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Work-Integrated Learning to Improve Work Readiness of Vocational Education in School and Madrasah

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ABSTRACT. Work readiness is a crucial competency for Vocational Education (VE) students in both schools and madrasahs to be competitive in the job market. Although VE institutions are expected to provide a balanced mix of theoretical and practical training, many graduates still fall short of industry expectations, both during internships and after graduation. A lack of curriculum alignment with industry needs and the suboptimal use of production units as practical learning media causes this gap. This study examines teachers' efforts to enhance students' work readiness through a Work-Integrated Learning (WIL) approach. A mixed-methods design with a sequential exploratory strategy was employed. In the quantitative phase, questionnaires were distributed to 120 respondents (students, teachers, and industry workers) to measure work readiness indicators such as technical skills, communication, work ethic, and problem-solving. The qualitative phase included classroom observations, in-depth interviews, and literature reviews to enrich the analysis. The results show that WIL significantly improves work readiness: technical skills increased by 23%, communication by 18%, and problem-solving by 15%, with statistical significance (p-value = 0.000) based on the Wilcoxon test. The consistency of these improvements across regions indicates that WIL has practical relevance and high scalability potential. The novelty of this research lies in its dual focus on vocational schools and madrasahs, which are still rarely explored in previous literature. By combining quantitative and qualitative approaches, this study confirms that WIL can be systematically integrated into the VE curriculum to enhance graduates' competitiveness in a dynamic labor market.

Keywords: *Vocational Graduates' Work Readiness, Work-Integrated Learning for Employability, Soft Skills, and Technical Skills Integration.*

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INTRODUCTION

Vocational education plays a strategic role in preparing competent and adaptive human resources to meet the needs of the ever-growing industrial world. (Billett, 2017; Yusop et al., 2022). In contrast to traditional academic education, vocational education does not only focus on the transfer of theoretical knowledge, but also on providing practical and technical skills that are in line with the dynamics of the job market (Barabasch et al., 2021; Gekara & Snell, 2018). In the context of Islamic education, madrasas have the additional responsibility of instilling good morals and spiritual discipline, ensuring that work readiness is in line with Islamic ethics and social responsibility (Kartiko et al., 2025; Rusmini & Alfiandi, 2025; Zarkasi et al., 2025). However, empirical data shows a gap between this goal and the reality on the ground. A 2024 report by the Central Statistics Agency (BPS) noted that the unemployment rate for vocational education graduates was the highest compared to other levels of education, at 9.42% (BPS, 2024; Yulianti,

2024). This shows that many vocational graduates are not fully ready for work even though they have undergone industry-oriented training.

One of the main causes of this gap is the mismatch between the competencies acquired in school and the standards required by industry (Arthur-Mensah, 2020; McGuinness et al., 2018). Curriculum that is not updated regularly and limited direct experience in the work environment results in low self-efficacy, communication skills, critical thinking, and adaptability of students (Horenburg, 2013; Jumiati & Kartiko, 2022; Sopwandin et al., 2024). Conventional learning approaches to knowledge transfer tend to result in high cognitive load without adequate practical experience (Abery et al., 2021; Mahan, 2022), as a result, vocational graduates struggle to meet industry expectations, which worsens the unemployment rate (Deanda et al., 2024).

These findings were reinforced by a survey of final-year students in Karanganyar Regency who participated in industrial work experience. The survey revealed that indicators of work readiness, such as teamwork, discipline, initiative, and problem-solving, remained low. These results align with several previous studies (Soelistiyono & Feijuan, 2021; Utomo, 2021), which states that the low absorption of vocational graduates by industry contributes significantly to the high national unemployment rate. Therefore, a reorientation of vocational education is necessary through curriculum revitalization, alignment of competency standards with industry needs, and the implementation of collaborative, contextual, and experience-based learning models.

A number of previous studies have emphasized the importance of strengthening practical learning to improve students' work readiness. (Andriansyah & Kamalia, 2021; Dishon & Gilead, 2021). However, many vocational institutions still separate school-based learning from industrial work experience, thus limiting its effectiveness (Hidayatulloh & Ashoumi, 2022; Ningrum, 2025). There is little research that systematically integrates academic learning with work experience within an integrated curriculum framework. (Ajjawi et al., 2020; Smith, 2012; Utami et al., 2025). To address this gap, this study proposes the implementation of Work-Integrated Learning (WIL), a learning model that combines classroom instruction with hands-on work experience in a mutually supportive system.

The WIL approach aims to develop students' competencies holistically, encompassing technical skills, communication, problem-solving, and contextual technological literacy, while remaining aligned with the ethical and spiritual values of Islamic education. By building synergy between academic learning and work practice, WIL is expected to improve the work readiness of vocational and madrasah students. This study aims to analyze the effectiveness of implementing the WIL model in improving the work readiness of vocational education students, both in schools and madrasahs, and to offer a new framework to address existing challenges and ensure graduates are better prepared to meet industry demands and societal expectations.

METHOD

This study adopted a mixed-methods research design to explore the work readiness of vocational students and test the effectiveness of the Work-Integrated Learning (WIL) model (Kelle, 2022). This approach begins with qualitative data collection to gain a deeper understanding of the phenomenon, followed by quantitative analysis to statistically measure the impact of WIL. This design was chosen because it allows for a comprehensive understanding of the context before empirical testing. This combination of methods ensures rich and verifiable findings, with qualitative data providing insights into field dynamics and quantitative data measuring the effectiveness of the intervention. This approach is relevant for addressing the gap between vocational students' competencies and industry needs, particularly in the context of vocational education and Islamic schools. Thus, this study aims to generate evidence-based recommendations for improving students' employability through the integration of work-based learning.

Qualitative data was collected through in-depth interviews, observations in classrooms and production units, focus group discussions (FGDs), and document and literature reviews (Kumar et al., 2013). Informants consisted of teachers, students, and production unit managers from vocational

schools and madrasas, selected to reflect diverse perspectives within the vocational education ecosystem. Data analysis was conducted using a thematic approach, following the stages of data reduction, data presentation, and conclusion drawing, as described by (Miles et al., 2014). This process allowed for the identification of key patterns, such as supporting and inhibiting factors in WIL implementation, such as industry collaboration or limited facilities. The thematic approach ensured that findings were rooted in field data, providing in-depth contextual insights. The results of this qualitative analysis were also used to develop quantitative instruments, ensuring synergy between the two methods in addressing the research objective of improving vocational students' work readiness.

Quantitative data was obtained through an online questionnaire distributed to 120 respondents (Quick & Hall, 2015), The sample consisted of 80 students, 20 teachers, and 20 industrial workers, selected through purposive sampling. Selection criteria included students who had participated in production-based learning, undergone or completed industrial work experience, and teachers and production unit managers involved in integrated learning. The questionnaire referred to indicators of work readiness from (Badcock et al., 2010), The instrument covers communication, critical thinking, interpersonal skills, teamwork, leadership, and technology skills. It uses a 4-point Likert scale and has been tested for validity (correlation > 0.30) and reliability (Cronbach's Alpha 0.82) (Albaum, 1997; Robinson, 2023). Thematic analysis of qualitative data supported the development of the questionnaire and validated quantitative findings, such as trends in work readiness. The Wilcoxon Signed-Rank test was used to evaluate the effectiveness of WIL across three learning cycles.

RESULT AND DISCUSSION

Result

The research findings are presented in two parts: qualitative and quantitative results, which are then integrated to provide a comprehensive understanding of the effectiveness of the Work-Integrated Learning (WIL) model in enhancing vocational students' work readiness.

Qualitative Findings

Thematic analysis of in-depth interviews and observations involving 15 vocational teachers across three provinces revealed six key themes influencing the implementation of WIL limited industry collaboration, suboptimal utilization of production units, lack of industry-based pedagogy, alumni involvement as mentors, implementation of Project-Based Learning (PBL), and student behavioral transformation.

Table 1. Themes on Work-Integrated Learning (WIL) in Vocational and Madrasah Contexts

Main Theme	Sub-Themes / Issues Identified	Representative Teacher Quotes	Implications for WIL Development
Limited Industry Collaboration	Lack of formal partnerships with industries. Restricted student exposure	*"We are still struggling to get students into real industrial settings because no formal MoU exists."*	Strengthen formal linkages between schools and industry through structured agreements.
Underutilized Production Units	Seasonal operation only. Not used for continuous learning.	*"The school's production unit runs only during exam season, not as part of routine instruction."*	Transform school production units into daily learning laboratories for real tasks.
Lack of Industry-Based Pedagogy	Teachers untrained in real-world practices	*"We need training on how to teach based on actual industrial workflow and expectations."*	Provide teacher training aligned with industrial systems and skill frameworks.
Alumni as Mentors	Alumni serve as relatable role models. Facilitate skill transfer.	*"Our alumni who are now working in factories come back to guide students during internship projects."*	Formalize alumni involvement as part of mentoring and WIL facilitation.

Integration of Project-Based Learning (PBL)	Increases student responsibility and engagement	*"When students work on real projects, they become more responsible and work harder to meet real deadlines."*	Incorporate PBL within WIL to simulate workplace problem-solving and accountability.
Student Behavioral Transformation	Improved communication, initiative, and teamwork	*"Previously passive students now take initiative when they are given clear roles in production activities."*	Assign students real roles within learning environments to strengthen soft skills.

Based on the table above, the limitations of industry collaboration indicate a lack of formal partnerships with industry, which results in limited student exposure to real-world work environments. A teacher's quote, "*We still have difficulty bringing students to real-world industrial settings because there is no formal MoU*," illustrates this administrative barrier. Consequently, schools need to strengthen formal relationships through structured agreements such as MoUs to ensure students' access to industry experiences. Meanwhile, the "Underutilization of Production Units" section reveals that school production units operate only seasonally, not as part of routine learning, as stated: "*The school production unit is only active during exam season*." This suggests the need to transform production units into daily learning laboratories that simulate real-world industrial tasks, thereby consistently enhancing students' practical skills.

The lack of Industry-Based Pedagogy highlights weaknesses in teachers' capacity to integrate workplace practices into teaching. Teachers are often untrained in industry workflows, as expressed in the quote: "*We need training to teach according to industry workflows and expectations*." This confirms that conventional teaching methods are insufficient to prepare students for industry demands. Consequently, teacher training aligned with industry skills systems and frameworks is crucial to increasing the relevance of learning. With this training, teachers can adopt more contextual pedagogical approaches, such as integrating real-world work simulations into the curriculum. This theme emphasizes that the success of WIL depends not only on facilities but also on teachers' ability to bridge theory and practice through industry-focused instruction.

Alumni as Mentors, Project-Based Learning (PBL) Integration, and Student Behavior Transformation highlight the pedagogical potential of WIL. The involvement of alumni as mentors, with the subtheme that alumni serve as role models and facilitate skills transfer, is supported by the quote: "*Alumni who work in factories return to mentor students during internship projects*." This implies that alumni involvement needs to be formalized to strengthen mentoring within WIL. Furthermore, PBL Integration increases student responsibility and engagement, as expressed: "*When working on real-world projects, students take more responsibility*." PBL should be integrated into WIL to simulate real-world problem-solving. Finally, Student Behavior Transformation demonstrates improved communication, initiative, and teamwork, with the quote: "*Students who were previously passive now take initiative*." The implication is that providing a real role in learning can strengthen students' soft skills, which are crucial for job readiness.

The following thematic schema summarizes the analysis

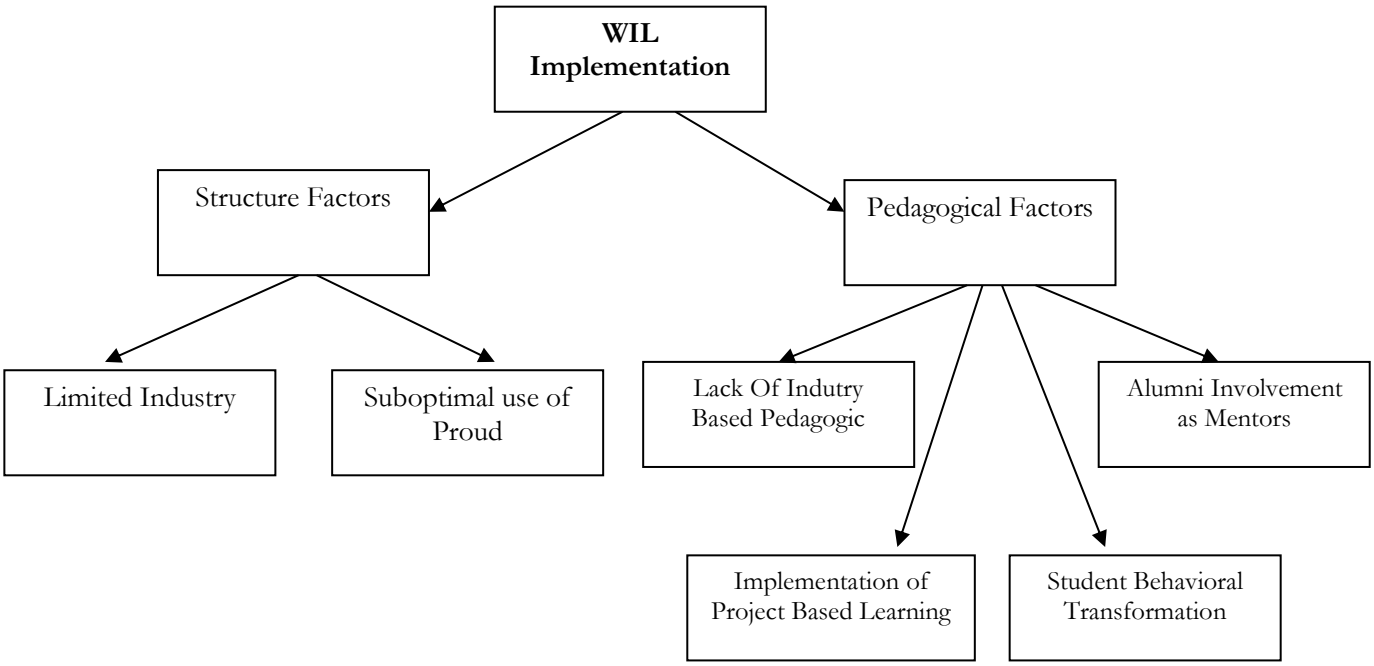

Figure 1. Thematic Coding Three of WIL Implementation

These findings indicate that the success of Work-Integrated Learning (WIL) is strongly influenced by structural factors (such as industry partnerships and school facilities) as well as pedagogical factors (such as teacher creativity and alumni involvement). The implementation of Work-Integrated Learning (WIL) in vocational schools still faces significant challenges, particularly in terms of limited collaboration with industries and the underutilization of school production units. These conditions indicate that structural factors, such as the absence of formal partnerships and the suboptimal use of school facilities, strongly influence the limited real-world experiences gained by students. In addition, teachers' need for training in industry-based pedagogy highlights the importance of enhancing teacher capacity to align instructional methods with workplace practices and expectations.

Nevertheless, this study also reveals strong potential from more flexible pedagogical factors, such as alumni involvement as mentors, the integration of Project-Based Learning (PBL), and the behavioral transformation of students who are becoming more active, communicative, and responsible. These findings emphasize that the success of WIL is not only determined by access to industry but also by innovative teaching approaches and wider school community support. Therefore, the future development of WIL should combine strengthened institutional structures with creative pedagogical practices that foster student independence while bridging the gap between schools and industry.

Quantitative Findings

Quantitative data were obtained from 120 respondents who participated in three cycles of WIL-based learning. The following table presents a comparison of students' work readiness scores before and after the intervention

Table 2. Comparison of Students' Work Readiness Scores (Pre-Test vs Post-Test)

Indicator	Average Pre-Test Score	Average Post-Test Score	Improvement (%)
Technical Skills	2.11	2.60	23%
Communication	2.25	2.65	18%

Problem Solving	2.30	2.65	15%
Leadership	1.80	2.40	33%
Technology skills	2.00	2.50	25%

The Wilcoxon Signed-Rank Test showed that all score improvements were statistically significant, with Z-values ranging from -5.161 to -5.164 and a p-value of 0.000 across all three learning cycles. No scores remained unchanged or decreased (tie = 0), indicating that all students experienced an improvement in work readiness. Based on the questionnaires distributed to respondents who received special treatment through the implementation of the Work-Integrated Learning (WIL) model, the following data were obtained.

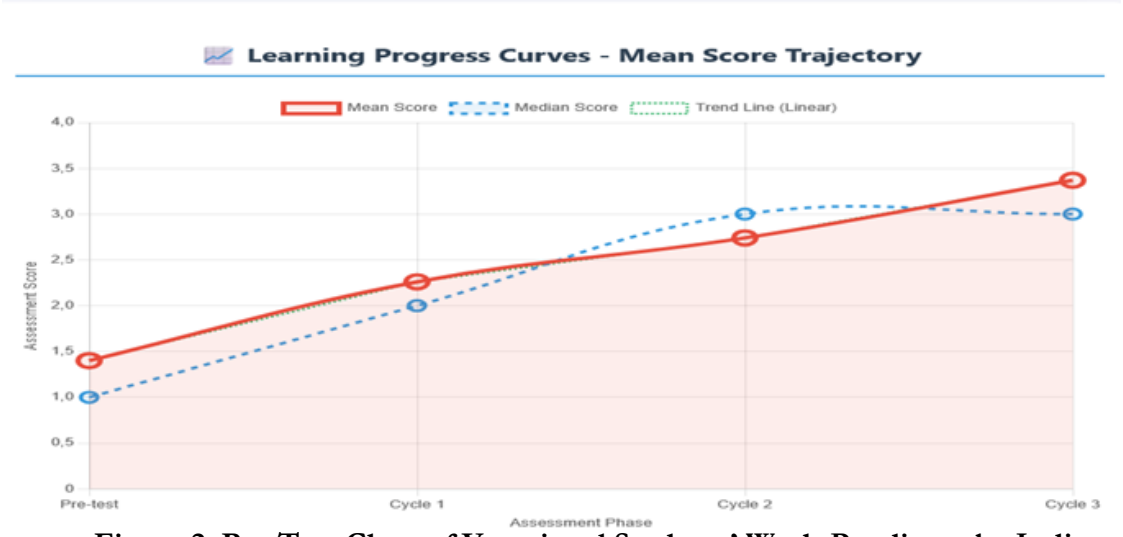

Figure 2. Pre-Test Chart of Vocational Students' Work-Readiness by Indicator

The following chart illustrates the distribution of students' work-readiness levels prior to the implementation of the WIL model. It is evident that the majority of students fell into the low category across nearly all indicators. Indicators such as leadership, written communication, and technological skills showed low category percentages exceeding 60%, with leadership reaching as high as 94.29%. This indicates that prior to the intervention, students lacked sufficient competencies to enter the workforce optimally.

After three cycles of special treatment through the WIL model, an effectiveness test was conducted using the Wilcoxon Signed-Rank Test per Learning Cycle, with the following results.

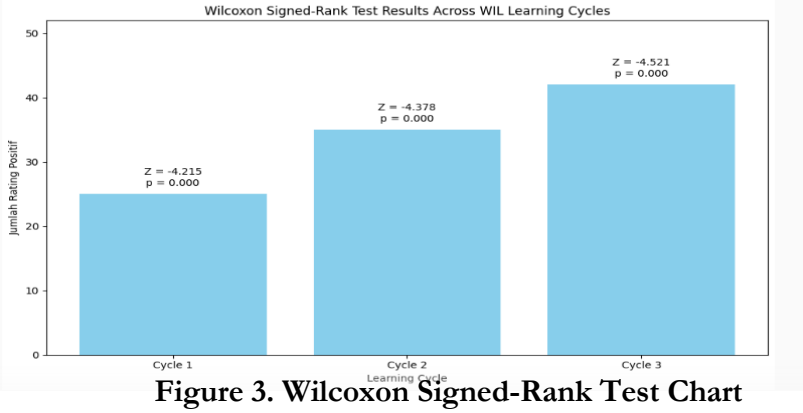

Figure 3. Wilcoxon Signed-Rank Test Chart

This chart presents the results of the Wilcoxon Signed-Rank statistical test conducted afterthree WIL learning cycles. All students (100%, or 35 individuals) showed improved work-readiness scores in each cycle. No scores decreased or remained unchanged (tie = 0), indicating that every student experienced a positive change. The Z values ranged from -5.161 to -5.164, with a significance level (p-value) of 0.000 in all three cycles. These results demonstrate that the improvement was statistically significant, reinforcing the effectiveness of the WIL model in enhancing vocational students' work-readiness.

These findings provide strong evidence that WIL implementation significantly enhances student competencies behaviorally and statistically. While quantitative results confirm skill gains, the qualitative findings explain the contextual and pedagogical mechanisms behind these improvements. Together, they highlight the value of adaptive WIL models grounded in real-world experience, industry collaboration, and school-based innovation. These findings align with the work-readiness indicators developed and further support that a learning approach integrating real-world work experience can have a substantial impact on student competencies. The use of a 1–4 rating scale in the questionnaire, also provides a clear picture of students' work-readiness levels before and after the intervention.

Discussion

Vocational education and Islamic schools (madrasah) in Indonesia face fundamental challenges in preparing graduates who are not only technically competent but also possess character and ethics. Work readiness, in this context, encompasses not only the ability to work but also moral and spiritual readiness to face the increasingly complex dynamics of the industrial world. Despite various policies to revitalize vocational education, many institutions, including vocational madrasahs (Islamic schools), still struggle to integrate learning relevant to industry needs. Structural challenges such as limited facilities and industry networks, as well as pedagogical limitations in creating contextual learning experiences, pose major obstacles to producing an adaptive and globally competitive workforce.

In response to these challenges, the madrasah-based Work-Integrated Learning (WIL) model has emerged as an educational innovation that combines professional, social, and spiritual dimensions within a single learning ecosystem (Amirudin et al., 2024; Hakim & Salim, 2024; Isnaeni et al., 2025). Through this approach, the learning process is oriented not only toward the transfer of technical skills but also toward the instillation of Islamic values such as amanah (trustworthiness), ihsan (goodness), and social responsibility. The integration of real-life work experience and moral reflection makes WIL in madrasahs not merely job training but also a process of developing civilized professional character. Thus, madrasah vocational education has the potential to become an alternative model that can bridge the gap between modern vocational education and value-based education, while enriching the global discourse on humanistic vocational education.

This research is based on the Experiential Learning Theory (ELT) developed by (Passarelli & Kolb, 2012), which emphasizes that effective learning occurs through a cycle of direct experience (concrete experience), reflection (reflective observation), abstract conceptualization (abstract conceptualization), and application (active experimentation) (Gordon, 2024). In the context of madrasah and vocational schools, this theory serves as a pedagogical foundation explaining how students acquire work competencies through active engagement in real-world situations. The Madrasah-Based WIL model adapts the ELT cycle by adding a dimension of Islamic spiritual values that enriches the reflection and conceptualization stages. Thus, work experience serves not only as a means of skill transfer but also as a medium for internalizing moral values, forming professional character, and strengthening social awareness. This integration of experiential learning and spiritual values makes WIL in madrasahs a form of theoretical innovation that expands the concept of experiential learning toward a values-integrated vocational education paradigm.

Dynamics of Work Readiness in Vocational and Madrasah Education

Work readiness in the context of vocational education and Islamic schools (madrasah) in Indonesia reflects intertwined structural, pedagogical, and cultural challenges. Most vocational education institutions, both public and private, still face limitations in systematically integrating industry-based learning, particularly in synchronizing school curricula with the needs of the dynamic labor market. These challenges include a mismatch between competency standards taught in the classroom and the practical skills required by modern industry, a lack of representative practical facilities, and weak institutional links between madrasahs and the business world (Kardi et al., 2023; Ramadhan et al., 2025; Zainuddin et al., 2025).

This situation is further complicated by vocational madrasahs, which have a dual mandate: preparing a skilled workforce competitive in the global market and also bearing the moral and religious responsibility of developing individuals with integrity. This dual function demands a balance between vocational learning oriented toward technical skills and character education based on Islamic values such as trustworthiness, hard work, and social responsibility. Without pedagogical innovations that connect the two, such as the implementation of Work-Integrated Learning (WIL), there is a risk of learning disorientation, where students are technically proficient but lack ethical awareness and work professionalism. Therefore, integrating real-world work experiences with the internalization of spiritual values is key to producing vocational madrasa graduates who are not only ready to work but also ready to contribute meaningfully to society and a civilized workplace..

The research results show that the systematic implementation of WIL can produce significant improvements in various dimensions of work readiness competencies, including communication, leadership, collaboration, and critical thinking skills. This strengthens the findings of the study (Ningsih et al., 2021), which emphasizes that the work-based learning model has a direct effect on the work readiness of vocational students. Improved test scores and practical observations indicate that direct experience in a real-world work context not only improves technical skills but also fosters professional attitudes and social responsibility. In the madrasah context, this effect is reinforced by spiritual values that emphasize honesty, hard work, and integrity, which simultaneously enrich the concept of work readiness as a multidimensional competency encompassing moral and ethical aspects.

Integration of WIL in the Madrasah Learning Ecosystem

The implementation of Work-Integrated Learning (WIL) in vocational madrasas presents a unique form of educational innovation because it combines two domains that have traditionally tended to operate separately: the world of education and the world of work. WIL bridges academic theory with professional practice through hands-on learning experiences relevant to industry needs. However, the uniqueness of this model in the madrasah context lies in its ability to contextualize Islamic values within the work-based learning process. Through this approach, learning activities are not only directed at developing technical skills but also strengthen the spiritual and moral values that are the hallmark of madrasah education. Thus, WIL in madrasahs serves not only as a strategy for improving work competency but also as a means of developing character and professional identity grounded in Islamic values.

In practice, WIL in vocational madrasahs is not merely implemented in a simple form, but encompasses various forms of contextual learning that are broader and adaptive to the institution's circumstances. Implementation models can include production projects based on madrasah business units, student involvement in social entrepreneurship activities, community-based learning, and mentoring programs by alumni with experience in the industrial sector. Through these various activities, students have the opportunity to hone their technical skills while understanding the dynamics of the real world of work in a safe and educational environment. This approach also opens up space for collaboration between madrasahs, businesses, and local communities, creating a participatory and sustainable learning ecosystem.

This approach is in line with the concept of Experiential Learning put forward by (Morris, 2020; Passarelli & Kolb, 2012), which emphasizes that effective learning occurs through a cycle of concrete experience, reflection (reflective observation), abstract conceptualization, and active experimentation. In the madrasah context, this cycle is reinforced by reflective values rooted in Islamic teachings, making the learning process not only a means of skill development but also of moral and spiritual contemplation. Post-work activity reflection is a crucial component that distinguishes WIL from mere technical skills training. Through reflective sessions, students are encouraged to reassess their work experiences within a framework of values such as amanah (responsibility), ihsan (professionalism and excellence), and maslahah (social benefit).

Thus, the implementation of WIL in vocational madrasas is not only oriented towards achieving work competencies, but also towards developing holistic ethical, spiritual, and social awareness. Madrasa graduates are expected to be not only prepared to work professionally in the industrial world but also to become individuals of character who uphold the values of honesty, responsibility, and usefulness in their professional practice. The integration of real-world work experience and Islamic values makes this model a form of value-based experiential learning, where vocational education not only produces a ready-to-use workforce but also agents of change who uphold work ethics, social awareness, and spirituality in their professional lives.

Synergy of Structure and Pedagogy in the Success of WIL

Research findings indicate that the success of WIL implementation depends not only on the quality of individual teaching or industry partnerships, but also on the synergy between structural and pedagogical factors. Structural factors include the availability of facilities such as production units, workshops, laboratories, and the existence of formal partnerships with industry. Pedagogical factors include teachers' ability to design meaningful learning experiences, integrate reflection, and facilitate the transfer of knowledge from the workplace to the academic context.

In practice, madrasas with strong structural support, such as production units actively producing commercial products or collaborating with local industries, are more successful in implementing sustainable WIL. However, this study also found that in contexts with limited resources, pedagogical innovation can act as structural compensation. Creative teachers are able to simulate real-world work experiences through project-based learning, entrepreneurship simulations, or collaborative design studios. Thus, the success of WIL in the madrasah context is not always determined by the advancement of physical facilities, but rather by pedagogical intelligence and institutional creativity..

International Comparison, WIL Adaptation in Indonesia and Other Countries

Globally, the WIL model has become a key pillar of vocational education in various developed countries. Australia implements a Cooperative Education system that places vocational students in a formal work cycle with dual supervision from educational institutions and industry. Germany is known for its Dual System, which combines school learning and industry training in a 50:50 ratio, supported by strong national policy. Canada, through the Workplace Learning Consortium, has developed a public-private partnership model that ensures the curriculum is relevant to industry needs. Meanwhile, Malaysia and Singapore have developed a more centralized approach, where state institutions play a direct role in coordinating WIL programs across sectors. (Chan et al., 2024).

Compared to these models, Indonesia's approach, particularly in vocational madrasas, is still in the adaptation and consolidation stage. The main weaknesses lie in limited formal industry networks and policies that are not yet fully integrated across institutions. However, this study found that vocational madrasas demonstrate adaptive resilience by developing alternative forms of WIL based on community and social entrepreneurship. For example, collaboration between madrasas and local cooperatives, MSMEs, or zakat institutions in managing production projects and job

training. This pattern creates a unique form of contextual WIL, where work-based learning is oriented not only toward economic productivity but also toward social value and sustainability.

The Role of Teachers and Alumni as Mediators of the WIL Ecosystem

In the Work-Integrated Learning (WIL) ecosystem, teachers hold a central position as agents of transformation, bridging the world of education and the world of work. Their role extends beyond delivering learning materials to include learning designers, facilitators, and catalysts for pedagogical change. Teachers are required to design learning experiences that are not only relevant to industry needs but also align with the spiritual and social values that characterize madrasahs. Therefore, teachers' competence in understanding the real-world context of work is key to the success of WIL implementation. Teachers who have experience in industry or have been involved in work-based projects tend to be more sensitive to professional dynamics and able to integrate these real-world situations into meaningful learning designs.

More than simply conveyors of knowledge, teachers in the context of vocational madrasahs also serve as moral guides and character builders. They not only teach technical skills but also instill Islamic work ethics such as trustworthiness, sincerity, and ihsan. In this regard, the learning process becomes a vehicle for fostering awareness that work is part of worship and social contribution. The teacher's role as a facilitator of work experience also includes the ability to develop critical reflection after industrial activities, so that students understand not only how to do the job but also why the job matters from a social and spiritual perspective. Thus, madrasa teachers are not simply instructors but also value mediators who ensure a balance between professional competence and moral integrity.

In addition to the role of teachers, the involvement of madrasa alumni in mentoring programs has proven to be a crucial element in strengthening the effectiveness of WIL. Alumni who have pursued careers in industry serve as role models, providing concrete examples of the application of madrasa knowledge and values in professional life. They serve as a cultural bridge between school and work, helping students understand work culture, professional ethics, and real-world challenges. In the context of madrasas, which often have limited formal networks with large companies, the contribution of alumni is highly strategic. They bring practical experience and insights that enrich the learning process, while also strengthening a sense of community and continuity between generations of graduates (Nurazizah et al., 2024).

This collaborative approach between teachers and alumni demonstrates a form of social innovation in madrasah-based vocational education. By combining the pedagogical expertise of teachers with the empirical experience of alumni, WIL in madrasas creates a contextual, practice-oriented learning system that remains rooted in Islamic values. This model aligns with peer-assisted learning practices implemented in Canada, where former students are engaged as mentors for the next generation of interns. This kind of collaboration not only increases the relevance and quality of learning, but also builds sustainable professional networks between madrasas and the world of work, making WIL a vibrant, reflective, and transformative learning ecosystem.

Learning from Global Practices for Vocational Madrasahs

Several important lessons can be drawn from international practice in the context of developing Work-Integrated Learning (WIL) in madrasahs, a vocational education system in Indonesia. The experience of Germany, a pioneer of the dual system of vocational education, demonstrates that the effectiveness of vocational education depends not only on internships but also on the existence of structured partnerships between educational institutions and industry. In this system, industry plays an active role as a curriculum partner, helping to determine core competencies, training methods, and evaluation standards. This approach ensures a match between industry needs and learning outcomes, while fostering shared responsibility between education and the workplace. Adapting the concept of structured partnerships in the madrasah context can be an

effective strategy to ensure curriculum relevance and increase graduates' legitimacy in the eyes of industry.

From the practice of vocational education in Australia, valuable lessons can be learned regarding the competency-based assessment system (Misko & Circelli, 2022; Voss et al., 2023). This model assesses students' work readiness not only through written exams or academic grades, but also based on actual workplace performance, problem-solving skills, and the quality of professional interactions. This approach requires integration between formative and summative assessments, focusing on achieving real competencies, not just mastering theory. If implemented in madrasas, this evaluation system can enrich the assessment paradigm, which has traditionally tended to be academic, to be more contextual and applicable, while strengthening the validity of learning outcomes within an experiential learning framework.

Meanwhile, the experiences of Singapore and Malaysia emphasize the importance of cross-sectoral governance in the implementation of WIL (Kim et al., 2022; Phillips, 2023). Di kedua negara tersebut, pengembangan pendidikan vokasi dilakukan melalui koordinasi Close collaboration between the ministries of education, manpower, and industry, which work synergistically in planning national workforce needs. This synergy ensures that education policies do not operate in isolation but rather support comprehensive economic and social development strategies. Indonesia can adapt a similar mechanism to strengthen integration between vocational madrasas, industrial training institutions, and the national workforce planning agency. This cross-ministerial approach will increase policy effectiveness and prevent overlap between religious education programs and national vocational policies.

Beyond drawing inspiration from developed countries, Indonesia has the potential to excel through strengthening a community-based approach to madrasa education. In various regions, madrasas function not only as educational institutions but also as centers for social and economic empowerment. By leveraging socio-religious networks, madrasas can develop an inclusive WIL model that involves the informal sector, cooperatives, Islamic boarding schools, and micro and small businesses as learning partners. This model is particularly relevant for regions with limited access to formal industry, while also strengthening the social function of madrasas as agents of economic empowerment based on Islamic values.

Thus, the WIL model developed in the context of Indonesian vocational madrasas has the potential to make a significant conceptual contribution to the international literature on vocational education. This approach combines the principles of experiential learning, which emphasize learning through direct experience, with Islamic spiritual, social, and moral values. This integration aims not only to improve work competency but also to shape professional character that is ethical, civilized, and oriented towards social welfare. In an increasingly competitive global context, the Madrasah-Based WIL model can be an example of educational innovation that balances economic efficiency and humanitarian values, and expands the meaning of work readiness as a form of integrated technical, moral, and spiritual life skills.

Implementation Limitations and Structural Challenges

While the results of this study demonstrate significant improvements in work readiness through the implementation of a madrasah-based Work-Integrated Learning (WIL) model, several limitations still need to be critically acknowledged. Differences in the quality and capacity of production units across madrasahs are a key challenge affecting the consistency of students' learning experiences. Madrasahs with adequate facilities are able to create learning environments that mimic the real world of work, while those with limited resources struggle to provide relevant practical experience. This disparity underscores the need for affirmative policies to standardize the quality of production units through funding support, facility revitalization, and managerial capacity building through partnerships with industry and local communities.

Furthermore, teachers' limited understanding of the industrial context is a factor that limits the effectiveness of WIL. Most vocational madrasa teachers lack direct work experience in the

industrial sector, making it difficult to connect teaching materials to real-world situations and professional standards. This situation results in learning that tends to be theoretical and lacking contextualization. Therefore, strengthening teacher capacity through industry immersion programs, workplace-based training, and competency certification is a strategic need. These efforts will not only improve the quality of learning but also expand teachers' role as a bridge between the academic environment and the dynamic industrial world.

Furthermore, partnerships between madrasas and the business and industrial world (DUDI) are generally informal and lack structured performance evaluation mechanisms. Although collaborations with various industrial partners have been established, most are not yet bound by formal agreements that guarantee program sustainability and accountability. The lack of monitoring and evaluation systems has limited opportunities for transferring expertise and innovation into the learning system. Therefore, policy interventions are needed to encourage the formation of formal partnership networks through memoranda of understanding (MoUs), incentives for active industrial partners, and the establishment of WIL coordination centers at the regional or provincial levels to serve as hubs for madrasah-industry collaboration.

Ultimately, the implementation of WIL in madrasah environments requires a fundamental shift in learning culture. The shift from a conventional, teacher-centered learning system to a more participatory, collaborative, and reflective approach demands readiness from both teachers and students. This adaptation process requires institutional support, particularly in terms of competency-based assessment, academic supervision, and facilitation of learning reflection. Madrasahs need to develop evaluation systems that assess not only cognitive aspects but also work behavior, professional ethics, and students' reflective abilities (Adeoye et al., 2025; Azizah & Mardiana, 2024; Effendi et al., 2025). Thus, madrasah-based WIL not only equips students with technical skills but also shapes professional character rooted in Islamic spiritual, social, and moral values, making it a model of equitable, sustainable, and humanistic vocational education amidst the challenges of globalization of work-based education.

Global Relevance and Scientific Contribution

Within the global discourse on Work-Integrated Learning (WIL), this study introduces the Madrasah-Based WIL Model approach as a conceptual innovation that expands the boundaries of conventional WIL models. This model focuses not only on improving technical skills and job readiness but also integrates spiritual, social, and economic aspects within a cohesive learning ecosystem. This approach places Islamic ethical values such as amanah (trustworthiness), ihsan (goodness), and social benefit as the foundation of the work-experience-based learning process. Thus, vocational madrasahs serve not only as institutions for preparing the workforce but also as centers for developing professional character with integrity and civility. This innovation has a disruptive effect on the market-oriented paradigm of modern vocational education by introducing the moral dimension as an integral element in developing work competencies.

Theoretically, this model makes a significant contribution to the development of Work-Integrated Learning literature by proposing a new framework based on values and cultural context. While most international studies (e.g., in Australia, Canada, and Germany) emphasize the integration of educational institutions and industry within a modern economic context, the Madrasah-Based WIL Model expands this understanding by adding a values-based, transformative dimension. This model demonstrates that work-based learning can function not only as a means of adapting to the labor market but also as a mechanism for shaping a moral economy that balances productivity with social ethics. From an international comparative perspective, this approach can be seen as a form of contextual innovation from developing countries that has the potential to enrich global WIL theory with a more humanistic and inclusive, non-Western perspective.

Practically, this study confirms that the implementation of the Madrasah-Based WIL Model has the potential to be an alternative approach to vocational education in countries with strong socio-religious systems. By combining industry partnerships, community engagement, and value-

based learning, this model not only improves students' job readiness but also strengthens social cohesion and the relevance of education to the needs of local communities (Nurulita et al., 2025; Tukijan et al., 2024). Globally, this model can serve as inspiration for other countries seeking to balance educational modernization with the preservation of cultural and spiritual values. Therefore, the main contribution of this study lies in its effort to bridge the gap between market-driven vocational education and value-driven learning, while enriching the international debate on how vocational education can function as an instrument of sustainable, equitable, and ethical development.

Table 3. Research Contribution

Dimension	Key Contribution	Description & Novelty Aspect
Theoretical Contribution	Integration of Spiritual Values into the WIL Framework	This study extends the theoretical landscape of *Work-Integrated Learning* (WIL) by embedding spiritual and moral dimensions derived from the madrasah tradition into the concept of work readiness. It challenges the market-driven orientation of conventional WIL models by introducing an ethical and humanistic paradigm that aligns with holistic education.
Empirical Contribution	Significant Improvement in Work Readiness Competencies	The implementation of the *Madrasah-Based WIL Model* across three learning cycles demonstrates statistically significant improvements in technical, communication, leadership, and problem-solving skills. This finding enriches global empirical evidence by highlighting the effectiveness of WIL in faith-based and resource-constrained educational contexts.
Practical Contribution	Replicable Model for Vocational and Madrasah Education	The model offers a practical framework for vocational and madrasah institutions to develop value-based work-learning ecosystems through industry partnerships, community engagement, and contextual learning. It provides a scalable and adaptable model for developing countries seeking to enhance vocational employability through inclusive and ethical approaches.

CONCLUSION

This study provides strong empirical evidence that the systematic and continuous application of the Work-Integrated Learning (WIL) model substantially enhances vocational students' job readiness, challenging traditional assumptions that short-term internships are sufficient for employability development. Across three learning cycles, students demonstrated marked improvement in communication, leadership, teamwork, critical thinking, and technological skills, as validated by the Wilcoxon Signed-Rank Test ($p = 0.000$). Qualitative findings further reveal that alumni mentorship, Project-Based Learning (PBL), and production units as learning laboratories were instrumental in translating theoretical knowledge into workplace competencies. Together, these elements formed an integrated learning ecosystem that transformed both technical and soft skills, although issues such as limited infrastructure, insufficient teacher training, and weak industry partnerships remain key challenges.

Theoretically, this study extends the discourse on Work-Integrated Learning by contextualizing it within madrasah-based vocational education, an area rarely explored in existing literature. It advances a dual-lens framework that links structural conditions such as industry partnerships and production units with pedagogical strategies like PBL and mentorship, positioning WIL as an ecosystemic and relational model rather than an isolated instructional method. Methodologically, the mixed-methods design bridges quantitative rigor and qualitative depth, strengthening the validity of the findings and enriching the global understanding of how WIL cultivates employability competencies in diverse educational settings.

Practically, the study offers a replicable model for vocational institutions and policymakers seeking to align education with labor market needs. Strengthening industry-based teacher training, production unit management, and shared industrial laboratories can enhance institutional capacity and ensure equitable WIL implementation. Nonetheless, the study's limited geographical coverage (three provinces) and small sample size constrain generalizability, suggesting that future research should employ multi-site longitudinal approaches and broader stakeholder triangulation. Overall,

this study not only validates WIL's effectiveness but also reframes it as a transformative, ecosystem-driven strategy for achieving sustainable vocational education reform.

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