

Resilience-Based Digitalization Strategy for Sustainable Arabic Module Downstreaming

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Article History	ABSTRACT
Received 19-11-2026 Accepted: 28-02-2026 Published: 22-04-2026	<p>Background: Background: The Society 5.0 era requires Islamic educational institutions, including Islamic boarding schools, to undergo digital transformation without compromising their identity and scholarly traditions. In the context of Arabic language learning, a managerial strategy is needed to integrate digitalization, resilience management, and module downstreaming, so that learning innovation does not stop at the prototype stage but continues to develop into adaptive and sustainable practices in the pesantren environment.</p> <p>Purpose: Purpose: This study aims to describe the practices of resilience management at Al-Khairaat Islamic Boarding School in Gorontalo City, analyze the digitalization strategy developed to support the sustainable downstreaming of the Arabic Language 5.0 Module, and explain the factors that support and inhibit the sustainability of module downstreaming.</p> <p>Method: This study employed a descriptive qualitative case-study approach. Data were collected through in-depth interviews, participatory observation, and documentation, involving pesantren leaders, Arabic teachers, information technology managers, and students as key informants. Data were analyzed using Miles and Huberman's interactive model, consisting of data reduction, data display, and conclusion drawing/verification. Data trustworthiness was maintained through triangulation of sources, methods, and time triangulation, and strengthened by member checking.</p> <p>Results and Discussion: The findings show that pesantren resilience management is rooted in traditional values and combined with a vision of institutional modernization. The digitalization strategy is implemented gradually through the use of communication applications, digital academic records, and the development and use of the Arabic Language 5.0 Module in print and digital formats. The sustainable downstreaming process occurs through content adaptation, digital repackaging, and integration into the formal curriculum, with the central role of pesantren leaders, teachers, and IT managers. However, this process still faces infrastructure limitations and disparities in device access.</p> <p>Conclusions and Implications: Conclusions and Implications: The study concludes that the resilience-based digitalization strategy at Al-Khairaat Islamic Boarding School supports the sustainable downstreaming of the Arabic Language 5.0 Module. The</p>

practical implication is that pesantren need to strengthen written policies, develop continuous training programs for teachers, and improve the digital ecosystem.

Keywords:

Digitalization Strategy; Resilience Management; Module Downstreaming; Arabic 5.0; Islamic Boarding Schools.

ABSTRAK

Latar Belakang: Latar Belakang: Era Society 5.0 menuntut lembaga pendidikan Islam, termasuk pondok pesantren, untuk bertransformasi secara digital tanpa kehilangan identitas dan tradisi keilmuan pesantren. Dalam konteks pembelajaran Bahasa Arab, diperlukan strategi manajerial yang mampu mengintegrasikan digitalisasi, manajemen resiliensi, dan hilirisasi modul secara berkelanjutan agar inovasi pembelajaran tidak berhenti pada tahap prototipe, tetapi berlanjut menjadi praktik yang adaptif dan berkelanjutan di lingkungan pesantren.

Tujuan: Tujuan: Penelitian ini bertujuan untuk mendeskripsikan praktik manajemen resiliensi di Pondok Pesantren Al-Khairaat Kota Gorontalo, menganalisis strategi digitalisasi yang dikembangkan dalam mendukung hilirisasi berkelanjutan Modul Bahasa Arab 5.0, dan menjelaskan faktor pendukung dan penghambat keberlanjutan hilirisasi modul

Metode: Penelitian ini menggunakan pendekatan studi kasus kualitatif deskriptif. Data dikumpulkan melalui wawancara mendalam, observasi partisipatif, dan dokumentasi dengan melibatkan pimpinan pesantren, guru Bahasa Arab, pengelola teknologi informasi, dan santri sebagai informan kunci. Analisis data dilakukan menggunakan model interaktif Miles dan Huberman yang meliputi reduksi data, penyajian data, dan penarikan/verifikasi kesimpulan. Keabsahan data dijaga melalui triangulasi sumber, metode, dan triangulasi waktu, serta diperkuat dengan member checking

Hasil dan Pembahasan: Hasil penelitian menunjukkan bahwa manajemen resiliensi pesantren berakar pada nilai-nilai tradisional yang dipadukan dengan visi modernisasi lembaga. Strategi digitalisasi diterapkan secara bertahap melalui pemanfaatan aplikasi komunikasi, pencatatan akademik digital, serta pengembangan dan penggunaan Modul Bahasa Arab 5.0 dalam format cetak dan digital. Proses hilirisasi berkelanjutan berlangsung melalui adaptasi konten, pengemasan ulang digital, dan integrasi ke dalam kurikulum resmi, dengan peran sentral pimpinan pesantren, guru, dan pengelola TI, meskipun masih dihadapkan pada keterbatasan infrastruktur dan disparitas akses perangkat.

Kesimpulan dan Implikasi: Penelitian menyimpulkan bahwa strategi digitalisasi berbasis manajemen resiliensi di Pondok Pesantren Al-Khairaat mendukung hilirisasi berkelanjutan Modul Bahasa Arab 5.0. Implikasi praktisnya, pesantren perlu memperkuat kebijakan tertulis, menyusun program pelatihan berkelanjutan bagi guru, dan meningkatkan ekosistem digital.

Kata Kunci

Strategi Digitalisasi; Manajemen Resiliensi; Hilirisasi Modul; Bahasa Arab 5.0; Pondok Pesantren.



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INTRODUCTION

The development of digital technology in the era of Society 5.0 has fundamentally changed the way humans work, learn, and interact.[1] In education, digitalization is no longer understood solely as the use of technological devices, but as a comprehensive transformation of the learning ecosystem, encompassing curriculum design, classroom management, and interaction patterns between educators and students.[2] Language learning, including Arabic, is required to adapt to a new paradigm that emphasizes the interconnectedness of humans and technology in a more humanistic, collaborative, and problem-solving-oriented manner.[3]-[4] However, Islamic

educational institutions such as Islamic boarding schools have distinctive characteristics and traditions. Pesantren function not only as formal and non-formal educational institutions, but also as centers for moral development, scholarly culture, and religious social life. Digital transformation in the pesantren environment, therefore, cannot be reduced to the procurement of devices or applications alone, but must be managed carefully so as not to erode the traditional values that have taken root. In this context, resilience management becomes highly relevant because it refers to the institutional capacity to absorb shocks, adapt to change, and maintain the continuity of core functions, including Arabic language learning.[5]

Educational institutions, including Islamic boarding schools, often face a persistent gap between the development of innovative concepts and their practical implementation in the field.[6] Many learning modules produced through research and development remain at the prototype stage or are implemented only in a limited manner over a short period. In Indonesia, the policy of research and innovation downstreaming encourages educational products, including learning modules, to be translated into sustained use in schools and Islamic boarding schools. However, the downstreaming of Arabic learning modules in the pesantren environment often faces obstacles, including limited digital capacity among educators, inadequate technological infrastructure, resistance to change, and the absence of a planned managerial strategy to sustain innovation.[7] Previous studies on Arabic language learning in Islamic boarding schools have examined the effectiveness of traditional and modern methods, the use of digital media in instruction, and the development of interactive teaching materials. Other studies highlight the importance of institutional resilience during disruptions, showing that institutions with flexible and adaptive governance are better able to maintain the quality of educational services. In addition, studies on the downstreaming of educational research products indicate that managerial support, institutional policies, and human resource readiness strongly influence the success of implementation.[8] However, studies that explicitly integrate the three crucial dimensions of digitalization strategies, resilience management, and the downstream aspects of the Arabic 5.0 module within a single analytical framework, focusing on the context of pesantren, are still minimal.

A more specific research gap lies not merely in the digitalization of learning in Islamic boarding schools, but in the limited attention given to digitalization as part of an institutional resilience management strategy. Existing studies on Arabic language learning modules generally emphasize development and trial stages, while only a few connect these modules to the long-term sustainability of implementation through clear managerial strategies. In addition, the concept of the Arabic Language 5.0 Module remains underexplored and requires clearer operational explanation, especially in Islamic educational institutions such as pesantren. In this study, the Arabic Language 5.0 Module refers to an Arabic learning module that integrates digital support, human-centered learning, interactivity, and 21st-century competencies within the broader context of Society 5.0. This study addresses these gaps by examining how a resilience-based digitalization strategy is designed and implemented to support the sustainable downstreaming of the Arabic Language 5.0 Module in the pesantren environment.[9]-[10] The novelty of this study lies in three contributions. First, it does not treat digitalization merely as a technical matter, but places it within the framework of resilience management to explain how digitalization strengthens the institutional capacity to survive and adapt. Second, it explicitly links resilience-based digitalization strategy with the downstreaming process of an Arabic learning module, thereby offering a more comprehensive perspective on how educational innovation moves from concept to sustained practice. Third, it contributes to the conceptual discussion of the Arabic Language 5.0 Module by situating it in the context of Islamic educational institutions with strong traditions, making it relevant for similar pesantren settings.[10]

Theoretically, this research is expected to enrich the body of knowledge in Islamic education management, particularly in the integration of resilience, digitalization, and language learning

innovation. The findings may serve as a basis for developing a conceptual model of resilience-based digitalization strategies in Islamic boarding school-based educational institutions. Practically, the results are expected to provide guidance for pesantren managers, curriculum developers, and Arabic teachers in designing and implementing digitalization strategies that are not only innovative but also sustainable. This study is also significant at the policy level because it can provide input for stakeholders involved in the downstreaming of educational research products, making such efforts more responsive to the characteristics and needs of Islamic boarding schools.

Based on this background, this study has three objectives: (1) to describe the practices of resilience management developed in Arabic language learning at Al-Khairaat Islamic Boarding School in Gorontalo City; (2) to analyze the digitalization strategy designed and implemented to support the sustainable downstreaming of the Arabic Language 5.0 Module; and (3) to identify the supporting and inhibiting factors that influence the sustainability of module downstreaming in the pesantren environment.

LITERATURE REVIEW

1. Digitalization Strategy in Resilience Management

The concept of resilience management refers to an organization's ability to anticipate, respond to, and adapt to disruptions so that it can maintain key functions and even grow stronger after a crisis. In the context of Islamic educational institutions, resilience is not only related to the sustainability of educational services, but also to the preservation of institutional values, traditions, and scholarly culture. Research on the resilience of pesantren education, for example, shows that the combination of scholarly tradition, visionary leadership, and adaptability to social change forms an important foundation of pesantren resilience amid modernization.[11] In the Society 5.0 era, the Islamic education management literature emphasizes that the integration of digital technology is no longer optional, but a strategic imperative to maintain institutional relevance and competitiveness. The transformation of Islamic education management includes structural redesign, governance reform, and the use of technology to respond to global challenges, the industrial revolution 4.0, and Society 5.0 simultaneously. Ramadhan et al. argued that innovative strategies in Islamic education management must combine technological innovation, governance strengthening, and sensitivity to socio-cultural change so that institutions remain resilient.[12]

In the context of Islamic boarding schools, modernization and management digitalization have been studied as efforts to preserve tradition while promoting innovation. Research by Saifullah et al. found that the modernization of pesantren management in the Society 5.0 era is characterized by intentionality, novelty, specificity, acceptability, and clear goal orientation. Information technology is used to support administration, student data management, finance, and educational services more efficiently without eliminating the distinctive character of the pesantren.[6] Another study on the digitalization of Darul Mustafa Islamic Boarding School in Banten shows that the adoption of an information technology-based management system allows Islamic boarding schools to maintain the Salafi tradition while opening themselves to a modern management system.[13] At a more technical level, management digitalization in Islamic boarding schools is realized through the integration of management information systems and digital platforms. The report on technology integration in pesantren management in the Society 5.0 era emphasizes the use of Education Management Information Systems (SIMP), financial applications, and digital learning platforms to improve operational efficiency, transparency, and service quality.[14] Farkhah et al., through a study at Al-Huda Jetis Kebumen Islamic Boarding School, explained how the ePesantren application was used to digitalize educational administration, student data management, and other services, thereby strengthening the institutional capacity of pesantren in responding to the demands of the Society 5.0 era.[15] These findings suggest that managerial-level digitalization strategies can become an important pillar of institutional resilience.

Outside the context of Islamic boarding schools, studies on the resilience of educational institutions in the digital era highlight the role of leadership and change management. Research on principal leadership in school resilience in the digital age, for example, emphasizes that institutional leaders must act as catalysts for change, encourage teachers to adapt to technology, and turn disruption into opportunities for quality improvement.[16] Likewise, a study on strengthening the resilience of Islamic educational institutions through integrated quality management shows that the application of Total Quality Management (TQM) principles helps institutions survive in the face of budget constraints and external environmental pressures.[17] These findings indicate that digitalization strategy in resilience management cannot be separated from leadership, governance, and quality culture.

Recent literature also introduces the concept of digital resilience, which combines digital literacy, risk management, and adaptability to changes in the technology ecosystem. Research on resilience and academic skills in higher education shows that the shift to online learning platforms requires students and institutions to develop digital resilience, namely the ability to survive, adapt, and remain productive in a technology-based learning environment.[18]-[19] In a broader context, studies on digital literacy and information resilience in Indonesia confirm that the ability to manage information flows and AI-based media narratives is a key factor in protecting individuals and communities from misinformation in the digital era.[20] These concepts can be extended to the institutional context, indicating the need for educational institutions to build digital resilience through policies, systems, and organizational culture. In Islamic education, resilience is also understood from psychological and spiritual perspectives. A number of studies emphasize that Islamic education can serve as a source of mental resilience in the digital era, both at the individual and institutional levels, through the internalization of faith, patience, and responsibility in the curriculum and school culture.[21] At the student level, research on academic resilience in pesantren shows that factors such as self-efficacy, community support, and kiai leadership influence the extent to which students and pesantren can respond to academic and social challenges. The implication is that digitalization strategies should not focus only on technical aspects, but also strengthen the spiritual and psychosocial dimensions of institutional members.

A number of studies review Islamic education management strategies in responding to the Society 5.0 era at a more macro level. These studies conclude that educational institutions need to formulate adaptive managerial frameworks that integrate digital technology, strengthen human resources, and develop 21st-century competency-based curricula.[22] Such strategies include building teacher capacity in digital pedagogy, strengthening technology infrastructure, and establishing collaborative networks with various stakeholders. From the perspective of inclusive education, technology integration is also seen as a strategic instrument to ensure access and participation for all students in the Society 5.0 era.

If synthesized, the existing literature points to several major patterns of digitalization strategy in resilience management. First, at the structural level, digitalization is reflected in the development of integrated management information systems for finance, academics, personnel, and student services to improve efficiency, transparency, and accountability, which in turn strengthens institutional resilience. Second, at the human resource level, the strategy focuses on strengthening the digital competencies of teachers, educational staff, and institutional leaders, including digital literacy training, risk management, and pedagogical innovation. Third, at the cultural level, resilience management seeks to build an organizational culture that is adaptive, collaborative, and quality-oriented while maintaining Islamic values as the basis of pesantren identity.

However, important research gaps remain. Many studies have discussed the digitalization of pesantren management and the resilience of educational institutions separately, but only a few explicitly formulate digitalization strategy as an instrument of resilience management, especially in the context of Islamic education and Islamic boarding schools. Some studies focus on the technical

implementation of applications or information systems, while the resilience dimension namely the institutional capacity to survive, adapt, and transform in the long term has not been developed as a central analytical framework.[23] Conversely, resilience studies often highlight psychological aspects or institutional quality without examining in detail the digitalization strategies that support them. This gap indicates the need for research that explains how digital system design, management policies, leadership, and organizational culture work together to build institutional resilience in the Society 5.0 era.

2. Sustainable Downstreaming of the Arabic Language 5.0 Module

In Indonesia's higher education policy, downstreaming is understood as a systematic effort to translate research and innovation results from the prototype or conceptual stage into real use in society and education. The downstreaming of research results should not stop at reports and publications, but should be realized in products that are used, institutionalized, commercialized where appropriate, or directly utilized by end users, including educational institutions.[24] Various national guidelines on Research Downstream Programs emphasize that downstreaming requires sustainability: innovative products, including learning modules, need to be tested for feasibility, integrated into the learning system, strengthened through good governance, and developed through collaboration among universities, schools or Islamic boarding schools, and other stakeholders.[25] In the context of teaching materials, downstreaming means that modules developed through research and community service do not stop at the pilot-project level, but are widely adopted, regularly updated, and become part of an established learning ecosystem. In the realm of learning innovation, downstreaming can also be understood as the process of diffusion and broader adoption of learning products, such as teaching aids or modules, so that innovation contributes to improved learning quality at the practical level.[26]-[27] Thus, when discussing the sustainable downstreaming of the Arabic Language 5.0 Module, the focus is not only on module development, but also on how the module is integrated into the curriculum, supported by institutional policies, used consistently by teachers and students, and continuously refined as needs evolve.

Research on the development of Arabic learning modules in Indonesia shows a strong trend toward contextual and technology-based teaching modules that align with the Independent Curriculum.[28] A recent study on the development of Arabic teaching modules based on the Independent Curriculum and local culture at MAN 2 Polman, for example, used Sugiyono's R&D model to produce valid, practical, and effective modules that improved learning outcomes.[29] In general, the literature shows that Arabic e-modules have strong potential to support the continuity of learning, especially in online or blended contexts.[30] International studies also show that Arabic e-modules that combine computer-assisted learning and e-learning can sustain instructional continuity and increase student engagement.[31] However, most of these studies focus on development and classroom-level testing, while institutional adoption, curriculum integration, and long-term sustainability remain underexplored as downstreaming issues.

In relation to downstreaming discourse in higher education, the Arabic Language 5.0 Module can be positioned as a learning innovation product that is ready to be downstreamed through several stages: design refinement, limited trials, validation, curriculum integration, teacher training, and dissemination to target institutions. National research downstream programs emphasize the importance of prototype testing and implementation assistance so that innovation contributes meaningfully to educational quality improvement. In the religious higher education environment, the concept of digital downstreaming has also begun to emerge, for example through initiatives to prepare AI-based learning modules as a continuation of earlier digitalization efforts. This development indicates growing awareness that digital modules produced in higher education must enter classrooms, be used by lecturers and students, and continue to be improved rather than remain merely as research outputs. In the context of Arabic learning, the sustainable downstreaming of the Arabic Language 5.0 Module requires at least three interrelated dimensions

of sustainability: pedagogical sustainability, institutional sustainability, sustainability of technology and digital ecosystem. From the perspective of educational innovation adoption, these three dimensions show that downstreaming is closely related to institutionalization. An innovation becomes sustainable not merely because it is valid or effective in a limited trial, but because it is adopted by teachers, embedded in curriculum systems, supported by policy, and maintained through institutional routines. In this sense, sustainable module downstreaming can be understood as a process of educational innovation institutionalization rather than a one-time transfer of products into practice.

METHOD

This study employed a descriptive qualitative case-study approach [32], to obtain an in-depth understanding of the resilience-based digitalization strategy in supporting the sustainable downstreaming of the Arabic Language 5.0 Module at Al-Khairaat Islamic Boarding School, Gorontalo City. Data were collected through in-depth interviews, participatory observation, and documentation, involving pesantren leaders, Arabic teachers, information technology managers, and students selected as key informants through purposive sampling. The study used semi-structured interview guidelines, observation focus sheets, and documentation checklists as research instruments. Data were analyzed using Miles and Huberman's interactive model, consisting of data reduction, data display, and conclusion drawing verification, and the trustworthiness of the findings was ensured through triangulation of sources, methods, and time triangulation, as well as member checking through the confirmation of interview summaries and preliminary interpretations with selected key informants. Institutional permission was obtained before data collection, and all informants participated with informed consent and confidentiality safeguards. This approach allowed the researchers to explore comprehensively the dynamics, challenges, and adaptations of the pesantren in responding to digitalization and applying resilience management in Arabic language learning, thereby contributing to the development of a sustainable and contextual Arabic language learning system in the pesantren environment

Schematically, the data analysis process in this study followed a qualitative analysis flow that started from field data collection, continued through data reduction, data display, and conclusion drawing/verification. This process took place cyclically and interactively; preliminary findings could lead the researchers back to the field to deepen or clarify the data, so that the resulting interpretation more accurately reflected the reality of the resilience-based digitalization strategy and the sustainable downstreaming of the Arabic Language 5.0 Module at Al-Khairaat Islamic Boarding School, Gorontalo City.

RESULT AND DISCUSSION

1. Research Results

The findings show that resilience management at Al-Khairaat Islamic Boarding School in Gorontalo City is firmly rooted in a combination of *salafiyah* values and a vision of modernization advanced by pesantren leaders. The leadership emphasized that institutional resilience is measured not only by financial survival, but also by the ability to maintain the continuity of scholarly traditions and Arabic language learning amid social and technological change. This orientation is reflected in written and unwritten policies that emphasize flexibility in adopting innovation without abandoning established caregiving patterns. The values of *tawasuth*, *tasamuh*, and *tawazun* serve as an ethical framework that guides strategic decisions, including those related to digitalization.

At the practical level, the practices of resilience management can be seen in the pesantren's efforts to maintain the continuity of Arabic learning when facing disruptions such as limits on face-to-face teaching, curriculum changes, and variations in student backgrounds. Arabic teachers developed a mixed learning pattern that combines *sorogan*, *halaqah*, and the use of digital media as

an adaptive strategy. In addition, the pesantren formed small teams that function as informal quality-control groups to periodically evaluate learning implementation and submit recommendations directly to the leadership. This pattern indicates that resilience management is not purely bureaucratic, but operates through intensive communication and inter-stakeholder trust.

Regarding the digitalization strategy, the study found that Al-Khairaat Islamic Boarding School applies a gradual and contextual approach. The first step involved the use of messaging applications such as WhatsApp and Telegram as the main channels for academic communication and the distribution of Arabic learning materials. The pesantren then began to use a simple web-based platform to archive modules, worksheets, and student assignments. Information technology managers referred to this approach as “functional digitalization” because it prioritizes the most urgent and accessible functions for teachers and students before moving to more complex systems. This approach was found to reduce resistance and help teachers adapt gradually.

The digitalization strategy is also evident in the management of student data and learning activities. Most data on attendance, assignment scores, and progress in mastering Arabic material have been recorded in digital format, although they are still combined with manual records. This redundancy is deliberately maintained as part of a resilience strategy in anticipation of technical disruptions such as unstable internet networks or limited device access. Teachers acknowledged that the dual system of manual and digital recording increases the administrative burden, but at the same time provides a sense of security and facilitates data tracing when technical problems occur.

The sustainable downstreaming of the Arabic Language 5.0 Module in this pesantren takes place through three main stages identified in the field. The first stage is content adaptation, in which material originally designed as printed modules developed in higher education is simplified in language, enriched with contextual student examples, and organized according to ability level. The second stage is digital repackaging, in which part of the module content is transformed into presentation materials, short videos, interactive quizzes, and digital worksheets that can be accessed through students’ devices. The third stage is curriculum integration, whereby the module is no longer positioned as supplementary material, but as a main reference in the planning and implementation of Arabic learning.

The research also found that the sustainability of this downstreaming process is strongly supported by teachers who act as driving actors. Teachers involved in the development and testing of the module showed an open attitude toward technology and were willing to learn independently to operate supporting applications despite their limited formal background in educational technology. They relied on short training sessions, video guides, and discussions with fellow teachers to overcome technical obstacles. This attitude was viewed by IT managers as a form of professional resilience, as teachers did not stop at expressing difficulties but actively sought ways to adapt so that the module could still be used optimally.

From the students’ perspective, responses to the downstreaming of the Arabic Language 5.0 Module were generally positive because the digital module was considered more engaging and made independent review easier. Students reported that interactive exercises and access to materials through digital devices were helpful, especially for those whose learning rhythm did not always align with the *balaqah* schedule. However, some students from economically disadvantaged families still experienced difficulties in accessing devices and internet quotas. The pesantren attempted to respond by providing shared devices and allowing access to pesantren Wi-Fi at certain hours, although the available capacity remained limited.

The main supporting factors in implementing this resilience-based digitalization strategy were the support of pesantren leaders, the presence of internal IT managers, and a collegial culture among Arabic teachers. The leadership provided strong legitimacy by making the downstreaming program of the Arabic Language 5.0 Module part of the pesantren’s strategic agenda. IT managers

acted as a bridge between pedagogical needs and technological solutions, for example by selecting lightweight and user-friendly platforms. Meanwhile, the culture of mutual assistance among teachers facilitated the transfer of digital skills and the joint preparation of teaching materials, so that the burden of change was not experienced individually.

The study also identified several inhibiting factors that could weaken the sustainability of module downstreaming. In addition to limitations in infrastructure and device access, the high workload of teachers and the absence of a written policy regulating standards for digital module use constituted important barriers. Some teachers still viewed digital modules as “add-ons”, so their use depended more on personal initiative than on institutional mandate. In addition, the relatively dynamic rotation of students and teachers caused the process of internalizing module use to be repeated each academic year, requiring additional time and energy. Overall, the findings indicate that the digitalization strategy in resilience management implemented at Al-Khairaat Islamic Boarding School has provided a strong foundation for the sustainable development of the Arabic Language 5.0 Module, although it is still in an early stage of development. Resilience management rooted in pesantren values, combined with functional digitalization and the commitment of key actors, enables the module not only to be adopted temporarily but also to be integrated into the learning ecosystem. However, to ensure long-term sustainability, the pesantren still needs to strengthen written policies, develop continuous training models, and improve digital infrastructure so that the Arabic Language 5.0 Module can become a well-established, adaptive, and contextual model of Arabic learning in the pesantren environment.

2. Discussion

The discussion of this study shows that the digitalization strategy in resilience management at Al-Khairaat Islamic Boarding School in Gorontalo City developed through a dynamic interaction between traditional pesantren values and the demands of the Society 5.0 era. The finding that pesantren leaders define resilience not only in financial terms but also in relation to the continuity of scholarly tradition and Arabic learning reinforces the view that pesantren modernization is not synonymous with westernization, but rather reflects a selective process of preserving *al-muhafazhah 'ala al-qadim al-shalih wa al-akhs bi al-jadid al-aslah*. In this context, digitalization functions as an instrument to strengthen institutional adaptive capacity rather than as an end in itself. This finding is consistent with previous studies that emphasize the importance of integrating values and technology in Islamic education management, yet it extends those studies by showing more explicitly how resilience is operationalized in a pesantren context.

The gradual steps adopted by the pesantren from the use of simple applications to web-based platforms and digital record management can be interpreted as a form of context-sensitive resilience management. The strategy of “functional digitalization,” which prioritizes the most urgent and accessible functions, indicates that the pesantren does not follow technology adoption uncritically, but selects an adaptive path that minimizes resistance and cognitive burden for teachers and students. The continued use of dual recording systems, both manual and digital, also reflects risk-management awareness because it allows the institution to benefit from technological efficiency without ignoring the possibility of infrastructure failure. This finding strengthens previous discussions on pesantren digitalization, which have largely focused on information-system design, by demonstrating how digitalization practices can be assembled as part of an institutional resilience strategy.

The sustainable downstreaming of the Arabic Language 5.0 Module in this pesantren shows that moving an innovation product from concept to field practice does not occur linearly, but through the stages of content adaptation, digital repackaging, and curriculum integration. The content-adaptation stage reflects awareness that modules produced through higher-education research must be transformed to suit student characteristics and the learning culture of the

pesantren. The digital-repackaging stage represents an effort to make the module more interactive and accessible through digital devices, while the curriculum-integration stage marks a shift in the module's status from supplementary to primary learning material. From the perspective of educational downstreaming, this pattern suggests that successful implementation depends not only on the quality of the module as a product, but also on how far it is institutionalized within policy arrangements, classroom management, and the digital ecosystem of the institution.

The roles of key actors pesantren leaders, Arabic teachers, and information technology managers were found to be central in driving this process. The commitment of pesantren leadership provides legitimacy and strategic direction, while teachers act as agents of change who bridge the module and students in daily learning practice. Teachers' willingness to learn technology independently, develop digital materials, and manage the burden of dual administration represents an important form of professional resilience. IT managers function as knowledge brokers who connect pedagogical needs with realistic technological choices. These findings are consistent with the broader literature on educational leadership and resilience, which places human agency at the center of change, but this study adds a more concrete picture of how collaboration among actors supports module downstreaming in a pesantren setting.

The generally positive response of students to digital modules indicates that many students are receptive to technology-based innovation as long as it is relevant and improves their learning process. Interactive practice features, ease of review, and flexibility of access appear to strengthen learning motivation. However, the findings on unequal device access and internet quota availability show that the downstreaming of the Arabic Language 5.0 Module cannot ignore issues of equity and inclusiveness. The provision of shared devices and limited Wi-Fi access by the pesantren constitutes an important first step, but stronger institutional support is still needed to prevent unequal participation between students with adequate digital resources and those without them. Within the framework of resilience, such disparities should be managed as part of a broader sustainability strategy rather than treated as merely technical constraints.

The obstacles identified in this study limited infrastructure, high teacher workload, and the absence of written policies governing standards for digital module use indicate that the downstreaming of the Arabic Language 5.0 Module is still in a transitional phase. Without stronger policy and system support, there is a risk that good practices that currently depend on key individuals will weaken when teachers or leaders change. This finding is in line with previous studies showing that learning innovations often fail to move beyond the project level when they are not institutionalized through internal regulations, ongoing training programs, and systematic supervision. Accordingly, one important implication of this study is that module downstreaming should be repositioned from a temporary programmatic initiative into a component of the internal quality-assurance system of the pesantren.

Theoretically, these findings contribute to the development of a sustainable downstreaming perspective on the Arabic Language 5.0 Module within the framework of resilience management. The digitalization strategy identified in this study functional, gradual, and integrated with pesantren values and culture can be formulated as a conceptual relationship among (1) value-based institutional resilience, (2) digitalization as an instrument of adaptation and governance strengthening, and (3) sustainable module downstreaming as a concrete form of educational innovation institutionalization. Practically, these findings suggest that the success of downstreaming initiatives in Islamic boarding schools depends not only on module quality and technological sophistication, but also on leadership, organizational culture, institutional policy, and resilience mechanisms that are effectively implemented and maintained. Further research may test this conceptual model in other pesantren contexts or examine the long-term impact of the Arabic Language 5.0 Module on learning outcomes, motivation, and digital resilience.

CONCLUSION AND IMPLICATIONS

The findings show that resilience management at Al-Khairaat Islamic Boarding School in Gorontalo City is rooted in traditional pesantren values and combined with a vision of institutional modernization. The study also shows that digitalization is implemented gradually and functionally through the use of simple applications, digital recording systems, and the development and integration of the Arabic Language 5.0 Module into the curriculum. Its sustainable downstreaming takes place through the stages of content adaptation, digital repackaging, and institutional integration, with strong support from leaders, teachers, and information technology managers.

The theoretical implication of this study is more specific in three respects. First, it strengthens the understanding of resilience management in Islamic educational institutions as a value-based capacity to preserve learning continuity while adapting to technological change. Second, it positions digitalization strategy as an instrument of institutional adaptation and governance strengthening rather than merely as technical adoption. Third, it contributes to the discussion of sustainable downstreaming in the pesantren context by showing that module innovation becomes sustainable when it is institutionalized through curriculum integration, actor commitment, and organizational support.

The practical implication is that Islamic boarding schools and similar institutions need to (1) formulate written policies on digital module use; (2) develop continuous training programs for teachers; and (3) improve infrastructure and access to devices so that module downstreaming does not widen the gap among students.

This study has limitations, including its focus on a single pesantren, the use of a descriptive qualitative case-study approach, and the absence of direct measurement of students' learning outcomes.

Future research should be conducted more explicitly through comparative studies across several Islamic boarding schools, mixed-methods designs, and longitudinal research that examines the influence of the Arabic Language 5.0 Module on students' learning outcomes, motivation, and digital resilience in a more measurable and comprehensive manner.

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