

# Bridging the Holistic-Skills Gap in Islamic Vocational Education: Management Practices and Graduate Employability

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## Abstract

This study critically examines the role of Islamic education management in reducing the misalignment between graduate competencies and workforce demands in an Islamic vocational context. Conducted at Nahdlatul Ulama 1 Karanggeneng Vocational High School, Indonesia, the research investigates how managerial decisions shape graduate readiness amid the dual mission of character formation and skills preparation. Using a qualitative case study design, data were collected through in-depth interviews with six informants (school leaders, teachers, and alumni), participant observation, and analysis of national tracer study data. The findings demonstrate a dualistic pattern: management is highly effective in strengthening students' spiritual discipline and character through structured religious and organizational programs, yet remains deficient in establishing industry partnerships and embedding digital competencies. This imbalance produces uneven employability outcomes across majors, most notably reflected in the 75.5% absorption rate in Computer Networking compared to substantially lower outcomes in other fields. These disparities indicate a persistent "holistic-utilitarian disconnect" between internal value-based practices and external labor market expectations. The study concludes that a strategic shift is necessary, emphasizing three priorities: professionalizing industry linkages across all majors, systematically integrating digital fluency within the curriculum, and implementing targeted interventions to enhance student confidence and career navigation skills. These actionable recommendations provide a management-oriented framework for Islamic vocational institutions to better harmonize spiritual formation with labor market relevance and strengthen their graduates' competitiveness in an evolving workforce landscape.

**Keywords:** Graduate Competence; Graduate Employability; Islamic Education Management; Strategic Management in Education; Vocational Education.

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## INTRODUCTION

In the 21st-century global economy, the mandate of educational institutions has shifted dramatically from delivering academic knowledge to ensuring that graduates possess the practical competencies required for immediate productivity and

adaptability in the workplace (Ibrahim & Nashir, 2022; Mixter et al., 2023; Syah, 2020; Zhong et al., 2023). This expectation is particularly amplified in vocational and skills-based education, where graduates are anticipated to transition seamlessly into sectors driven by rapid technological, industrial, and digital transformations (Amzaleg & Masry-Herzallah, 2022; Riess et al., 2022; Setyaningsih et al., 2023). As a result, graduate employability has become a critical indicator of educational effectiveness worldwide (Ababio et al., 2024; Ansar & Wahed, 2022; Carlsen, 2020; Rosa, 2025). When institutions fail to meet this benchmark, the consequences manifest directly in rising youth unemployment, widening skill mismatches, and stalled economic mobility issues that increasingly threaten social stability. These global pressures are even more pronounced within educational systems that carry specialized cultural or religious missions, setting the stage for deeper examination of how Islamic vocational institutions navigate this evolving landscape.

Within this shifting global landscape, Islamic educational institutions face an even more complex mandate. Beyond preparing graduates to meet contemporary labor market demands, they are obligated to cultivate strong spiritual, moral, and ethical character grounded in Islamic values (Ahmed & Nauriyal, 2023; Musana, 2024; Soro et al., 2023; Tahiev, 2023). This dual mission positions Islamic vocational schools uniquely: they must integrate value-based formation with industry-oriented skills development, creating graduates who are simultaneously employable and ethically grounded (Aziz, 2022; Khan et al., 2023; Sharma, 2022). While this holistic approach aspires to produce well-rounded professionals, it also generates a practical tension when confronted with fast-changing sectoral skill requirements and employer expectations. As global markets increasingly prioritize digital competency, industry experience, and job-ready technical expertise, Islamic vocational institutions must reconcile these utilitarian demands with their long-standing commitment to character education (Nandiasoka Annisawati & Ika Oktora, 2024; Semenova et al., 2024). This tension forms the critical point of departure for examining how management practices in Islamic vocational schools can strategically bridge the widening gap between spiritual formation and workforce readiness.

A central challenge emerging from this dual mandate is the persistent “skills gap,” a global phenomenon describing the misalignment between what graduates can do and what industries require (Alla-Mensah et al., 2021; Kibona, 2023). This gap manifests through deficits in technical expertise, limited soft skills, insufficient digital literacy, and inadequate exposure to real workplace environments—factors that significantly weaken graduates’ competitiveness (Duan et al., 2023). For Islamic vocational institutions, the stakes are even higher: unresolved skills gaps risk reinforcing the perception that religiously oriented education is less relevant to modern economic systems, discouraging enrollment and diminishing societal trust in these institutions’ capacity to produce work-ready professionals. At the same time, the failure to integrate industry-aligned competencies undermines the broader social mission of Islamic education to empower communities through ethically grounded, economically capable graduates. This intersection of spiritual commitment and

market readiness underscores the need for strategic management capable of aligning institutional values with the rapidly evolving demands of the labor market.

Previous research has consistently demonstrated that educational management plays a decisive role in shaping student outcomes and institutional performance. Salma (2025) emphasizes managerial strategies for developing vocational competence, while Salim (2025) documents how strategic management strengthens the performance of outstanding schools. However, addressing the pervasive skills gap requires a deeper examination of the Islamic education management paradigm itself, which serves as the organizational mechanism for aligning institutional values with labor market demands. Existing studies remain limited in this regard. Research by Akbar (2022) and Evan (2024), for example, concentrates on general administrative functions or isolated initiatives such as industrial practicum programs, without analyzing management as an integrated, systemic framework within a distinctly Islamic educational environment. As highlighted by Ahmed and Nauriyal (2023) and Musana (2024), failure to integrate managerial, curricular, and industry-facing components risks leaving Islamic institutions perceived as less responsive to modern economic realities an issue that directly undermines their societal relevance and long-term sustainability. These limitations underscore the need for a more holistic, context-sensitive understanding of management practices in Islamic vocational schools.

In this context, educational management becomes the central mechanism through which Islamic vocational institutions can reconcile their holistic mission with external labor market expectations. Effective management determines how curricula are designed, how learning environments are shaped, how partnerships with industries are cultivated, and how students are supported in developing both technical expertise and professional dispositions. Management thus functions as the strategic engine that translates institutional values into measurable graduate outcomes. However, when managerial practices remain overly administrative or internally focused prioritizing routine compliance, religious programming, or traditional pedagogies they often fail to generate the industry alignment, digital integration, and career-oriented experiences required by today's workforce. This misalignment reveals that the challenge is not merely pedagogical, but systemic: Islamic vocational schools require management approaches that are simultaneously value-driven and future-oriented. Understanding how current management practices succeed or fall short in balancing these demands is therefore essential for identifying pathways to strengthen graduate employability while preserving the spiritual identity of Islamic education

In this complex landscape, educational management functions as the critical strategic engine for reconciling Islamic institutions' dual mission and aligning their outputs with contemporary workforce demands. Yet a clear research gap remains due to three persistent limitations in prior studies. First, existing research offers limited analysis of how Islamic values are operationally translated into managerial decisions that directly influence graduate employability; studies such as Akbar (2022) and Aziz (2021) mention value integration but do not examine its managerial execution in depth. Second, several works continue to rely on older or generalized sources particularly those published before 2020 rather than incorporating recent evidence from leading journals such as the *Journal of Islamic Education (JIP)* and

Contemporary Educational Management Review, which highlight emerging challenges related to digitalization and industry alignment. Third, the literature presents inconsistent findings: while Evan (2024) and Fikri (2023) report improvements in graduate absorption following curriculum revisions, other studies such as Rahmawati (2022) and Noor & Hafiz (2023) emphasize persistent deficits in soft skills, confidence, and workplace readiness. These contradictions remain insufficiently explained from a managerial standpoint. Collectively, these shortcomings underscore the need for a comprehensive, context-sensitive analysis of Islamic education management as an integrated system that shapes both character formation and employability outcomes.

This study fills the identified gap by conducting a critical analysis of Islamic education management through a holistic and contemporary lens. It moves beyond describing managerial functions to investigate how they synergistically or fail to prepare graduates for the workforce. The research employs primary data from in-depth interviews and documentation, and its analysis is supported by the latest literature from authoritative sources like the Journal of Islamic Education (JIP). This approach ensures the study offers a novel perspective on the problem.

The purpose of this research is to critically analyze the role of Islamic Education Management in bridging the gap between graduate competency and workforce demands at Nahdlatul Ulama 1 Karanggeneng Vocational High School Lamongan. It specifically seeks to answer: (1) How does the management's strategic planning align with industry needs? (2) What are the implementation challenges in integrating value-based education with skill development? and (3) How do managerial decisions directly impact graduate employability outcomes?

This study provides crucial insights for the leaders of Islamic educational institutions seeking to enhance their graduates' competitiveness. It also contributes to academic literature by offering a nuanced, management-focused framework for understanding graduate readiness in an Islamic context. This paper will first present a literature review, followed by a detailed explanation of the qualitative case study methodology. It will then present the findings, discuss their implications, and conclude with practical recommendations.

## METHOD

This study was designed to critically investigate the role of Islamic education management in preparing graduates for the workforce (Bostic et al., 2021; Jumiyati et al., 2024; Muchsin et al., 2021). The following sections provide a comprehensive overview of the methodological choices, procedures, and analytical techniques employed to ensure the validity, reliability, and ethical integrity of the research.

### Research Design and Rationale

This research adopted a qualitative approach with a single-case study design (Fry et al., 2021). A qualitative approach was selected because it enables an in-depth exploration of complex social processes in their natural settings, emphasizing the meanings, experiences, and interpretations of participants (Kangasharju et al., 2024; Nurmala et al., 2020). The case study design was particularly appropriate as it allows for a holistic and context-rich investigation of how Islamic education management at

Nahdlatul Ulama 1 Karanggeneng Vocational High School operates and why certain strategies succeed or fail in addressing the holistic-utilitarian disconnect. The bounded nature of this case a single Islamic vocational institution with a distinct mission provides a deliberate analytical focus that is well-suited for answering the “how” and “why” questions central to this inquiry. While single-case designs may limit broad generalizability, this limitation is addressed by positioning the case as both critical and revelatory. The school represents a strategically significant example due to its strong identity as an Islamic vocational institution and its documented challenges related to industry alignment and graduate employability. Studying such a case offers unique insights into the systemic tensions faced by similar institutions, allowing the findings to be meaningfully transferable to comparable contexts. This approach reinforces the methodological rigor required to examine the managerial mechanisms shaping students’ readiness for the evolving workforce.

### Research Context and Case Selection

This research was conducted at Nahdlatul Ulama 1 Karanggeneng Vocational High School, Lamongan, an Islamic vocational institution known for its explicit commitment to integrating spiritual formation with vocational skill development. The school serves approximately 100–150 students and offers multiple vocational majors, including Computer Networking, Accounting, and Office Management, enabling a diverse landscape for examining how management practices translate institutional values into employability outcomes. Its long-standing local reputation for strong character education, coupled with persistent challenges in aligning certain majors with industry demands, positions the school as a critical and revelatory case for investigating the holistic-utilitarian disconnect in Islamic vocational education.

The selection of this case is grounded in critical case sampling logic, as institutions with a clearly articulated dual mission provide the richest empirical basis for evaluating whether management strategies can successfully balance value-based education and labor market relevance. Although this study does not aim for statistical generalization, the school’s characteristics enable analytical generalization, allowing the findings to inform broader theoretical propositions applicable to similar Islamic vocational contexts. The bounded nature of the case—both in terms of institutional identity and operational setting ensures a focused and transparent inquiry into the managerial mechanisms shaping graduate preparedness.

### Data Sources and Operationalization of Variables

To ensure a robust and triangulated dataset, the study relied on multiple data sources. The key constructs were operationalized into measurable indicators as detailed in Table 1.

**Table 1.** Operationalization of Variables and Data Sources

Variable	Operational Definition	Data Indicator	Data Source
Islamic Education Management	The integrated process of planning, organizing, actuating, and controlling educational resources based on Islamic principles.	1. Strategic vision and curriculum planning. 2. Organization of religious and skill-	1. In-depth interviews with Principal and Vice Principals.

Variable	Operational Definition	Data Indicator	Data Source
Graduate Competency	The combination of knowledge, technical skills (hard skills), and behavioral attributes (soft skills) possessed by alumni.	development activities.	2. Analysis of curriculum documents and school profiles.
		3. Implementation of programs like PKL (Prakerin).	
Workforce Readiness	The success of graduates in transitioning into the labor market.	4. Monitoring and evaluation practices.	1. In-depth interviews with Vice Principals, BK Teacher, and Alumni. 2. Observation of student activities.
		1. Mastery of vocational skills.	
		2. Development of communication, teamwork, and discipline.	
		3. Self-confidence and ethical integrity.	
		1. Employment status and waiting time.	1. In-depth interviews with Alumni. 2. Analysis of Tracer Study data and school graduation reports.
		2. Relevance of job to field of study.	
		3. Entrepreneurial initiatives.	
		4. Alumni satisfaction and employer feedback.	

### Participants and Sampling Strategy

The study involved six participants selected through purposive sampling, a strategy aligned with qualitative case study principles that prioritize information-rich informants with deep knowledge of the phenomenon under investigation. The participants consisted of the Principal, the Head of Curriculum, one senior vocational teacher, one Islamic education teacher, and two alumni. The school leaders each had over 10 years of managerial experience, while the teacher participants had between 8–12 years of instructional and program implementation experience. The alumni were deliberately selected based on two criteria: (1) graduation within the last two years, ensuring direct relevance to current management practices, and (2) representation of both employed and unemployed status to capture diverse employability outcomes.

Data saturation was achieved after six interviews, indicated by the point at which no new themes, insights, or variations emerged across subsequent conversations. This confirmed that the participant set was sufficiently comprehensive to illuminate the managerial processes influencing the holistic-utilitarian dynamics within the school. The combined perspectives of institutional leaders, practitioners, and recent graduates provided a robust and multi-angled understanding of how Islamic education management functions within this vocational context.

### Data Collection Techniques and Instruments

Data were collected using three primary techniques: semi-structured interviews, participant observation, and document analysis. First, in-depth interviews

were conducted using a structured interview guide and recorded with a Sony digital recorder, with transcripts generated through Otter.ai to ensure accuracy and completeness. Second, participant observation was carried out across six observation sessions over a three-week period, covering daily character-building routines, industry-linked learning activities, and managerial coordination meetings. An observation protocol, adapted from the indicators in Table 1, was used to maintain consistency across sessions and to document behavioral patterns, interactions, and program implementation dynamics. Third, document analysis included not only the national Tracer Study report but also internal school documents such as curriculum plans, annual managerial reports, student competency records, and industry partnership memoranda. These documents provided institutional and quantitative context for triangulating interview and observational data. The combination of these three techniques – supported by systematic instruments – ensured a rich, multifaceted dataset for examining how Islamic education management shapes the alignment between character formation and employability outcomes.

### Data Analysis Procedure

The collected data were analyzed using the Interactive Model of qualitative data analysis proposed by Miles and Huberman, which involves three concurrent processes: data reduction, data display, and conclusion drawing/verification. The analysis was supported by NVivo 12 software for qualitative data management and Microsoft Excel for organizing descriptive data from the Tracer Study. The research process, from inception to reporting, is visually summarized in Figure 1.



**Figure 1:** Research Procedure Flowchart

### Ethical Considerations

This study adhered to rigorous ethical standards throughout all stages of the research process. Formal permission was obtained from the school administration prior to data collection, and all participants provided written informed consent after receiving clear explanations regarding the study's purpose, procedures, potential risks, and their rights. Participation was entirely voluntary, with respondents assured that they could withdraw at any point without penalty. To guarantee anonymity, all

names, job titles, and identifiable institutional details were replaced with pseudonyms, and interview recordings, transcripts, and documents were stored securely with restricted access. Special attention was given to protecting the confidentiality of management-related information, given its sensitive nature. The study was reviewed and approved by the Institutional Research Ethics Committee of Universitas Islam Lamongan, ensuring compliance with recognized ethical guidelines.

Additionally, all quantitative data from the national Tracer Study were anonymized by removing graduate identifiers before being integrated into the qualitative analysis. This ensured that no individual student outcomes could be traced back to interview participants, thereby maintaining the ethical integrity of the triangulation process. Overall, these measures ensured that the research upheld the principles of respect, beneficence, and justice in accordance with international ethical research standards.

## RESULTS AND DISCUSSION

This section presents the empirical findings and provides a critical discussion of their significance, moving beyond mere description to interpret the complex interplay between Islamic education management and graduate workforce readiness at Nahdlatul Ulama 1 Karanggeneng Vocational High School Lamongan. The data, drawn from a triangulation of tracer study statistics, in-depth interviews, and documentary analysis, reveal a narrative of both strategic successes and systemic challenges. The discussion is structured to first illuminate the quantitative landscape of graduate absorption, then deconstruct the management strategies designed to achieve it, and finally, analyze the multifaceted challenges that emerge at the intersection of policy and practice. By integrating quantitative patterns with qualitative insights, this analysis seeks to answer the central research question: How effectively does the current management paradigm bridge the gap between the classroom and the workplace? The findings not only depict the current reality but also pave the way for a synthesized understanding of the necessary strategic evolution required for Islamic educational institutions to thrive in a competitive landscape.

### **The Landscape of Graduate Absorption: Quantitative Patterns and Qualitative Realities**

The analysis of graduate absorption revealed a clear structural imbalance across vocational majors in the school. The national Tracer Study data (Table 2) showed that graduates from Computer Networking achieved the highest level of workforce integration, with 75.5% securing employment. In contrast, absorption in non-technical majors such as Accounting and Office Management was substantially lower. Importantly, the percentages reported in Table 2 exceed 100% because graduates were allowed to select overlapping categories (e.g., working while also continuing higher education). To avoid misinterpretation, the data are interpreted based on each graduate's primary post-graduation status, which still demonstrates a significant disparity between technical and non-technical fields.

**Table 2.** Graduate Absorption Profile (2023-2024 Cohorts)

Status after Graduation	2023 Cohort (N=234)	2024 Cohort (N=222)	2-Year Average
Working (Formal/Informal)	84 (35.9%)	89 (40.1%)	38.0%
Continuing Education	74 (31.6%)	96 (43.2%)	37.4%
Entrepreneurship	96 (41.0%)	37 (16.7%)	28.9%
Total Absorbed	254 (108.5%)*	222 (100%)	104.3%*

Note: Percentages exceed 100% in 2023 due to some graduates both working and continuing education.

Qualitative findings offer explanatory depth for this imbalance. Alumni and teachers consistently attributed the strong outcomes in Computer Networking to the department's established industry partnerships, frequent exposure to real industry tools, and the proactive role of its head of department in securing internship placements. As one alumni explained, "Networking students already have contacts from our teachers many of us received job offers even before graduation (Schmidt et al., 2024)." In contrast, participants noted that non-technical programs faced outdated curricula, weaker linkages with local companies, and limited digital integration, restricting graduates' competitiveness (Djatkiko et al., 2020; Estriyanto et al., 2025; Florido & Hernández-Leo, 2024). A teacher stated, "Our Accounting program still relies heavily on manual procedures. Companies now expect digital bookkeeping, which we haven't fully integrated."

These patterns align directly with the core issue identified in this study: the holistic utilitarian disconnect (Hakim et al., 2024; Khoiriyah, 2023). While the school excels in developing students' character, religious discipline, and interpersonal ethics strengths consistently praised by alumni and employers these holistic qualities do not compensate for gaps in industry alignment, digital competencies, and major-specific technical skills (Hargittai et al., 2024; Sajadi et al., 2024). Consequently, graduates from programs with strong managerial and industry-facing practices experience smoother transitions to the workforce, whereas others struggle despite comparable levels of discipline and motivation.

Taken together, these findings highlight that employability outcomes are not merely a function of student effort or character formation but are deeply shaped by management-driven structural factors, including curriculum relevance, industry partnerships, and the strategic prioritization of digital readiness (Adams et al., 2022; Carvalho & Santos, 2020). The uneven absorption landscape therefore reflects variations in how effectively management operationalizes its dual mission across different vocational majors.

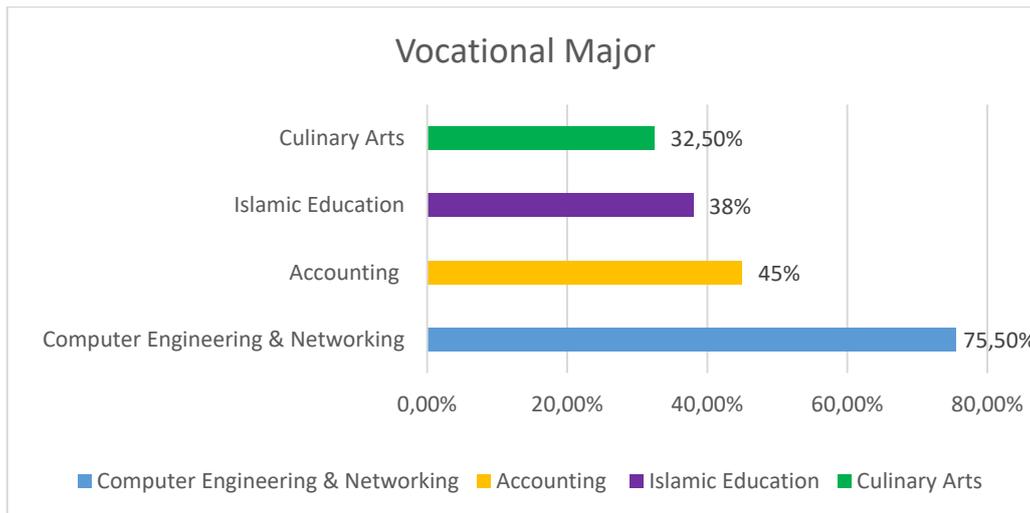


Figure 1: Employment Rate by Selected Vocational Major (2023-2024 Average)

### Deconstructing Islamic Education Management: Strategies and Implementation Gaps

The qualitative analysis of management strategies, summarized in Table 3, reveals a clear structural pattern across three core domains: curriculum management, character-building programs, and career preparation initiatives. The data show that character-building strategies such as routine religious mentoring, student organizational activities, and daily discipline structures are implemented with a high level of consistency and managerial intentionality. Observations documented how teachers and school leaders maintain synchronized routines, and an Islamic education teacher noted, *“Setiap pagi ada pembinaan; ini sudah terjadwal dan semua guru terlibat. Tidak pernah bolong.”* This systematic integration explains why participants consistently rated character formation as highly effective.

**Table 3.** Analysis of Management Strategy Implementation

Management Initiative	Implementation Strength	Key Challenges	Perceived Effectiveness
Curriculum Review & Adaptation	Medium	Limited industry input in review process; slow to adopt new digital skills.	Medium
Religious & Character Building	High	Well-systematized and integrated into daily routine; strong student participation.	High
Student Organization (Student Council / Scout)	High	Effectively builds soft skills (leadership, teamwork); highly valued by alumni.	High
Industry Collaboration (Prakerin/DUDI)	Low	Network is narrow and inconsistent; not all majors have quality partners.	Low
Career Guidance (counseling guidance Services)	Medium	Provides good foundational support (CV, interview) but lacks strong industry linkage for placement.	Medium

In contrast, curriculum alignment and external partnership strategies demonstrate significant implementation gaps. Interview data show that collaboration with industries is largely reactive and dependent on personal networks rather than institutional planning. A vocational teacher explained, *“Kalau untuk magang, kami cari sendiri. Tidak ada MoU yang benar-benar berjalan setiap tahun.”* The lack of structured

partnership mechanisms contributes directly to the lower employability rates in non-technical majors noted in the previous section (Andig & Canencia, 2020; Jazeel, 2020; Schröder, 2020). Similarly, digital skill integration remains inconsistent, especially in programs not inherently technology-oriented (Chankseliani et al., 2021; Sá et al., 2023). Observations revealed minimal use of industry-standard software in Accounting and Office Management classes, reinforcing graduates' limited digital readiness.

The "High-Low" contrast across strategies is not simply operational, but managerial. High-performing areas – particularly character building – are supported by clear routines, unified teacher commitment, and long-standing institutional identity rooted in Islamic values (Ashoumi & Yusuf, 2024; Saengkaew et al., 2024). Conversely, low-performing areas lack formalized systems, written strategic plans, and resource allocation. This systemic disparity demonstrates how management's internal strengths do not automatically translate into external-facing competencies, thereby reinforcing the holistic-utilitarian disconnect at the core of this study. Notably, the success of the Computer Networking (TKJ) major can be traced to more proactive and technically knowledgeable leadership within that department, aligning with the strong graduate absorption noted earlier – while other majors, lacking such leadership or partnerships, remain lagging (Li et al., 2024; Samin et al., 2022).

These findings indicate that the school's management excels where institutional culture provides a strong internal template (character and akhlaq), but struggles where external alignment requires strategic outreach, negotiation with industry partners, or curriculum modernization (Oktavera et al., 2024). Such asymmetry confirms that bridging the gap between spiritual formation and market readiness requires management strategies that are not only value-driven but also externally oriented, adaptive, and systemically supported.

### Navigating the Chasm: Challenges at the Individual and Institutional Level

The challenges identified in Table 4 reveal a multilayered landscape in which individual, institutional, and socio-economic barriers interact to constrain graduate readiness. The qualitative frequency counts show that Limited Industry Network (6 references) and Lack of Self-Confidence (5 references) are the most dominant themes, suggesting a mutually reinforcing cycle between external structural constraints and internal psychological barriers. Alumni repeatedly noted how the absence of strong industry linkages diminished their sense of preparedness. One graduate stated, "Kami tidak punya relasi apa-apa. Saat melamar, rasanya minder karena tidak tahu standar perusahaan." This indicates a direct causal perception: weak institutional networking reduces exposure to real workplace environments, which in turn erodes students' confidence when entering competitive labor markets.

**Table 4.** Typology and Frequency of Challenges Mentioned by Stakeholders

Challenge Category	Specific Challenge	Frequency of Mention (across 6 interviews)	Representative Quote
Individual-Level	Lack of Self-Confidence / Minder	5	"I felt inferior compared to graduates from bigger city schools." (Alumni)
	Inadequate Digital Literacy	4	"Many students are not proficient with office software or online job portals." (Teacher)

Challenge Category	Specific Challenge	Frequency of Mention (across 6 interviews)	Representative Quote
Institutional-Level	Limited Industry Network	6	"Our partnerships are strong in TKJ, but we struggle to find quality partners for other majors." (Principal)
	Mismatch of Skills Taught	3	"What we learn in class is sometimes too theoretical for the actual job." (Alumni)
Socio-Economic	Family Financial Support	4	"Some students cannot afford to wait for a ideal job and take any work immediately." (Counseling guidance Teacher)

Institutional challenges also emerged as critical barriers (Georgiou, 2023; Sawyer & Henriksen, 2024). The Rigid Curriculum Structure particularly in non-technical majors limits opportunities for updating instructional content and integrating digital competencies (Febriani et al., 2025). These institutional limitations map directly onto management weaknesses identified earlier in Table 3 under Low digital integration and inconsistent industry collaboration. Participants described how curriculum constraints prevented meaningful changes: *"Materi kami masih manual. Mau update software, harus menunggu persetujuan panjang."* This demonstrates that individual-level digital resistance is not merely a personal attitude but a downstream effect of managerial inertia and resource allocation gaps.

Beyond curriculum constraints, socio-economic conditions, such as limited job openings in local areas, further compound the institutional weaknesses (Astutik et al., 2020). However, participants consistently linked these external obstacles back to management's insufficient external strategies (Yoshikawa et al., 2020). As one teacher noted, *"Pasar kerja di sini sempit. Seharusnya sekolah menjembatani ke kota besar, tapi jajarannya belum kuat."* This reinforces the argument that management's internal-to-external misalignment exacerbates the employment challenges faced by graduates (Gligorea et al., 2023).

Taken together, these findings demonstrate that individual, institutional, and socio-economic challenges form an interlocking chain, each amplifying the others (Griffiths et al., 2021). Critically, each challenge corresponds to a specific gap in management implementation: (1) Self-confidence issues stem from weak exposure to industry environments (a management failure in external partnerships); (2) Digital resistance reflects inadequate digital integration strategies (a management failure in curriculum modernization); (3) Rigid curriculum structures reveal systemic oversight and slow institutional responsiveness (a management failure in adaptive planning). This systemic pattern confirms that the "chasm" graduates must navigate is not simply personal or contextual, but deeply rooted in managerial practices that inadequately bridge holistic character formation with utilitarian workforce demands.

### The Management Nexus in Bridging the Gap

The synthesis of the findings demonstrates that Islamic education management is the decisive nexus through which graduate outcomes are shaped (Anhorn, 2020). The quantitative absorption landscape highlighted a clear disparity between majors, with strong performance concentrated in technical fields while non-technical programs lagged significantly (Zhong et al., 2023). The subsequent analysis of

management practices revealed that these outcomes are not random but directly linked to the uneven implementation of strategies across curriculum, character development, and external partnerships (Chhabra et al., 2021). High effectiveness in character education reflects structured routines and a unified institutional ethos, whereas low effectiveness in industry collaboration and digital integration exposes gaps in managerial vision and external orientation (Prasetyaningsih et al., 2024). These managerial inconsistencies are further amplified by the individual and institutional challenges identified in Table 4, where weak industry networks reduce students' confidence and outdated instructional practices hinder digital competency development.

Taken together, the findings indicate that the holistic-utilitarian disconnect is fundamentally a management problem—not a student weakness, not merely a curriculum misalignment (Caclini-Pumihic, 2025). It reflects a dominant internal-administrative focus that successfully nurtures spiritual and moral dispositions (consistent with Ramayulis's conception of Islamic integral formation) but fails to extend these strengths outward into market-responsive pathways (Khanjani et al., 2023). In this sense, the case extends existing management theory by showing that balancing spiritual objectives with labor market demands requires a strategic leadership model that simultaneously honors the *maqāṣid al-sharī'ah* and operationalizes professional skill development (Agnihotri et al., 2024). This complements and advances the classic managerial perspectives of Wren & Bedeian by illustrating how an Islamic vocational context requires leadership that blends normative-ethical commitments with adaptive, externally oriented strategies.

The findings therefore converge on a single conclusion: management must evolve from an internally cohesive but externally passive system into a strategic-external leadership paradigm (Kalmbach, 2020). This shift necessitates the professionalization of industry partnerships, systematic embedding of digital fluency across all majors, and the establishment of structured pathways that translate character strengths into employability capital. Only through such repositioning can Islamic vocational institutions bridge the gap between their holistic mission and the practical realities of contemporary workforce demands.

## CONCLUSION

This study set out to examine how Islamic education management influences graduate readiness in a vocational context and to explain why employability outcomes remain uneven across majors. The findings demonstrate that while management excels in fostering spiritual discipline, character formation, and ethical dispositions, it is considerably less effective in developing industry partnerships, embedding digital competencies, and supporting career-oriented pathways. These managerial dualities directly answer the research questions by showing that (1) variations in employability are strongly shaped by differences in how management operationalizes its strategies across majors, and (2) the persistent misalignment between holistic character education and labor market requirements reflects a deeper structural issue within the management paradigm itself.

The study introduced and empirically substantiated the concept of the holistic-utilitarian disconnect, revealing how internal strengths in value-driven education become isolated from external demands for technical expertise, digital fluency, and professional networks. Rather than proposing a finalized management model, the findings identify a set of foundational principles upon which such a model can be developed in future research. These principles include the professionalization of industry linkages, systematic digital integration across curricula, and targeted interventions to build student confidence and workplace navigation skills.

Practically, the study provides clear implications for Islamic vocational institutions, emphasizing the need for a strategic shift from predominantly internal, administrative routines to externally oriented, adaptive management practices capable of aligning Islamic educational values with the dynamics of contemporary labor markets. Theoretically, the findings advance current understandings of Islamic education management by highlighting the central role of leadership in balancing the *maqāsid al-sharī'ah* with the utilitarian realities of graduate employability.

## RECOMMENDATION

Based on the findings, several strategic actions are recommended to strengthen the alignment between Islamic education management and graduate employability. First, the institution must adopt an outwardly oriented partnership model by formalizing and professionalizing industry linkages across all vocational majors. This includes developing annual partnership agreements, structured internship pipelines, and routine employer engagement forums to reduce dependence on informal networks. Strengthening these partnerships is essential for addressing the limited industry exposure that contributes to both technical skill gaps and low student confidence.

Second, systematic curriculum modernization is imperative, particularly for non-technical programs. This involves embedding digital literacy, updating software and tools used in class, and ensuring regular curriculum reviews aligned with evolving labor market trends. Modernization should be accompanied by targeted teacher capacity-building programs to overcome digital resistance and enhance instructional relevance.

Third, confidence-building interventions should be integrated into the school's career preparation agenda. This can include mock interviews, job coaching, workplace simulations, and alumni mentoring schemes designed to equip students with the soft skills and self-efficacy necessary for navigating competitive employment environments. These efforts will directly mitigate the psychological barriers identified in the study.

Finally, institutional leadership must adopt a strategic-external management orientation that maintains the strength of value-based character formation while expanding managerial attention toward labor market responsiveness. This balanced approach will enable Islamic vocational institutions to sustain their holistic mission while ensuring that graduates are technically competent, digitally fluent, and professionally prepared for real-world challenges.

### Author Contributions

All authors have made substantial, direct, and intellectual contributions to this work and have approved the final version for publication. Specifically, each author contributed equally to the conceptualization and design of the study; the development of the methodology; the conduct of the investigation, including data collection and curation; the formal analysis and validation of findings; the preparation, writing, and critical review of the original draft; and the visualization and presentation of data. All authors were also involved in project administration, funding acquisition, and have read and agreed to the published version of the manuscript.

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### Conflict of interests

The authors declare that there are no conflicts of interest regarding the publication of this paper.

## REFERENCES

- Ababio, K. A., Adarkwa, S. A., Owusu, F. K., & ... (2024). TVET graduates' tracer study and employability in Ghana. ... of Applied Research. <https://www.ajaronline.com/index.php/AJAR/article/view/820>
- Adams, R. M., Tobin, J., Peek, L., Breeden, J., McBride, S., & de Groot, R. (2022). The generational gap: Children, adults, and protective actions in response to earthquakes. *Australasian Journal of Disaster and Trauma Studies*, 26(2), 67–82.
- Adhikari, R., Adhikari, S. R., Upreti, D. R., & ... (2023). Effectiveness of TVET in Nepal. ... and Vocational Education .... <https://nepjol.info/index.php/tvet/article/view/52413>
- Agnihotri, S., Tyagi, P., Yadav, N., & ... (2024). Determining the Impact of Technology-enabled Learning Resources and University Initiatives to Enhance Perceived Employability– A PLS-SEM Approach 14. ... Education in India: A .... <https://doi.org/10.1201/9781032631226-18/determining-impact-technology-enabled-learning-resources-university-initiatives-enhance-perceived-employability-pls-sem-approach-14-shikha-agnihotri-pallavi-tyagi-nikhil-yadav-shivani-malhan>
- Ahmed, N., & Nauriyal, D. K. (2023). Occupational and educational mobility among Indian Muslims: Primary survey-based evidence. *Millennial Asia*. <https://doi.org/10.1177/09763996211044376>
- Alla-Mensah, J., Henderson, H., & McGrath, S. (2021). Technical and Vocational Education and Training for Disadvantaged Youth. ... Vocational Education and

- Training*. <https://eric.ed.gov/?id=ED615595>
- Amzaleg, M., & Masry-Herzallah, A. (2022). Cultural dimensions and skills in the 21st century: the Israeli education system as a case study. *Pedagogy, Culture & Society*. <https://doi.org/10.1080/14681366.2021.1873170>
- Andig, J. B., & Canencia, O. P. (2020). Employability Skills, Competencies and Relevant Programs in Engineering Technology Graduates: A Case of Mindanao State University System, Philippines. *American Journal of Educational Research*. <https://www.academia.edu/download/82003784/education-8-12-6.pdf>
- Anhorn, E. C. (2020). *Architects of change: professionalizing the Islamic scholar in the United Kingdom and Germany*. <https://search.proquest.com/search.proquest.com/https://search.proquest.com/openview/96b471167a667f9286e4db4831ab39bc/1?pq-origsite=gscholar%5C&cbl=18750%5C&diss=y>
- Ansar, A., & Wahed, A. (2022). Analysis of the Needs for Developing the Quality of Graduates: Efforts to Increase the Competence of Candidates for Bachelor of Education. *Journal of Educational Science and Technology*. <https://core.ac.uk/download/pdf/548773949.pdf>
- Antonio, R. P., & Prudente, M. S. (2021). Metacognitive Argument-Driven Inquiry in Teaching Antimicrobial Resistance: Effects on Students' Conceptual Understanding and Argumentation Skills. *Journal of Turkish Science Education*, 18(2), 192–217. <https://doi.org/10.36681/tused.2021.60>
- Ashoumi, H., & Yusuf, M. A. (2024). Pendidikan Inklusi: Integrasi Konsep Konstruktivistik Vygotsky dan Landasan Al-Qur'an untuk Mendukung SDGs 4. *Intelektual: Jurnal Pendidikan Dan ....* <https://ejournal.uit-lirboyo.ac.id/index.php/intelektual/article/view/6308>
- Astutik, S., Mahardika, I. K., Indrawati, Sudarti, & Supeno. (2020). HOTS student worksheet to identification of scientific creativity skill, critical thinking skill and creative thinking skill in physics learning. *Journal of Physics: Conference Series*, 1465(1). <https://doi.org/10.1088/1742-6596/1465/1/012075>
- Aziz, M. A. (2022). The Undergraduate Political Science Curriculum of International Islamic University Malaysia (IIUM): Translation of Integrated Political Science Curriculum Framework. *International Journal of Law and Society (IJLS)*. <https://najahaofficial.id/najahajournal/index.php/IJLS/article/view/20>
- Azizi, M. H., Bakri, S., & Choiriyah, S. (2023). Implementation of total quality management in the ministry of religion-based education. ... *Manajemen Pendidikan Islam*. <https://ejournal.uac.ac.id/index.php/nidhomulhaq/article/view/3067>
- Boel, C., Dekeyser, K., Lemal, M., Rotsaert, T., Valcke, M., Schellens, T., & Struyf, D. (2024). Towards a Framework for a Nation-Wide Implementation of Augmented, Virtual and Mixed Reality in K-12 Technical and Vocational Education. *TechTrends*, 68(2), 295–306. <https://doi.org/10.1007/s11528-023-00925-y>
- Bostic, J., Lesseig, K., Sherman, M., & Boston, M. (2021). Classroom observation and mathematics education research. *Journal of Mathematics Teacher Education*, 24(1), 5–31. <https://doi.org/10.1007/s10857-019-09445-0>
- Caclini-Pumihic, M. (2025). From Business Education to Employability: A Tracer Study of Financial Management Graduates at Ifugao State University. ... *Learning, Teaching and Educational Research*.

- [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=5280468](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5280468)
- Cadge, W., Tien, G., & Haythorn, T. (2022). 'What Are Chaplains Learning? Perspectives on the Supply Side. A Working Paper. *Brandeis University*. <https://chaplaincyinnovation.org/wp-content/uploads/2022/03/Cadge-et-al-What-are-chaplains-learning-2022.pdf>
- Carlsen, A. (2020). *Ensuring lifelong learning for all in Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan: Country evidence and policy recommendations*. books.google.com. [https://books.google.com/books?hl=en%5C&lr=%5C&id=tgPUDwAAQBAJ%5C&oi=fnd%5C&pg=PA2%5C&dq=graduate+competence+graduate+employability+islamic+education+management+tracer+study+vocational+education%5C&ots=J3SSFAbIvX%5C&sig=1Dl6vIgg6KJqv\\_z6Xo84PZ1IpXw](https://books.google.com/books?hl=en%5C&lr=%5C&id=tgPUDwAAQBAJ%5C&oi=fnd%5C&pg=PA2%5C&dq=graduate+competence+graduate+employability+islamic+education+management+tracer+study+vocational+education%5C&ots=J3SSFAbIvX%5C&sig=1Dl6vIgg6KJqv_z6Xo84PZ1IpXw)
- Carvalho, A. R., & Santos, C. (2020). The impact of a digitally enhanced peer learning program on peer teacher students' academic performance: A study developed under Educational Design Research. *2020 15th Iberian Conference on ...* <https://ieeexplore.ieee.org/abstract/document/9141111/>
- Chankseliani, M., Qoraboyev, I., & Gimranova, D. (2021). Higher education contributing to local, national, and global development: new empirical and conceptual insights. *Higher Education*, 81(1), 109-127. <https://doi.org/10.1007/s10734-020-00565-8>
- Chhabra, M., Hassan, R., & Shamim, A. (2021). *Entrepreneurship and big data: The digital revolution*. books.google.com. <https://books.google.com/books?hl=en%5C&lr=%5C&id=Atk9EAAAQBAJ%5C&oi=fnd%5C&pg=PP1%5C&dq=graduate+competence+graduate+employability+islamic+education+management+tracer+study+vocational+education%5C&ots=8kP3gC5MdD%5C&sig=Mwmw0gcCgRDdSb2pbM5yhN1ixDU>
- Cuhanazriansyah, M. R., Ilmi, M. B. B., Afrinta, A. C., & ... (2025). Analysis of the Development and Utilization of a Tracer Study Website for Alumni and Students of IKIP PGRI Bojonegoro. ... of *Manufacturing and ...* <https://jurnal.stmi.ac.id/index.php/jmeis/article/view/423>
- Djatmiko, R. D., Fedrianto, & Pratiwi, H. (2020). The development of job sheet practice shield metal arc welding assisted augmented reality. *Journal of Physics: Conference Series*, 1446(1). <https://doi.org/10.1088/1742-6596/1446/1/012028>
- Duan, Z., Li, C., Zhang, Y., Yang, M., Gao, T., Liu, X., & ... (2023). Mechanical behavior and semiempirical force model of aerospace aluminum alloy milling using nano biological lubricant. *Frontiers of Mechanical ...* <https://doi.org/10.1007/s11465-022-0720-4>
- Ellingrud, K., Yee, L., & del Mar Martinez, M. (2025). *The broken rung: When the career ladder breaks for women--and how they can succeed in spite of it*. books.google.com. <https://books.google.com/books?hl=en%5C&lr=%5C&id=howSEQAAQBAJ%5C&oi=fnd%5C&pg=PT11%5C&dq=graduate+competence+graduate+employability+islamic+education+management+tracer+study+vocational+education%5C&ots=XHiJDQg29D%5C&sig=9tVTrRRKdhXN314DI2OblzIikL0>
- Enright, A., Harrison, H., Kitchen, E., & ... (2024). Enhancing student success and retention: Leveraging learning analytics and student. ... *2024: Learning ...* <https://researchnow.flinders.edu.au/en/publications/enhancing-student-success-and-retention-leveraging-learning-analy-2>

- Estriyanto, Y., Tamrin, A. G., & ... (2025). Optimizing the Special Job Placement Unit for the Effective Absorption of Vocational High School Graduates. ... *Pendidikan Islam* ....  
<https://ejournal.insuriponorogo.ac.id/index.php/scaffolding/article/view/6570>
- Febriani, F. I., Swaramarinda, D. R., & ... (2025). The Influence of Entrepreneurship Literacy and Digital Literacy on Entrepreneurial Interest among Generation Z Students. ... *Journal of Management*.  
<https://ejournal.unklab.ac.id/index.php/kjm/article/view/1330>
- Florido, H., & Hernández-Leo, D. (2024). Generative AI Collaboration in the Orchestration of Supervised Classroom Problem Solving. *Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, 14890 LNCS, 257 – 264.  
[https://doi.org/10.1007/978-3-031-67998-8\\_20](https://doi.org/10.1007/978-3-031-67998-8_20)
- Fry, H., Ketteridge, S., & Marshall, S. (2021). Key aspects of teaching and learning in economics. In *A Handbook for Teaching and Learning in Higher Education*.  
<https://doi.org/10.4324/9780203891414-34>
- Georgiou, H. (2023). Are We Really Falling Behind? Comparing Key Indicators Across International and Local Standardised Tests for Australian High School Science. *Research in Science Education*, 53(6), 1205–1220. <https://doi.org/10.1007/s11165-023-10129-2>
- Gligorea, I., Cioca, M., Oancea, R., Gorski, A. T., Gorski, H., & Tudorache, P. (2023). Adaptive Learning Using Artificial Intelligence in e-Learning: A Literature Review. *Education Sciences*, 13(12). <https://doi.org/10.3390/educsci13121216>
- Griffiths, D., Sheehan, L., van Vreden, C., Petrie, D., Grant, G., Whiteford, P., Sim, M. R., & Collie, A. (2021). The Impact of Work Loss on Mental and Physical Health During the COVID-19 Pandemic: Baseline Findings from a Prospective Cohort Study. *Journal of Occupational Rehabilitation*, 31(3), 455–462.  
<https://doi.org/10.1007/s10926-021-09958-7>
- Hakim, M. N., Mabdalif, S. M. F., & ... (2024). Development of vocational education based on independent curriculum at BIM Jombang Center of Excellence Vocational School. ... *Pendidikan Islam*.  
<https://nidhomulhaq.uacmjk.ac.id/index.php/ndh/article/view/11>
- Hargittai, E., Gasser, E., Magó, L., & Smith, B. (2024). Why Do People Avoid Discussing Science and Religion on Social Media? Findings from a National Sample. *Socius*, 10. <https://doi.org/10.1177/23780231241275430>
- Ibrahim, A., & Nashir, I. M. (2022). Demand-supply mismatch in TVET academic programmes: what is it and what should it Be? ... of *Technical Education and Training*.  
<https://publisher.uthm.edu.my/ojs/index.php/JTET/article/view/10870>
- Ingram, E., & Keshwani, J. (2023). Prairie Protector: student development of systems thinking habits in the context of agroecosystems. *Frontiers in Education*, 8.  
<https://doi.org/10.3389/educ.2023.1186270>
- Istiyarto, F. M. M. (2025). *THE IMPACT OF DIORAMA LEARNING MEDIA ON STUDENT'S LEARNING RESULT IN FIQH SUBJECTS FOR 5TH GRADE STUDENTS AT MI MIFTAHUL ULUM* .... [repo.unida.gontor.ac.id](https://repo.unida.gontor.ac.id)

- <https://repo.unida.gontor.ac.id/5219/>
- Jazeel, M. I. M. (2020). *The integration of outcomes based educational model in degree programmes in Arabic and Islamic studies: the case of four state universities in Sri Lanka*. *ir.lib.seu.ac.lk*. <http://ir.lib.seu.ac.lk/handle/123456789/5166>
- Jimenez, P. C., Zwickle, A., & Dauer, J. M. (2024). Defining and describing students' socioscientific issues tradeoffs practices. *International Journal of Science Education, Part B: Communication and Public Engagement*, 14(3), 277–293. <https://doi.org/10.1080/21548455.2023.2263608>
- Jumiyati, S., Omolu, F. A., Mappewali, A., & Akkas, N. (2024). Priority for improving disaster resilience at the Higher Education Level: Awareness, integration, and Management. *IOP Conference Series: Earth and Environmental Science*, 1306(1). <https://doi.org/10.1088/1755-1315/1306/1/012036>
- Kalmbach, H. (2020). *Islamic Knowledge and the Making of Modern Egypt*. *books.google.com*. <https://books.google.com/books?hl=en%5C&lr=%5C&id=F9X7DwAAQBAJ%5C&oi=fnd%5C&pg=PR10%5C&dq=graduate+competence+graduate+employability+islamic+education+management+tracer+study+vocational+education%5C&ots=QhVXiJ4qdt%5C&sig=gs2JA3-9d8V2RgQ2kVwCAUjKD3E>
- Kangasharju, A. I., Ilomäki, L., & Toom, A. (2024). Online poetry writing at school – comparing lower secondary students' experiences between individual and collaborative poetry writing. *Frontiers in Education*, 9. <https://doi.org/10.3389/educ.2024.1380790>
- Khan, F. N., Zeb, A., & Imad, M. (2023). An Investigation into the Administrative Role of Principals in Secondary Schools of Khyber Pakhtunkhwa Pakistan. ... *Educational Research and Social Sciences* .... <https://www.jerssr.org/ojs/index.php/jerssr/article/view/251>
- Khanjani, M. H., Sharifinia, M., & Hajirezaee, S. (2023). Strategies for promoting sustainable aquaculture in arid and semi-arid areas. *Annals of Animal Science*. <https://doi.org/10.2478/aoas-2023-0073>
- Khoiriyah, U. (2023). Projek Penguatan Profil Pelajar Pancasila (P5) dan Profil Pelajar Rahmatan Lil Alamin (P2RA) di MTsN 11 Jombang. *Edu Aksara: Jurnal Pendidikan Dan Kebudayaan*, 2(1), 1–13. <https://doi.org/10.5281/zenodo.7950490>
- Kibona, B. (2023). Towards a Human Development and Public Good University in Tanzania. *Human Development and the University in Sub* .... [https://doi.org/10.1007/978-3-031-38366-3\\_6](https://doi.org/10.1007/978-3-031-38366-3_6)
- Kotsakov, V., Marinov, V., Assenova, M., & ... (2024). Dimensions of employability in the hospitality industry at destination level—the case of a spa destination in Bulgaria. *Journal of the* .... <https://jbgbs.arphahub.com/article/113933/download/pdf/>
- Li, X., Islam, M. M., Islam, S., Gao, X., & Rong, Z. (2024). Examining professional ideology through the perspectives of higher education professionals. *Teaching and Teacher Education*. <https://www.sciencedirect.com/science/article/pii/S0742051X2400307X>
- Mixer, P. F., Kleinschmit, A. J., Lal, A., Vanniasinkam, T., Condry, D. L. J., Taylor, R. T., Justement, L. B., & Pandey, S. (2023). Immune Literacy: a Call to Action for a System-Level Change. *Journal of Microbiology and Biology Education*, 24(1).

- <https://doi.org/10.1128/jmbe.00203-22>
- Mu'minin, A. A. (2023). Development of Ethnoscience-Based Organic Chemistry Experiment e-Module: A Cane Brown Sugar Production Process in Tulungagung, Indonesia. *Gagasan Pendidikan Indonesia*.  
<https://www.academia.edu/download/105002631/10823.pdf>
- Muchsin, A., Nurfadilah, Z., Riandi, R., & Supriatno, B. (2021). Efektivitas Metode Field Trip Dengan Aplikasi PlantNet Pada Materi Spermatophyta Sebagai Alternatif Inovasi Pembelajaran. *Biodik*, 7(3), 20–27.  
<https://doi.org/10.22437/bio.v7i2.13126>
- Musana, S. I. (2024). Cultural, Religious, and Government Institutions: Imagining the Possibility of their Cooperation in Poverty Alleviation in Uganda. *African Multidisciplinary Journal of Research*.  
<http://journals1.spu.ac.ke/index.php/amjr/article/view/320>
- Nandiasoka Annisawati, P., & Ika Oktora, S. (2024). How does ICT literacy influence reading literacy score in Indonesia: first attempt using spatial analysis approach. *Journal of Applied Research in Higher Education*, 16(1), 61–76.  
<https://doi.org/10.1108/JARHE-10-2022-0322>
- Nor, A. R. M., Rasul, M. S., Amat, S., Talib, J. A., & ... (2023). Learning experience on career planning for community colleges in Malaysia. ... *Research in Education*.  
<https://core.ac.uk/download/pdf/587988880.pdf>
- Nurmala, I., Pertiwi, E. D., Muthmainnah, M., Rachmayanti, R. D., Devi, Y. P., Harris, N., Wiseman, N., & Li, C. Y. (2020). Peer-to-peer education to prevent drug use: A qualitative analysis of the perspectives of student peer educators from Surabaya, Indonesia. *Health Promotion Journal of Australia*, October 2019, 1–6.  
<https://doi.org/10.1002/hpja.400>
- Oktavera, H., Ritonga, A. W., & ... (2024). Analysis of Curriculum Planning Management in Producing Qualifications for Graduates of Arabic Departments in Indonesia. ...: *Al-Multaqa Al ...* <https://conferences.uin-malang.ac.id/index.php/mayada/article/view/2520>
- Prasetyaningsih, , Liliasari, , Ramlan Ramalis, T., & Septem Riza, L. (2024). Developing Science Edutainment for Prospective Science Teachers. *KnE Social Sciences*, 2024, 737–747. <https://doi.org/10.18502/kss.v9i13.15992>
- Putri, S. D., & Violinda, Q. (2024). The Influence of Competency, Career Guidance and Self-Efficacy on Work Readiness. *Value Management Research*. <https://e-journal.yaalmada.org/index.php/vmr/article/view/55>
- Rahmawati, D., Mulyana, D., Lumakto, G., Viendyasari, M., & Anindhita, W. (2021). Mapping Disinformation During the Covid-19 in Indonesia: Qualitative Content Analysis. *Jurnal ASPIKOM*, 6(2), 222.  
<https://doi.org/10.24329/aspikom.v6i2.907>
- Riess, W., Martin, M., Mischo, C., Kotthoff, H. G., & Waltner, E. M. (2022). How Can Education for Sustainable Development (ESD) Be Effectively Implemented in Teaching and Learning? An Analysis of Educational Science Recommendations of Methods and Procedures to Promote ESD Goals. *Sustainability (Switzerland)*, 14(7). <https://doi.org/10.3390/su14073708>
- Rosa, D. (2025). Work Readiness Shaped by Family, Information Systems, and Organizational Activeness: Kesiapan Kerja Dipengaruhi oleh Keluarga, Sistem

- Informasi, dan .... *Journal of Islamic and Muhammadiyah Studies*.  
<https://jims.umsida.ac.id/index.php/jims/article/view/1625>
- Sá, P., Silva, P. C., Peixinho, J., Figueiras, A., & Rodrigues, A. V. (2023). Sustainability at Play: Educational Design Research for the Development of a Digital Educational Resource for Primary Education. *Social Sciences*, 12(7).  
<https://doi.org/10.3390/socsci12070407>
- Saengkaew, P., Chanyotha, S., Pengvanich, P., Srijaroen, B., Phruksarojanakun, P., Cherdchu, C., Takaki, R., & Iimoto, T. (2024). Advancing Sustainable Development Goals through Enhanced Literacy in Nuclear Science and Technology: Emphasizing Hands-On Experiences. *Perspectives on Global Development and Technology*, 23(1-2), 32-44. <https://doi.org/10.1163/15691497-12341672>
- Sağın, F. G., Özkaya, A. B., Tengiz, F., Geyik, Ö. G., & Geyik, C. (2023). Current evaluation and recommendations for the use of artificial intelligence tools in education. *Turkish Journal of Biochemistry*, 48(6), 620 - 625.  
<https://doi.org/10.1515/tjb-2023-0254>
- Sajadi, S., Huerta, M., Ryan, O., & Drinkwater, K. (2024). Harnessing Generative AI to Enhance Feedback Quality in Peer Evaluations within Project-Based Learning Contexts. *International Journal of Engineering Education*, 40(5), 998 - 1012.  
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85205941405&partnerID=40&md5=c9c19948fc434670c7aa3971004c1f3a>
- Samin, S. M., Akzam, I., & Supriady, H. (2022). Strategies of Arabic Students' Self-Regulated Learning Improvement in Language Proficiency in The Disruption Era. ... *Education \& Arabic Studies* ....  
[https://www.researchgate.net/profile/Saproni-Muhammad-Samin-2/publication/367339165\\_Strategies\\_of\\_Arabic\\_Students'\\_Self-Regulated\\_Learning\\_Improvement\\_in\\_Language\\_Proficiency\\_in\\_The\\_Disruption\\_Era/links/63cdf9e76fe15d6a573fd0b2/Strategies-of-Arabic-Students-Self-Regulated-Learning-Improvement-in-Language-Proficiency-in-The-Disruption-Era.pdf](https://www.researchgate.net/profile/Saproni-Muhammad-Samin-2/publication/367339165_Strategies_of_Arabic_Students'_Self-Regulated_Learning_Improvement_in_Language_Proficiency_in_The_Disruption_Era/links/63cdf9e76fe15d6a573fd0b2/Strategies-of-Arabic-Students-Self-Regulated-Learning-Improvement-in-Language-Proficiency-in-The-Disruption-Era.pdf)
- Sawyer, R. K., & Henriksen, D. (2024). *Explaining creativity: The science of human innovation*.  
[https://books.google.com/books?hl=en%5C&lr=%5C&id=Nw3kEAAAQBAJ%5C&oi=fnd%5C&pg=PP1%5C&dq=problem+based+learning+science+education+science+creativity%5C&ots=HFMYNakVOn%5C&sig=jUmZs12WhPc-rL\\_7iOJ\\_gJQBijs](https://books.google.com/books?hl=en%5C&lr=%5C&id=Nw3kEAAAQBAJ%5C&oi=fnd%5C&pg=PP1%5C&dq=problem+based+learning+science+education+science+creativity%5C&ots=HFMYNakVOn%5C&sig=jUmZs12WhPc-rL_7iOJ_gJQBijs)
- Schmidt, M., Lu, J., Huang, R., Francois, M.-S., Lee, M., Wang, X., & Feijóo-García, P. G. (2024). Participatory, human-centered, equitable, neurodiverse, and inclusive XR: Co-design of extended reality with autistic users. *Educational Technology and Society*, 27(4), 283-301. [https://doi.org/10.30191/ETS.202410\\_27\(4\).SP05](https://doi.org/10.30191/ETS.202410_27(4).SP05)
- Schröder, P. (2020). Descendants of Altynay: Education as an opportunity and urban idealisation in present-day Kyrgyzstan. *Education in Central Asia: A Kaleidoscope of* ....  
[https://doi.org/10.1007/978-3-030-50127-3\\_10](https://doi.org/10.1007/978-3-030-50127-3_10)
- Semenova, M. V, Efimova, N. V, & Shilkova, T. V. (2024). Interdisciplinary educational and methodological support of medical and biological disciplines using the resources of the Technopark of Universal Pedagogical Competencies. *Perspektivy*

- Nauki i Obrazovania*, 67(1), 258–284. <https://doi.org/10.32744/pse.2024.1.14>
- Setyaningsih, R., Abdullah, A., Prihantoro, E., & ... (2023). *Tracer study innovation model based on digital media at the boarding university*. [pubs.aip.org](https://pubs.aip.org). <https://pubs.aip.org/aip/acp/article-abstract/2673/1/090001/2885199>
- Shafer, G. (2021). Testing by betting: A strategy for statistical and scientific communication. *Journal of the Royal Statistical Society Series A* .... <https://academic.oup.com/jrsssa/article-abstract/184/2/407/7056412>
- Sharma, A. (2022). *Scientific Methods in Educational Technology*. [books.google.com](https://books.google.com). <https://books.google.com/books?hl=en%5C&lr=%5C&id=119ZEAAAQBAJ%5C&oi=fnd%5C&pg=PR7%5C&dq=graduate+competence+graduate+employability+islamic+education+management+tracer+study+vocational+education%5C&ots=sppzzBoNwH%5C&sig=3H2tRavdUsUzz-4cW8DJnJVG9zM>
- Soro, S. H., Budiman, K., Supriyadi, D., & Ainiyah, N. (2023). Implementasi Pengelolaan Sarana Prasarana Dalam Pemenuhan Standar Mutu Pendidikan Di Institut Perguruan Tinggi (IPT) Garut", al-Afkar. *Journal For Islamic Studies*, 6(2), 291–303. <https://doi.org/10.31943/afkarjournal.v6i2.669>.Implementation
- Stadler, S. (2020). *Reimagining the purpose of vocational education and training: the perspective of ITI students in the National Capital Region of India*. [lup.lub.lu.se](http://lup.lub.lu.se). <https://lup.lub.lu.se/student-papers/search/publication/9028066>
- Sujatmiko, H. (2023). Professional Learning Community di Sekolah Berasrama: sebuah Naratif Otobiografi. *Education Transformation: Jurnal Ilmiah Insan Pendidikan*, 1(1), 1–8.
- Syah, R. H. (2020). Dampak Covid-19 pada Pendidikan di Indonesia: Sekolah, Keterampilan, dan Proses Pembelajaran. *SALAM: Jurnal Sosial Dan Budaya Syar-I*, 7(5). <https://doi.org/10.15408/sjsbs.v7i5.15314>
- Tahiev, A. (2023). Prospects for higher Shia religious education in post-Soviet countries. *Religions*. <https://www.mdpi.com/2077-1444/14/7/822>
- Torang Siregar. (2023). Stages of Research and Development Model Research and Development (R&D). *DIROSAT: Journal of Education, Social Sciences & Humanities*, 1(4), 142–158. <https://doi.org/10.58355/dirosat.v1i4.48>
- Türegün, A. (2025). The political ideology of Turkey's Islamist swing under Erdoğan. *Journal of Political Ideologies*. <https://doi.org/10.1080/13569317.2023.2296395>
- Wider, W., Wong, C. T., Wong, Y. F., Nor, N. M., & ... (2025). Employment trends among postgraduate students: a bibliometric analysis. *Asian Education and ...* <https://doi.org/10.1108/AEDS-10-2024-0245/1272371>
- Wren, D. A., & Bedeian, A. G. (2023). *The evolution of management thought*. [books.google.com](https://books.google.com). <https://books.google.com/books?hl=en%5C&lr=%5C&id=gkDUEAAAQBAJ%5C&oi=fnd%5C&pg=PA1%5C&dq=graduate+competence+graduate+employability+islamic+education+management+tracer+study+vocational+education%5C&ots=ggr1NkP93y%5C&sig=nVnb5loPHLS1u0tai53q6-UkRvY>
- Yasrie, A. (2025). Disruption In The Industrialized Higher Education Has An Impact On The Quality Of Higher Education And Also The Human Resources Of Their Graduates. *Journal of Educational Management Research*. <http://serambi.org/index.php/jemr/article/view/1108>
- Yoshikawa, H., Wuermli, A. J., Britto, P. R., Dreyer, B., Leckman, J. F., Lye, S. J.,

- Ponguta, L. A., Richter, L. M., & Stein, A. (2020). Effects of the Global Coronavirus Disease-2019 Pandemic on Early Childhood Development: Short- and Long-Term Risks and Mitigating Program and Policy Actions. *Journal of Pediatrics*, 223(1), 188–193. <https://doi.org/10.1016/j.jpeds.2020.05.020>
- Zhong, X., Srivastava, N., & Babu, S. C. (2023). *Youth entrepreneurship in agribusiness in Indonesia*. agrisustineri.org. [https://agrisustineri.org/wp-content/uploads/2024/09/Youth-Entrepreneurship-in-Agribusiness-in-Indonesia\\_VF.pdf](https://agrisustineri.org/wp-content/uploads/2024/09/Youth-Entrepreneurship-in-Agribusiness-in-Indonesia_VF.pdf)