicates that Indonesian schools could benefit from the adoption of a more structured and evidence-based supervision model that integrates regular feedback, reflection, and collaborative learning.

Several studies have explored various supervision models, but many of these have focused on general frameworks without considering the unique needs of Indonesian teachers. For instance, Handayani et al. (2021) proposed a peer-based supervision model to enhance teacher performance through mutual support, but it lacked a comprehensive, scientific approach that could address the specific challenges faced by Indonesian educators. Similarly, Mulyadi and Fahriana (2018) investigated traditional supervisory methods in Indonesian schools, finding that while these methods had some positive impact, they often did not sufficiently address teachers' professional development needs.

Despite these efforts, there remains a notable gap in research concerning the integration of structured, scientifically grounded models of academic supervision in Indonesian schools. Most studies have focused on generic models of supervision, without adapting them to the specific educational contexts and challenges faced by teachers in

Indonesia. Consequently, there is a clear need for research that not only evaluates the effectiveness of such models but also tailors them to local practices and challenges.

Although numerous studies have investigated the role of academic supervision, several critical gaps remain. First, while international research emphasizes the need for structured, reflective, and evidence-based supervisory practices, many of these frameworks have not been adequately adapted to the Indonesian context. This includes the lack of models that integrate scientific methods into the supervision process, leaving a significant gap in the application of evidence-based practices (Setyaningsih & Suchyadi, 2021). Second, most studies on academic supervision have focused on generic frameworks, without taking into account the unique challenges faced by teachers in Indonesia, such as large class sizes, limited resources, and insufficient professional development opportunities. Third, although peer-based models of supervision have gained attention in recent years (Handayani et al., 2021), they have not been sufficiently combined with scientific, structured approaches to enhance their effectiveness. Therefore, there is a need for a comprehensive model that incorporates scientific principles, evidence-based feedback, and teacher collaboration, specifically tailored to the Indonesian educational context.

This study addresses the existing gaps by developing and testing a scientifically grounded model of academic supervision based on the OQEAC framework. The integration of observation, questioning, experimentation, associating, and communication into the supervision process is intended to provide a more structured, evidence-based approach to academic supervision. This research contributes to the development of a new model of academic supervision that not only improves teacher development but also enhances teaching quality, specifically in Indonesian Madrasah Ibtidaiyah (elementary level Islamic schools). The novelty of this study lies in its application of the OQEAC framework in the context of Indonesian education, offering insights into how a structured, scientific approach to supervision can be effectively implemented in schools facing specific challenges such as limited resources and varying teacher needs.

Furthermore, this research contributes to the broader literature on academic supervision by exploring how scientific, structured supervisory practices can be adapted and implemented to improve teacher professional development. The findings will offer practical recommendations for policymakers, school leaders, and educational

practitioners seeking to enhance academic supervision and teacher quality in Indonesia.

This study aims to develop and evaluate a model of academic supervision based on the OQEAC framework to improve teaching quality in Indonesian Madrasah Ibtidaiyah by identifying challenges in supervision, developing a tailored model, assessing its effectiveness in enhancing teacher development and teaching quality, and providing evidence-based recommendations for its broader implementation in Indonesian schools.

METHODS

This type of research is research and development (R&D) (Doumard et al., 2023; Firdaus & Pahlevi, 2022; Pribowo et al., 2024). The development model used is the ADDIE model, which consists of five stages: analysis, design, development, implementation, and evaluation (Creswell, 2018; Erlina et al., 2025; Rokhman et al., 2024; Weyant, 2022).

Analyzes

In this phase, the researcher analyzes the needs of school principals and supervisors as key supervisors. The analysis process consists of two main stages: performance analysis and needs analysis. The performance analysis aims to identify and classify issues related to the teaching materials, methods, and media used in schools. The goal is to find solutions through the improvement or development of a scientifically-based academic supervision module. Meanwhile, the needs analysis serves as qualitative data to describe the required materials, methods, and academic supervision modules that are relevant to teachers' needs.

This analytical phase involves data collection through observation, interviews, and documentation. Observation is conducted to gather initial research data by following a systematic and structured approach, which includes determining the object of observation, preparing the observation sheet, performing the observation, recording data, analyzing the findings, and drawing conclusions (Germann & Aram, 1996; Lacerda et al., 2020; Lim, 2025). Interviews are conducted with school principals and teachers to obtain information about the processes, methods, and modules of academic supervision. The interview phase includes steps such as setting the interview objectives, preparing the question list, selecting the interviewees, recording the results, analyzing the data, and summarizing the findings (Dodds & Hess, 2021; Moser & Korstjens, 2018).

To further validate the data from observations and interviews, documentation data concerning student learning outcomes is also used. This approach aims to design the development of a scientifically-based academic supervision module that aligns with the professional needs of teachers.

Module Design

The researcher develops the module framework by referring to various relevant theories to underpin the development of a scientifically-based academic supervision model. General theories on module development are used to ensure a systematic and scientific approach, while the theory of the academic supervision model provides guidance on how supervision can be effectively conducted to enhance teacher competency. Additionally, the scientific-based supervision theories, particularly the OQEAC model, are applied to ensure that the supervision process follows an evidence-based approach, enabling objective and measurable evaluations.

Picture 1. Analysis of the OQEAC-Based Academic Supervision Module Development Cycle

The OQEAC-Based Academic Supervision Module Development Cycle presented in the image follows a structured, iterative approach that emphasizes continuous improvement and adaptability. The cycle incorporates several key stages, each building upon the other to create a comprehensive and effective supervision model tailored to the Indonesian educational context. Below is a breakdown of each stage:

1) Prepare Framework: This is the initial stage where the structure of the academic supervision module is established. It serves as

the foundation for the entire cycle, ensuring that the module is built systematically.

2) Refer to Theory: At this stage, the module is grounded in established principles, ensuring it is based on solid theoretical frameworks and research. This step ensures that the module is not only practical but also academically sound.
3) Apply Supervision Model: Here, the supervision model is applied to implement teacher competency development. This phase is crucial as it translates theoretical knowledge into practical strategies that support teacher growth and improve classroom outcomes.
4) Integrate OQEAC: This step integrates the OQEAC framework (Observing, Questioning, Experimenting, Associating, and Communicating), providing a structured approach for effective academic supervision. It ensures that supervisors have a clear method for guiding teachers through the supervisory process.
5) Adapt to Context: Customizing the model for Indonesian education ensures that the module is relevant and appropriate to the unique challenges and needs of Indonesian educators. This phase focuses on making the model practical for local contexts.
6) Design Supervision Model: Tailoring the supervision model to specific needs ensures that the module is responsive to individual teachers and schools, addressing their particular challenges and goals in the teaching process.
7) Conduct Needs Analysis: The needs analysis phase is where supervisors identify areas for improvement, gathering data and insights from teachers to better understand the specific areas that require attention.
8) Form Conceptual Framework: This stage involves establishing the conceptual foundation of the module, ensuring that all elements are connected and aligned with the overarching goals of academic supervision.
9) Develop Module: Finally, the supervision module is developed using the OQEAC framework. This stage consolidates all previous steps, resulting in a scientifically-based, comprehensive model that is ready for implementation.

The cycle illustrates a comprehensive, dynamic approach to developing an effective academic supervision model. Each step is interconnected, ensuring that the supervision process is continually refined, adaptable, and based on solid academic principles. The cycle's focus on integrating theory, practice, and local context, as well as

continuous feedback and improvement, makes it a promising framework for enhancing teacher development and improving the quality of education in Indonesia.

Development

The next step is to develop a scientifically-based academic supervision management model, specifically using the OQEAC model (Observing, Questioning, Experimenting, Associating, and Communicating), which is then translated into the form of a module for academic supervision. The development of the OQEAC-based academic supervision model and its module begins with an in-depth literature review to understand the relevant scientific concepts and principles, particularly in relation to the OQEAC framework. The second step involves identifying the teachers' needs by evaluating their expectations and the challenges they face in the context of academic supervision. This step helps to ensure that the model addresses the specific needs of teachers in the academic supervision process.

The academic supervision module is designed based on the OQEAC model, ensuring that the module aligns with the developed management framework. This includes determining the module structure, content, and teaching approaches that integrate scientific principles into the implementation of academic supervision, with a focus on the OQEAC stages of observing, questioning, experimenting, associating, and communicating. An initial trial is conducted involving a group of teachers and supervisors to collect feedback that guides the refinement and improvement of the model and module before the full-scale implementation. Additionally, a training program for supervisors and teachers is developed to ensure a thorough understanding of the OQEAC model and its application within the context of academic supervision. The implementation phase is conducted in stages, providing the necessary support and gathering data on the performance and responses of the users.

Once the module is fully developed, it is validated by experts in both academic supervision content and supervision media. Prior to validation, instruments are developed for this process. The type of instrument used is a questionnaire with a 4-point scale format (Campos et al., 2020; Koderi et al., 2023), where a score of 4 represents "excellent," 3 represents "good," 2 represents "fairly good," and 1 represents "poor."

Implementation

The module, which has been developed and validated, is then implemented for teachers at Madrasah Ibtidaiyah in Tulang Bawang. The implementation process involves distributing the module to

teachers, assigning structured tasks outlined in the module, and collecting feedback through a usability questionnaire. The implementation occurs in two stages: the first stage involves observing the teachers' responses to the module, while the second stage tests the effectiveness of the scientifically-based academic supervision module. Teachers' responses are gathered using a questionnaire with a 4-point Likert scale (Campos et al., 2020; Pribowo et al., 2024; Sufian et al., 2023). The scale ranges from 4 (strongly agree) to 1 (strongly disagree), where 4 indicates strong agreement, 3 indicates agreement, 2 indicates disagreement, and 1 indicates strong disagreement. The average score for the teachers' responses to the module is calculated using a percentage formula, which divides the total number of positive responses by the total number of teachers, then multiplies by 100.

Evaluation

The evaluation phase consists of two stages. First, the prototype developed is self-evaluated by the researcher, who re-examines the final draft and makes necessary corrections if discrepancies are found. Second, after the self-evaluation, the prototype undergoes expert review. The experts assess the final draft, and any differences identified will be addressed. The expert review determines the validity of the academic supervision module. The feasibility of the product is then assessed through questionnaires and analysis of evaluation results during the implementation phase.

The research subjects are supervisors at Madrasah Ibtidaiyah in Tulang Bawang, with the research object being the scientifically-based academic supervision module. The choice of subjects is based on the existing issues in academic supervision management, aiming to assist supervisors in improving the quality of academic supervision and teacher performance at Madrasah Ibtidaiyah in Tulang Bawang.

The instruments used are two types of questionnaires: one for expert validation of the academic supervision content and another for assessing the usability of the product. The expert validation questionnaire focuses on the content validity of the module, while the usability questionnaire addresses the practicality of the module for supervisors.

Data analysis is conducted to determine both validity and feasibility. The validity of the module is assessed based on the feedback from subject matter and media experts, while feasibility is gauged from the supervisors' responses after using the module. The module is considered valid if it receives a score of at least 61% from language experts, falling within the "valid" or "highly valid" categories.

The following table outlines the product validity categories according to Akbar Sa'dun (2013).

Table 1. Criteria of Validity

Score	Category
0%-20%	Very invalid, very ineffective, very incomplete, unusable
21%-40%	Invalid, ineffective, incomplete, unusable
41%-60%	Less valid, less effective, less complete and cannot be used
61%-80%	Fairly valid, quite effective usable with minor improvements
81%-100%	Very valid, very complete can be used

The module is categorized as practical if it receives a user rating score of 50.01% or higher from teachers, placing it in the "practical" or "highly practical" category. The following table outlines the product validity categories (Akbar Sa'dun, 2013; Rokhman et al., 2024).

Table 2. Criteria of Validity

Score	Category	Description
75,01% - 100%	Very practical	Can be used without revision
50,01% - 75,00%	Practical	Can be used with minor revisions
25,01% - 50,00%	Les practical	Recommended to use
00,00% - 25,00%	Not practical	Can not be used

The table 1 presents the criteria of validity for the module, categorizing it based on the score received from user feedback. A score between 50.01% and 75.00% indicates that the module is practical and can be used with minor revisions, while a score above 75.01% categorizes it as very practical, meaning it can be used without revisions.

FINDINGS AND DISCUSSION

FINDINGS

The findings obtained from the research have to be supported by sufficient data. The research results and the discovery must be the answers, or the research hypothesis stated previously in the introduction part.

Analysis

The preliminary survey, based on interviews with two school principals, revealed several issues in the academic supervision system. The teacher planning administration was found to be non-compliant with regulations, the learning process lacked student engagement, and assessments did not utilize authentic assessment methods. Interviews

with two school supervisors highlighted that supervisors lacked proper planning, their supervision did not align with teachers' needs, and there was insufficient professional development through supervision training.

These findings indicate significant gaps in the academic supervision management system at the Madrasah. To enhance teaching quality, improvements are needed in teacher planning, the learning process, the use of authentic assessments, supervision planning, and more effective professional development for supervisors. To address these challenges, a literature review was conducted on the development of scientifically-based academic supervision models. This review focuses on establishing relevant theories and frameworks to guide the development of a scientifically-grounded model for academic supervision.

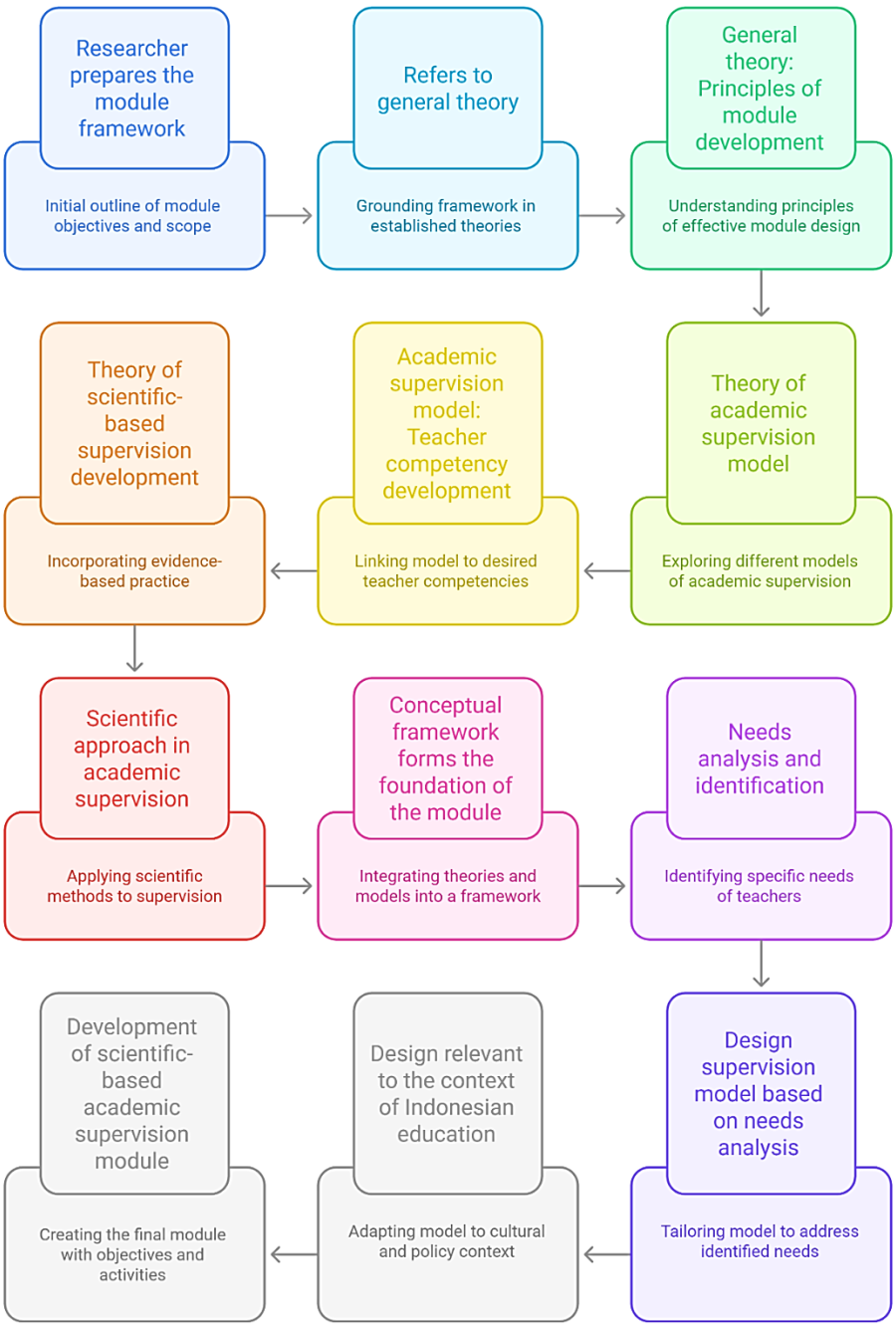
Table 3. The key findings from the preliminary analysis are as follows:

Issue	Current Condition	Expected Improvement
Teacher Planning	Non-compliant with regulations	Align with curriculum regulations
Learning Process	Lack of student engagement	More interactive and engaging learning
Assessment Methods	No use of authentic assessments	Use of authentic assessments
Supervision Planning	Supervisors lack proper planning	Supervisors create appropriate plans
Supervision Relevance	Not based on teachers' needs	Supervision meets teachers' specific needs
Supervisor Training	Insufficient training for supervisors	Provide more professional development

These gaps highlight the need for comprehensive improvements in academic supervision to ensure better teacher development and higher-quality education.

Design

After the analysis was completed, the design stage focused on determining the objectives and expected outcomes of the scientific-based academic supervision model by clearly defining its characteristics and components. At this stage, the framework or draft of the supervision model was developed with detailed steps, procedures, and supervisory strategies.



Picture 2. Development of Academic Supervision Module

The development process of the OQEAC-based academic supervision module, as illustrated in the diagram, begins with constructing the initial module framework and reviewing a range of foundational theories, including general principles of module

development, academic supervision models, and scientific approaches to supervision. These theoretical components are subsequently integrated into a coherent conceptual framework that serves as the backbone of the module. This foundation is then aligned with a systematic needs analysis to identify the real challenges and expectations faced by teachers in the field. Such a needs analysis ensures that the design of the supervision model is not merely normative but truly responsive to the practical and professional needs of teachers.

Following the identification of teacher needs, the supervision model is designed and adapted to the Indonesian educational context, considering cultural, policy, and classroom realities within madrasah settings. The final stage involves developing the OQEAC-based academic supervision module, which includes clearly defined objectives, supervision steps, learning activities, and evaluation instruments to support effective implementation. This development also incorporates guidelines, tools, and assessment procedures to ensure the module's usability and practicality for supervisors. Through this structured and contextually grounded process, the resulting module becomes coherent, relevant, and capable of enhancing the quality of academic supervision in alignment with the needs of teachers in madrasah.

Development

The product generated from this development research is an OQEAC-based academic supervision management model that integrates the systematic structure of the ADDIE approach (Analysis, Design, Development, Implementation, Evaluation) with the scientific characteristics of the Observing, Questioning, Experimenting, Associating, and Communicating (OQEAC) framework. This integrated model is designed to enhance the effectiveness, relevance, and efficiency of academic supervision practices within educational settings, particularly by ensuring that supervision is grounded in evidence-based processes, reflective inquiry, and continuous professional growth.

In the Observing phase, supervisors systematically examine the teaching practices carried out by teachers to obtain a clear and accurate understanding of instructional behaviors, classroom interactions, and learning processes. This step forms the empirical foundation for supervision. The Questioning phase encourages supervisors to use probing, reflective questions to explore teachers' reasoning, pedagogical choices, and understanding of student learning. These questions are intended to stimulate critical reflection

and promote deeper professional insight. During the Experimenting phase, supervisors support teachers in trying new instructional strategies or innovative pedagogical approaches. This collaborative experimentation allows both supervisors and teachers to co-construct knowledge, test hypotheses, and examine the impact of new methods on student learning outcomes.

In the Associating phase, supervisors assist teachers in connecting theory and practice by linking classroom experiences with pedagogical literature, best practices, or the experiences of professional peers. This connection fosters a richer and more theoretically informed instructional approach. Finally, the Communicating phase emphasizes open dialogue, constructive feedback, and collaborative discussion between supervisors and teachers. Through effective communication, both parties share insights, address challenges, and co-develop actionable strategies to improve teaching performance.

By synthesizing the strengths of the OQEAC framework with the structured logic of ADDIE, this supervision management model ensures that academic supervision is grounded in systematic needs analysis, theoretically informed design, and iterative refinement. Each stage analysis, design, development, implementation, and evaluation is aligned to ensure that the supervision process is conceptually robust, contextually relevant, and practically effective. This integrated approach ultimately supports high-quality instructional practices and contributes to the improvement of student learning outcomes.

Table 1. Integration of ADDIE and OQEAC in the Academic Supervision Model

ADDIE Stage	OQEAC Component Integrated	Description of Integration
Analysis	Observing	Supervisors observe teaching practices to identify gaps, needs, and contextual challenges.
Design	Questioning & Associating	Reflective questioning guides the design of supervision strategies; theoretical associations inform conceptual planning.
Development	Experimenting	Trial activities and innovative instructional strategies are developed and prepared for implementation.
Implementation	Communicating	Supervisors and teachers engage in structured dialogue during the supervision process, ensuring clarity, collaboration, and feedback.

Evaluation	All OQEAC elements	The overall supervision process is evaluated using evidence from observation, reflection, experimentation results, theoretical alignment, and communication outcomes.

Implementation

The implementation results indicate that the OQEAC-based academic supervision model received highly positive responses from both individual and large-group trials. Teachers reported that the model was practical, supportive of reflective teaching practices, and effective in guiding evidence-based supervision. While the majority of participants rated the usability and clarity of the module as "very good," they also provided constructive suggestions to further refine the product. These included enhancing the attractiveness of the module layout, improving the clarity of supervision steps, aligning the cover design with the content, and converting the module format to A4 for easier use. After integrating this feedback, the revised OQEAC-based supervision model demonstrated stronger user acceptance and improved practicality, indicating its readiness for broader implementation in Madrasah Ibtidaiyah academic supervision practices.

Table 4. Summary of Implementation Findings

Trial Type	Findings	Input from Users	Action Taken
Individual Trial (One-to-One)	Very high acceptance, usability, and perceived effectiveness	Clarity of supervision steps; need for more attractive module layout	Improved step-by-step procedures; enhanced visual formatting
Large-Group Trial	Very good acceptance and practicality among all participants	Cover design alignment; need for A4 module format	Redesigned cover; converted format to A4 for usability
Overall Outcome	Model considered practical, effective, and ready for adoption	Additional refinement to content and layout	Final revised module improved in clarity, design, and structure

Evaluation

The evaluation stage was conducted to assess the overall effectiveness of the implemented OQEAC-based academic supervision model, identify its strengths and weaknesses, and determine the extent to which the product met expert and user expectations. This phase served as a critical mechanism for ensuring that the developed model

was valid, reliable, and pedagogically sound before broader implementation. Expert validation was carried out by a subject-matter specialist, Dr. K, who evaluated the content quality, theoretical alignment, and linguistic accuracy of the module. With a maximum possible score of 60, the expert awarded the module a score of 52. When converted to a percentage, this yields 86.6%, placing the product in the "good" category. This result indicates that the module possesses a strong conceptual foundation and a high degree of feasibility for practical use in academic supervision, particularly in the context of Madrasah Ibtidaiyah.

Alongside the positive assessment, the expert provided several constructive recommendations for improvement. These included refining sentence structures to enhance clarity, ensuring coherence and logical flow between ideas, revising sections that require alignment with formal Indonesian language standards, and continuing to enrich the content through ongoing scholarly product development. These suggestions were valuable for guiding the revision process and ensuring that the module not only meets pedagogical requirements but also adheres to academic writing norms. The results of the expert evaluation, illustrated in the graphical summary, further confirm that the module demonstrates strong validity and is suitable for implementation, while also highlighting areas that can be strengthened to improve its overall quality and impact.

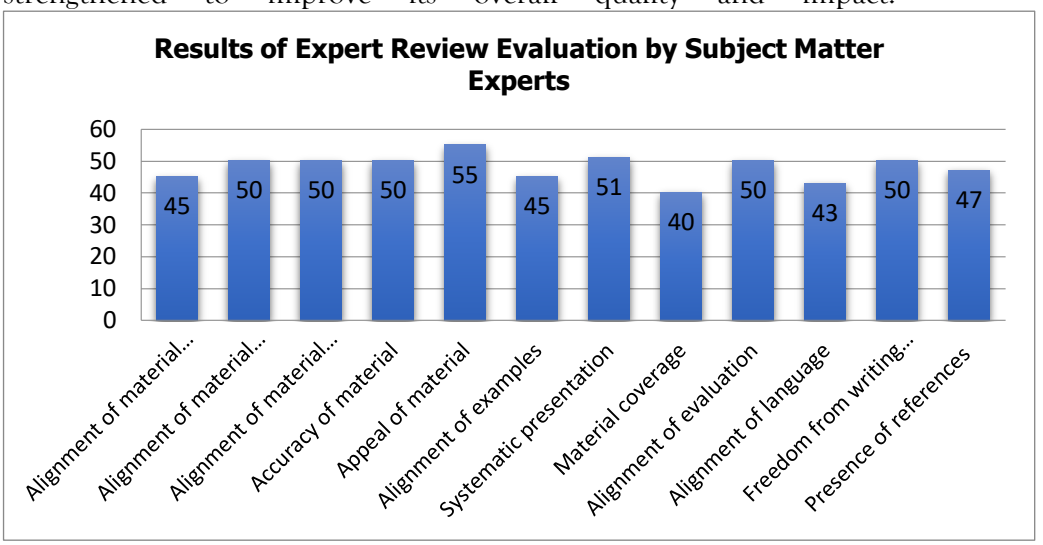


Figure 1. Results of the expert review

The next stage is individual testing (expert) by academic supervision experts in an effort to obtain product feasibility in scientifically-based academic supervision issues that have been developed. The maximum score is 55, while the material expert

assessment result is 51, so 51 divided by 55 multiplied by 100% results in 92.7% with an excellent category.

This academic supervision model development product is already very good in terms of consistency between PK, material in objectives, accuracy of examples, material coverage, evaluation suitability, material suitability with supervision practices and work fields based on the assessment of Prof. Dr. S, The results of the subject matter expert assessment can be illustrated in the following graph:

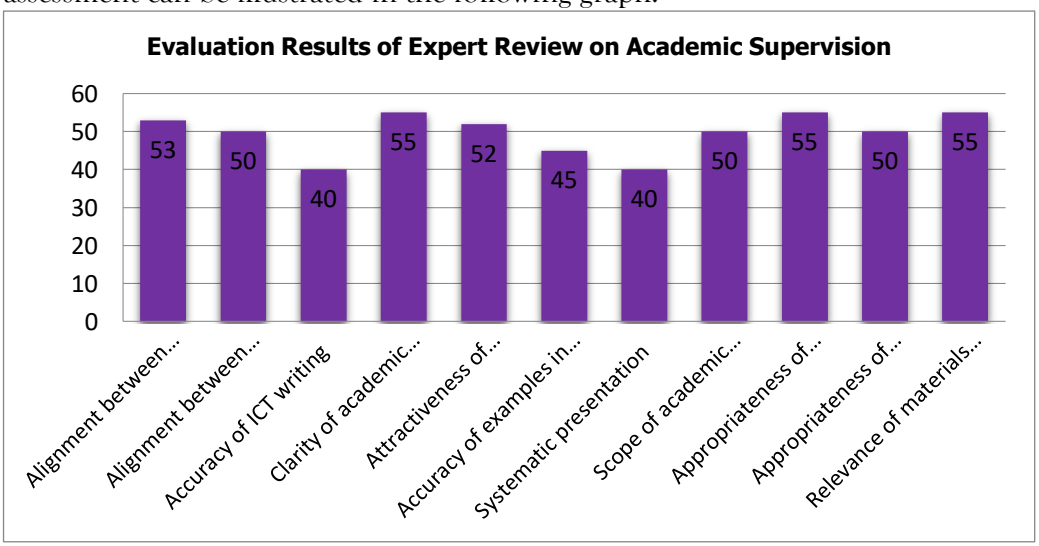


Figure 2. Expert Review Evaluation Results on Academic Supervision

The individual trial evaluation (one-to-one expert) by the media expert was an effort to assess the feasibility of the product related to the media issue, specifically the development of the scientific-based academic supervision module book. The result of the individual evaluation by the media expert showed a maximum score of 50, with the media expert's assessment totaling 45. Therefore, 45 divided by 50 and multiplied by 100 equals 90%, which is classified as excellent. The expert's recommendations for improvement included paying attention to more representative and creative images, adjusting the color to match the paper, and providing more specific examples. The media expert's assessment results can be illustrated in the following chart:

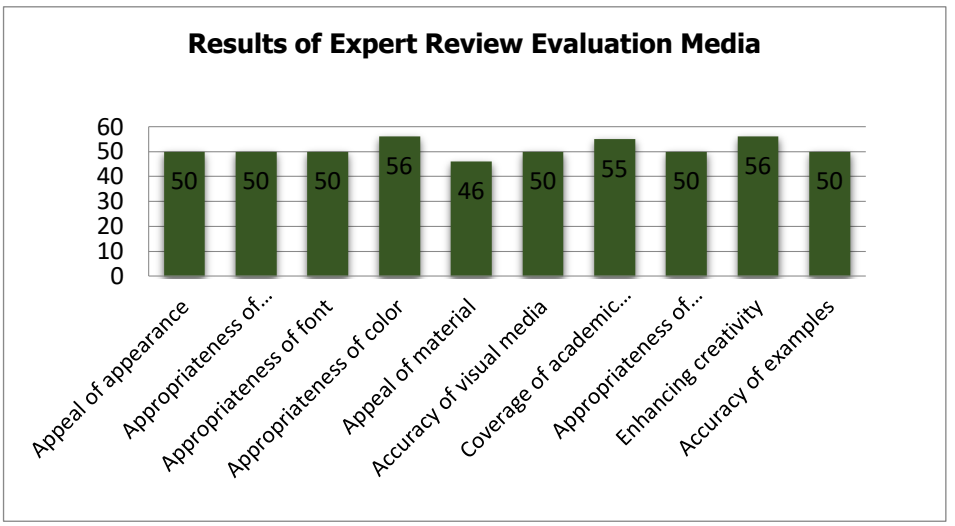


Figure 3. Results of Media Expert Review Evaluation

The results of the material expert review suggest the following improvements: 1) pay attention to sentence structure, as several paragraphs still need improvement, 2) improve the links between sentences, 3) make improvements in accordance with the applicable rules of Indonesian language. The suggested improvements from the Media Expert have been made and approved by the Media expert.

The results of the revision by the supervision expert suggest the following improvements: 1) the appeal of the supervision material needs improvement, 2) the presentation system needs to be revised in the scientific-based academic supervision module. The improvement suggestions from the supervision expert have been implemented.

The results of the media expert's revision suggest improvements, namely: 1) the need to improve the design of the cover to make it more attractive, motivating, and easier for users to understand the content in advance; 2) the need to improve the paper size of the printed module to make it more attractive and motivating in accordance with module standards; 3) The need to improve the font to match the paper; 4) The media expert's suggestions for improvement have been implemented.

The development of a scientific-based academic supervision model is aimed at perfecting the existing supervision model, namely the scientific supervision model, into a new and improved model. The scientific-based academic supervision model is a representation of a form of product, process, and system that describes a set of coherent and integrated procedures used by an educational supervisor, namely the principal or supervisor, to improve learning conducted by teachers.

DISCUSSION

This study aimed to develop a scientifically-grounded academic supervision model based on the OQEAC (Observing, Questioning, Experimenting, Associating, Communicating) framework to enhance teaching quality and improve teacher professional development in Madrasah Ibtidaiyah in Tulang Bawang, Indonesia. The research resulted in the successful design, development, and implementation of the model, with an initial prototype validated by experts in the field. Pilot testing involving both individual and large-group trials revealed that the model was well-received, with participants reporting high satisfaction with its practical utility and relevance to the teaching context. The feedback from trial participants highlighted areas for further refinement, ensuring that the model and its associated materials are effective, relevant, and easily adaptable to local teaching conditions.

Globally, the issue of improving academic supervision and teacher development has attracted significant attention. Recent studies emphasize the critical role that structured supervision plays in enhancing teaching practices and ultimately improving student outcomes (Gore, Rosser, & Gore, 2020; Wisniewski, Zierer, & Hattie, 2020). The integration of scientific principles in academic supervision, as seen in this study's approach, aligns with the findings of researchers such as McLure and Aldridge (2023), who argue for a systematic, evidence-based approach to teacher supervision that fosters continuous professional growth. Additionally, studies like those by Hubers et al. (2022) support the integration of reflective and inquiry-based practices, such as the OQEAC framework, in developing professional development programs that are both effective and adaptable to diverse educational contexts.

In the Indonesian context, academic supervision has been identified as a key component in enhancing teacher quality. However, studies by Setyaningsih and Suchyadi (2021) and Winarno et al. (2021) highlight persistent challenges in the implementation of effective supervision, with traditional methods failing to address teachers' specific needs. This research contributes to a growing body of local studies that advocate for more structured and scientifically-based supervision models, such as the one developed in this study. By incorporating the OQEAC framework, this study offers an innovative solution to the shortcomings identified in Indonesian supervision practices, addressing the gaps in teacher development and feedback mechanisms.

This research contributes to several theoretical frameworks in the field of academic supervision. The integration of the OQEAC model provides a unique approach to supervision that incorporates observation, questioning, experimentation, association, and communication as core components of the supervisory process. These elements align with Vygotsky's (1978) Sociocultural Theory, which emphasizes the importance of social interaction and collaborative learning in fostering cognitive development. Furthermore, the study's application of the ADDIE model for instructional design complements existing theories on systematic and evidence-based teaching practices (Creswell, 2018), reinforcing the necessity of structured methodologies in the professional development of educators. This research also supports Zeichner and Liston's (2014) Reflection Model of Supervision, where continuous cycles of observation and feedback are central to teacher improvement and professional growth.

The findings of this study have significant pedagogical implications for the implementation of academic supervision in Madrasah Ibtidaiyah in Indonesia. By integrating scientific approaches into supervision practices, the OQEAC-based model fosters a more reflective, inquiry-driven, and collaborative environment for both supervisors and teachers. This model encourages teachers to engage in continuous professional development, experiment with new teaching methods, and collaborate with peers. As such, it holds the potential to improve the quality of instruction in Indonesian schools by enhancing teacher competency and fostering a more engaging and dynamic classroom environment. Moreover, the emphasis on authentic assessment methods within the supervision process is aligned with modern pedagogical practices, encouraging a shift towards more holistic and student-centered teaching approaches.

Policy Implications

From a policy perspective, the findings of this study suggest that policymakers in Indonesia should consider the adoption of evidence-based, structured models of academic supervision to improve teacher quality and enhance educational outcomes. The study highlights the need for professional development programs that integrate scientific principles and provide ongoing support for teachers and supervisors. Furthermore, the implementation of such models could be aligned with national education reforms, such as the "Merdeka Belajar" initiative, which emphasizes teacher autonomy and the development of more inclusive, dynamic educational environments. Policymakers should invest in training supervisors to implement these models

effectively, ensuring that academic supervision is responsive to the specific needs of teachers and students.

Novelty and Contribution

The novelty of this study lies in its development of a scientifically-grounded academic supervision model based on the OQEAC framework, specifically tailored for Madrasah Ibtidaiyah in Indonesia. This research contributes to the literature by providing a new model of supervision that integrates observation, questioning, experimentation, associating, and communicating into a structured process for teacher professional development. By focusing on the specific needs of teachers in the Indonesian context, the model offers a contextually relevant and evidence-based approach to academic supervision, which has the potential to enhance teaching quality and foster continuous professional growth. Furthermore, this study fills a gap in the existing research by demonstrating how a scientific, structured approach to supervision can be effectively implemented in Indonesian schools, which have traditionally struggled with inconsistent supervision practices.

Limitations and Future Research

While this study offers valuable insights into the development of a scientifically-based academic supervision model, there are several limitations that should be addressed in future research. First, the study was conducted in a specific region (Tulang Bawang), which may limit the generalizability of the findings to other regions in Indonesia or internationally. Future studies could explore the effectiveness of the OQEAC-based supervision model in different educational settings, including urban and rural schools, to determine whether its benefits are consistent across diverse contexts. Additionally, the study focused primarily on teachers and supervisors, but further research could investigate the perspectives of students and other stakeholders to gain a more comprehensive understanding of the model's impact. Finally, while the feedback from teachers and supervisors was largely positive, future studies should examine the long-term effects of the model on teaching quality and student outcomes, particularly in relation to authentic assessment methods and student engagement.

CONCLUSION

This study aimed to develop and evaluate a scientifically-based academic supervision model based on the OQEAC framework, designed to enhance the effectiveness of academic supervision in Madrasah Ibtidaiyah in Indonesia. The findings demonstrate that the model was well-received by both teachers and supervisors, with positive

feedback on its clarity, practical utility, and ability to foster professional growth. The pilot implementation revealed that the OQEAC model significantly improved supervisory practices, aligning them more closely with teachers' needs and promoting continuous development through structured observation, questioning, experimentation, association, and communication. This research answers the central questions of how a scientifically-grounded, structured approach can improve academic supervision and professional development in Indonesian educational settings.

The theoretical contribution of this study lies in its integration of the OQEAC framework into academic supervision, offering a novel approach that bridges theory with practice. By combining the systematic ADDIE model with OQEAC's reflective and inquiry-based components, the research offers a comprehensive framework for supervisor-teacher collaboration. Practically, the findings emphasize the need for a structured, evidence-based model that supports teachers' professional growth and addresses the challenges faced by supervisors in the context of Madrasah Ibtidaiyah. Despite its valuable contributions, the study is limited by its context—focused on a single region and sample—restricting the generalizability of the results. Future research could explore the broader application of the model across various Indonesian regions and educational contexts. Additionally, further studies could investigate the long-term effects of the OQEAC-based model on teaching outcomes and student performance, contributing to a deeper understanding of how academic supervision can be optimized for sustainable teacher development. This study paves the way for more effective and scientifically-informed supervision practices that can enhance educational quality in Indonesia and beyond.

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