.

Strategic Management of Quality Improvement of Higher Education Institutions at Ma'had Aly Nurul Jadid Through PESTEL Analysis

Ahmad Rausyan Fikri[1▢], Aminullah[2], M. Durrin Ni'am[3], Mohammad Firmansyah[4], Badrul Mudarris[5]

[12345]Universitas Nurul Jadid, East Java, Indonesia

Abstract:

This study aims to analyze the application of strategic management in improving the quality of Islamic higher education at through a PESTEL (Political, Economic, Social, Technological, Environmental, and Legal) analysis approach. The main focus of the study is to identify the institution's adaptive strategies in responding to external and internal environmental dynamics to strengthen governance, human resource development, and educational program innovation. Research Methods This study used a qualitative descriptive method with data collection techniques through in-depth interviews, participant observation, and documentation. The results indicate that has successfully implemented strategic management based on PESTEL analysis effectively, as reflected in the strengthening of academic policies, improving faculty and student competencies, integrating technology into learning, strengthening institutional networks, and adapting to social demands and national education regulations. The PESTEL analysis assists the institution in formulating quality improvement strategies that are responsive and innovative to environmental changes. The implementation of PESTEL-based strategic management contributes significantly to the development of the quality of Islamic higher education, particularly in creating adaptive, competitive, and sustainability-oriented governance. It is recommended to develop a sustainable strategic model through inter-institutional collaboration and an evidence-based approach.

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INTRODUCTION

Quality education is a key pillar in developing an intelligent, highly competitive, and character-driven generation in Indonesia (Pertiwi et al., 2025). Higher education institutions should play a role in developing human resources who are academically, personally, and socially competent (Prodanova & Kocarev, 2023). However, there is a significant gap

between the theory and practice of educational quality in Islamic higher education institutions (Dwaikat, 2021). Many institutions, including Ma'had Aly, still experience underachievement in literacy, numeracy, learning quality, and the relevance of graduates to societal needs (Halim, 2022). Ideally, educational quality integrates the educational process and outcomes, from teaching materials and methodologies to infrastructure and facilities to graduate competencies (Asiyai, 2022). This gap highlights the need for a structured management strategy to improve educational quality so that it not only meets academic standards but is also relevant to current developments and societal needs (Fanani & Hidayah, 2024).

Real conditions on the ground demonstrate that Ma'had Aly, as a pesantren-based Islamic higher education institution, faces challenges in maintaining and improving educational quality (Munifah et al., 2025). This institution boasts a strong intellectual tradition, with a hierarchical study of Islamic texts (kitab kuning), but must balance Islamic values, national education regulations, and technological developments (Rosidin et al., 2022). Internal management lacking a basis in environmental analysis has resulted in several aspects, such as lecturer competency, technology integration, and program relevance, remaining suboptimal. Documentation and field observation data indicate that strengthening institutional networks and adapting to social and legal changes remains partial and unsystematic. This makes it difficult for institutions to design adaptive and sustainable long-term strategies, resulting in educational quality improvements that have not fully achieved their targets (Hafiduddin & Lawal, 2024).

Several previous studies have discussed strategic management and educational quality in Islamic educational institutions, such as the study by (Sodikin et al., 2024) on strategic management and quality in Islamic education, and (Saputra, 2023) on quality improvement strategies in Muhammadiyah institutions. These studies demonstrate that strategic management plays a crucial role in improving educational quality (Nazilah et al., 2024). However, most research focuses on internal aspects of the institution, such as human resource management and academic policies, without considering a comprehensive external environmental analysis. No study has explicitly examined the application of PESTEL (Political, Economic, Social, Technological, Environmental, and Legal) analysis as a foundation for management strategy at Ma'had Aly. This gap highlights the need for research that integrates external analysis to strengthen educational quality comprehensively (Sain et al., 2024).

This research offers a new approach by comprehensively integrating strategic management and PESTEL analysis at Ma'had Aly. This approach enables the institution to formulate adaptive strategies that consider rapidly changing internal and external factors, resulting in more relevant, efficient, and sustainable strategic decisions. With PESTEL, can strengthen academic policies, improve faculty and student competencies, integrate technology, build networks, and align educational programs with regulations and social demands (Fawaid et al., 2025). This approach significantly contributes to improving educational quality, graduate relevance, and institutional sustainability, areas not previously focused on by previous research (Fatmasari et al., 2025).

Based on this background, this research aims to answer the question: "How can the application of PESTEL analysis in strategic management improve educational quality at Ma'had Aly Nurul Jadid?" This question is crucial because it bridges the gap between

strategic management theory, quality educational practices, and the dynamics of the external environment affecting Islamic educational institutions (Sain et al., 2025). The initial argument of this research is that the application of PESTEL enables Ma'had Aly to identify external factors influencing educational quality, formulate evidence-based strategies, and optimize internal resources (Firdaus & Aisyah, 2020). With this approach, the research is expected to provide strategic guidelines for Ma'had Aly and other Islamic educational institutions to improve the quality of education comprehensively, adaptively, and in accordance with the demands of society and national education regulations (Musolli, 2023).

RESEARCH METHOD

This research uses a qualitative approach with a case study. The qualitative approach was chosen because it allows researchers to deeply understand the managerial strategies implemented at to improve educational quality by considering external factors through a PESTEL (Political, Economic, Social, Technological, Environmental, and Legal) analysis. The case study was used to comprehensively explore how strategic management is designed, implemented, and evaluated within the context of an Islamic boarding school-based higher education institution. Furthermore, this research can be classified as grounded research because the data and analysis were developed based on empirical phenomena in the field, allowing theories and conclusions to emerge from in-depth data findings.

This research was conducted at Ma'had Aly Nurul Jadid, Paiton, Probolinggo, East Java, within the Nurul Jadid Islamic Boarding School complex. This location was chosen because Ma'had Aly is a pesantren-based Islamic higher education institution with a unique higher education management system and a vision to strengthen the academic quality and character of its students. This institution has a complex management structure, involving various parties in the educational planning, implementation, and evaluation processes, making it a representative setting for a comprehensive analysis of the implementation of PESTEL-based strategic management.

The research information sources consisted of three categories. First, respondents and informants who play key roles in the institution's strategic management, namely the Director of Ma'had Aly, the Deputy Director for Academic Affairs, the Head of Quality Assurance, lecturers, administrative staff, and student representatives. Second, official institutional texts and documents, such as academic policies, strategic planning documents, and quality evaluation reports. Third, additional data was obtained from field observations, which provided operational context and organizational culture. The selection of diverse informants was expected to yield comprehensive perspectives from various perspectives.

Data were collected through several stages. First, participant observation, in which researchers observed the planning, implementation, and evaluation processes of educational strategies at Ma'had Aly. Second, in-depth interviews using a semi-structured interview guide prepared based on the research focus allowed researchers to explore detailed and contextual information. Interviews were conducted with various key informants to gain a deep understanding of the implementation of PESTEL-based strategic management. Third, the research also utilized documentary studies in the form of official documents, institutional reports, and other relevant written materials to enhance data validity.

Data were analyzed through several stages. The first stage was data reduction, which involved selecting, summarizing, and highlighting data relevant to the research focus. The second stage was data presentation, conducted by systematically mapping the findings in the form of a descriptive narrative that illustrated the implementation of strategic management at Ma'had Aly. The final stage was drawing conclusions and verifying them, where the findings were analyzed using content analysis, discourse analysis, and interpretive analysis methods to uncover in-depth patterns, relationships, and meanings of strategic management practices and PESTEL-based educational quality improvement strategies.

RESULT AND DISCUSSION
Result
Improving Institutional Policies and Governance through PESTEL Analysis

The operational definition of this sub-finding refers to efforts to strengthen internal policies and institutional governance through the application of PESTEL analysis. Operationally, this includes aligning academic policies with national regulations, efficient resource management, evidence-based strategic planning, and maintaining educational quality standards. PESTEL analysis is used as a tool to identify political, economic, social, technological, environmental, and legal factors that influence strategic decision-making. With this approach, the institution is able to develop internal regulations, academic guidelines, and evaluation systems that are adaptive to external changes, thereby improving educational quality.

Table 1. Improving Institutional Policies and Governance through PESTEL Analysis

Observed Aspects (PESTEL)	Observation Findings	Sources / Documentation
Political	Institutional policies have begun to align with national standards for formal Islamic education and government regulations related to Islamic boarding schools (pesantren). The institution regularly monitors regulations to ensure governance remains relevant.	Institutional policy documents, leadership meeting minutes, governance guidelines.
Economic	Budget management has become more accountable through a needs-based budgeting system. The institution has increased the effectiveness of fund use for operations, human resource development, and quality improvement.	Annual financial reports, Work Plan and Budget (RKA), internal audits.
Social	Institutional policies have been adapted to be responsive to community needs and stakeholder expectations. Academic and administrative services have been improved to strengthen social relationships with students, guardians, and the community.	Satisfaction surveys, community service reports, documentation of social activities.
Technological	The implementation of digital systems in academic administration, data management, and internal communications has increased	Academic information systems, documentation of digital application usage, IT

	governance efficiency. Technology has also been integrated into the institution's evaluation and transparency processes.	development reports.
Environmental	The institution has begun adopting environmentally friendly policies such as reducing paper use, managing Islamic boarding school waste, and designing healthier learning spaces.	Environmental SOPs, go-green program documentation, facility arrangement reports.
Legal	Institutional governance has been aligned with the latest regulations regarding Islamic boarding schools, educational quality standards, and accreditation guidelines. Internal policy updates have been implemented to minimize the risk of legal non-compliance.	Institutional legal documents, accreditation guidelines, government regulations (SK, Permen, UU PPS).

An interview with the Director of Ma'had Aly revealed, "We always align our internal policies with national education regulations and accreditation, so that each academic program can run according to standards." Meanwhile, the Deputy Director for Academic Affairs stated, "PESTEL analysis helps us identify external opportunities and challenges, for example in budget and scholarship management, so that strategic decisions are more targeted." From these two statements, it can be interpreted that the application of PESTEL serves not only as an analytical tool but also as a practical guide in policy formulation and institutional governance. Informants emphasized the importance of mapping external factors to minimize risk and maximize the effectiveness of internal policies.

Field observations revealed a routine coordination mechanism between institutional units to develop PESTEL-based academic and governance policies. Researchers noted regular evaluation meetings, annually updated strategic planning documents, and a transparent budget and resource monitoring system. The researchers' interpretation of this data confirms that the institution implements systematic strategic management practices, integrating external environmental analysis into the decision-making process.

From the interviews and observations, it can be restated that the implementation of PESTEL at Ma'had Aly focuses on aligning academic policies with regulations, optimizing resources, and maintaining educational quality. Overall, the institution places external environmental analysis as a critical component of its management strategy, resulting in more adaptive and relevant policies.

Data analysis reveals a pattern in which each PESTEL aspect is interconnected in strengthening the institution's policies and governance. Political and legal factors drive regulatory compliance, economic factors influence the efficiency of resource allocation, and social and technological factors support the relevance of academic programs. With this pattern, Ma'had Aly is able to build strategic management that is responsive, sustainable, and oriented toward improving educational quality comprehensively.

Improving Competence and Relevance of Education

The operational definition of this sub-finding refers to efforts to improve academic competence and educational relevance for students through the application of PESTEL analysis. Operationally, this includes developing a curriculum that aligns with societal needs

and global demands, enhancing lecturer competency through training and professional development, and strengthening students' social skills and character. PESTEL analysis is used to identify social and technological factors that influence educational quality, so that learning programs can adapt to changes in the external environment, maximize benefits for students, and ensure graduates possess a balance of academic, social, and character competencies.
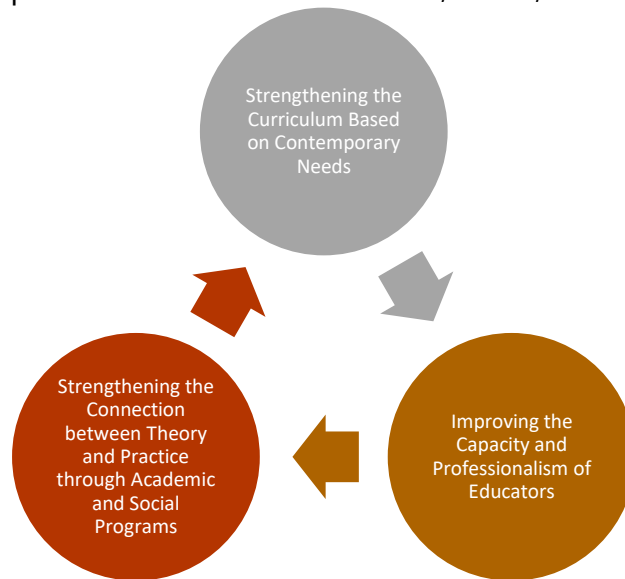
Figure 1.
Improving Competence and Relevance of Education

An interview with the Head of Quality Assurance revealed, "We constantly review the curriculum to ensure it is relevant to societal needs and current developments, including the integration of technology into learning." Meanwhile, a lecturer stated, "Regular training for lecturers and workshops on digital media use make teaching more effective and meet student competency standards." The researcher's interpretation of this data indicates that the application of PESTEL helps the institution align academic programs with external needs while simultaneously improving faculty members' ability to transfer knowledge relevantly. This reflects that improving educational competence and relevance lies not only in content but also in teaching methods and the integration of social values.

Observations indicate that Ma'had Aly regularly holds lecturer training, learning technology workshops, and curriculum evaluations based on input from the community and Islamic boarding school stakeholders. Researchers interpret these practices as concrete implementations of the social and technological factors analysis in PESTEL, which systematically improves the quality of learning, students' social skills, and the relevance of educational programs to the needs of society and the workplace.

From interviews and observations, it can be restated that the application of PESTEL at Ma'had Aly focuses on improving lecturer competency, developing a relevant curriculum, and integrating learning technology. In other words, the institution emphasizes the alignment of academic programs with the real needs of students and society, thus optimizing the quality of education and positively impacting graduates.

Data analysis reveals a pattern that increases in competency and educational relevance occur through synergy between improving teacher quality, adapting the curriculum, and utilizing technology. Social factors ensure the curriculum is relevant to community needs, while technological factors encourage innovation in learning methods.

This pattern demonstrates that the integrated application of PESTEL analysis results in adaptive, high-quality education that is holistically oriented toward student competency.

Enhancing Sustainability and Environmental Responsibility

The operational definition of this sub-finding refers to efforts to implement the principles of sustainability and environmental responsibility in the institution's strategic management. Operationally, this includes environmentally friendly management of facilities and infrastructure, integration of environmental values into the curriculum, implementation of conservation and cleanliness programs, and compliance with applicable environmental regulations. PESTEL analysis was used to identify environmental and legal factors that influence educational practices, allowing the institution to develop strategies that support academic sustainability while fostering ecological awareness in students.

An interview with the Director of Ma'had Aly revealed, "We always consider environmental aspects in every planning step, from facility construction to learning programs that teach ecological awareness." The Head of Academic Affairs added, "Every curriculum and extracurricular activity always considers environmental impacts and strives to integrate sustainability values into the student experience." The researcher's interpretation of this data indicates that Ma'had Aly actively uses PESTEL analysis to assess environmental risks and opportunities, ensuring that the institution's academic and operational strategies focus not only on educational quality but also on social and ecological responsibility.

Observations indicate that Ma'had Aly implements concrete environmental management practices, such as waste segregation, campus greening, and reducing plastic use, as well as student involvement in conservation activities. Researchers interpret these practices as an implementation of the environmental and legal factors analysis in PESTEL (Pest and Ethics Assessment) that systematically fosters a culture of environmental responsibility within the institution. These programs not only raise student awareness but also maintain the sustainability of academic facilities and the Islamic boarding school environment.

From interviews and observations, it can be restated that the implementation of PESTEL at Ma'had Aly focuses on environmentally friendly resource management, the integration of environmental values into the curriculum, and compliance with environmental laws. This confirms that the institution not only improves the quality of education but also fosters student awareness and responsibility for the environment.

Data analysis reveals a pattern in which sustainability and environmental responsibility are implemented through a synergy between strategic planning, facility management, curriculum integration, and student involvement. Environmental factors guide operational practices and the curriculum, while legal factors ensure compliance with regulations. This pattern demonstrates that the implementation of PESTEL results in a sustainable educational strategy that is adaptive to external issues and produces graduates with ecological awareness and social responsibility.

DISCUSSION

The research findings indicate that the application of PESTEL analysis in the strategic management of significantly contributed to improving policies, educational competencies,

and environmental sustainability. These findings align with research by (Kovalenko et al., 2021), which emphasized the importance of external environmental analysis for formulating adaptive educational strategies (Nuriyah et al., 2024). The difference is that this research emphasizes the integration of environmental and legal factors, which have previously received less comprehensive attention in the literature. The implications of these findings suggest that PESTEL is not merely an analytical tool but a practical guide for institutions to develop responsive policies, manage resources efficiently, and align curricula with community needs and national education regulations (Khoiroh, 2025).

Improving lecturer competency and curriculum relevance is another important finding. In the literature, such as that by Tahsinia, Mulyati, & Suryaman (2025), improving educational quality is often focused solely on the quality of teachers or learning materials (Rahmatillah & Andayani, 2025). The results of this study demonstrate a correlation between social and technological factors in PESTEL and improved learning quality, where technology integration and responsiveness to community needs directly improve student competency. The function of these findings is that institutions can produce competitive graduates. However, dysfunction arises if social or technological factors are neglected, for example, if the curriculum is not relevant to community needs, which can reduce the quality of graduates.

The findings related to sustainability and environmental responsibility emphasize that strategic management is not solely oriented towards academics but also towards socio-ecological ethics. This aligns with the literature on sustainable education (Miftachurrohman, 2018; Muslim, Kunta, & Baharun, 2025), which states that integrating environmental values into education increases students' social awareness (Maripaz C. Abas, 2025). Consequently, the application of PESTEL helps Ma'had Aly create a holistic institutional structure, where educational strategies and operational practices support academic goals while maintaining the sustainability of resources and the environment, thus producing competent and socially responsible graduates.

In terms of "what it is," this study demonstrates that the application of PESTEL analysis serves as an institutional adaptation mechanism to rapid external changes, including educational regulations, technological advances, and societal demands (Yakin & Mundiri, 2025). The underlying structure underlying these findings is the reciprocal relationship between external factors (PESTEL) and the institution's internal policies: when the institution responds appropriately to external factors, governance, academic quality, and environmental sustainability are maintained; otherwise, dysfunction occurs that hinders educational quality. This reinforces the understanding that educational quality is determined not only by internal resources but also by the institution's ability to read and respond to external dynamics.

The overall discussion emphasizes that the application of PESTEL in strategic management provides a management model that is adaptive, sustainable, and relevant to community needs. These findings demonstrate that strategies based on environmental analysis are able to integrate aspects of policy, competency, technology, and socio-environmental responsibility within a coherent framework. Theoretically, this research adds to the literature on strategic management of Islamic education using a comprehensive PESTEL approach. Practically, these findings provide guidance for Ma'had Aly and other Islamic higher education institutions in designing adaptive, innovative educational strategies oriented toward quality, sustainability, and social responsibility.

CONCLUSION

The most important findings of this study indicate that the application of PESTEL analysis in the strategic management of significantly improved the quality of education through three main aspects: strengthening institutional policies and governance, increasing educational competency and relevance, and implementing the principles of sustainability and environmental responsibility. The lessons learned from this study are the importance of integrating external environmental analysis into strategic educational planning, enabling institutions to be adaptive, responsive to change, and produce competent, relevant, and socially and ecologically responsible graduates. The strength of this paper lies in its scholarly contribution, which updates the perspective on strategic management of Islamic education. This study emphasizes the comprehensive use of PESTEL analysis, incorporating political, economic, social, technological, environmental, and legal factors as a basis for strategy formulation, a previously understudied topic in the literature. Furthermore, this study extends the case study method to the context of Ma'had Aly, resulting in an in-depth understanding of the relationship between the external environment and the institution's internal strategy. These findings provide a theoretical and practical basis for Islamic higher education institutions in designing adaptive and sustainable management strategies. The limitations of this study lie in its specific, so the results may not be fully generalizable to all Ma'had Aly or other higher education institutions. Furthermore, this study places more emphasis on the perspectives of adult administrators and students, without considering variations in gender, age, or other methodological approaches such as quantitative surveys that could provide a broader picture. Therefore, further research is recommended that accommodate gender and age factors, as well as use surveys or mixed methods to produce more representative data and serve as the basis for more effective and targeted educational policies.

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