

IMPLEMENTATION OF VOCATIONAL PROGRAMS IN ENHANCING STUDENTS' SKILLS IN GRAPHIC ENGINEERING AND CULINARY ARTS AT MADRASAH ALIYAH

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ABSTRACT

This study aims to analyze the implementation of vocational programs in enhancing students' skills in Graphic Engineering and Culinary Arts at Darul Ulum Islamic Senior High School (Madrrasah Aliyah Darul Ulum) Purwogondo, Jepara. The study employed a qualitative approach with a case study design. The research participants included the school principal, vice principal, vocational program teachers, students, and alumni, who were selected purposively. Data were collected through interviews, observations, and documentation, and were analyzed using an interactive model consisting of data reduction, data display, and conclusion drawing. The validity of the data was ensured through source and technique triangulation, as well as member checking. The findings indicate that the implementation of vocational programs has been carried out systematically through the stages of planning, organizing, implementation, and evaluation, which are integrated into the school curriculum. Project-based and production-based learning effectively enhance both technical skills (*hard skills*) and non-technical skills (*soft skills*), such as discipline, teamwork, and self-confidence. The vocational programs also improve students' work readiness and entrepreneurial mindset. The success of the program is supported by adaptive school leadership and the utilization of social capital, although challenges remain in terms of facilities and infrastructure.

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INTRODUCTIONS

The rapid development of the industrial sector in Jepara Regency in recent years has shown significant growth, particularly in the textile, garment, and electronics industries, which are capable of absorbing a large number of workers. This condition contributes positively to local economic growth; however, it also brings consequences for the education sector, especially at the secondary education level. A notable phenomenon is the declining interest of

students in pursuing higher education due to the availability of employment opportunities for high school graduates. This situation reinforces the urgency of strengthening vocational education as a strategic alternative to enhance graduates' work readiness (Wibowo, 2016; Suyitno, 2020).

Sociologically, this phenomenon is influenced by pragmatic economic factors, where students prefer to enter the workforce immediately to support their families. The high labor absorption by industries that do not always require higher education further strengthens the perception that continuing education is no longer a primary necessity. This poses a serious challenge for educational institutions, particularly Madrasah Aliyah, which are required not only to produce academically competent graduates but also individuals equipped with relevant skills for the labor market. In this context, the quality of education is strongly influenced by teacher professionalism and adaptive educational management in responding to environmental changes (Hidayat & Patras, 2019).

Vocational education emerges as a relevant strategy to bridge the gap between education and the demands of the business and industrial sectors (DUDI). It serves not only as a means of developing technical skills (*hard skills*) but also as a medium for cultivating work attitudes, professional ethics, and adaptability to the dynamics of the workplace. This is in line with the concept of *link and match*, which emphasizes the alignment between graduate competencies and labor market needs (Mulyani, 2019; Nugroho et al., 2022). Therefore, integrating vocational programs into the madrasah education system becomes a strategic step in improving graduate competitiveness.

Conceptually, vocational education is oriented toward developing work-related competencies that balance theoretical knowledge and practical experience. Effective vocational learning, such as teaching factory-based approaches, has been proven to enhance students' work readiness by providing learning experiences that closely resemble real industrial conditions (Sudira, 2017; Yoto & Widiyanti, 2018). Empirical studies also indicate that the quality of vocational learning processes significantly determines the quality of graduates (Ernawati, 2021), while program success is influenced by the availability of facilities, instructional design, and effective program management (Siswandi & Sukoco, 2016). Furthermore, systematic and adaptive governance, supported by proper planning, consistent implementation, and continuous evaluation, is essential in ensuring the effectiveness of vocational programs (Vidiastuti & Purwanto, 2021).

In the context of learning models, vocational education requires approaches that integrate practical experience with cognitive skill development. Project-based learning has been widely recognized as an effective model in improving students' work readiness by providing contextual and product-oriented learning experiences (Sudarsono et al., 2022). Additionally, this approach enhances students' motivation and practical learning outcomes (Tafakur & Suyanto, 2015). Problem-based learning also contributes to the development of problem-solving skills, which are essential in vocational contexts (Hidayati & Wagiran, 2020). Thus, effective vocational learning should integrate practice, projects, and problem-solving simultaneously.

Students' skills in vocational education encompass both technical (*hard skills*) and non-technical (*soft skills*) competencies. These include discipline, responsibility, teamwork, and problem awareness, all of which significantly influence students' employability (Santosa et al., 2021). Moreover, practical experience and digital literacy further support the development of these skills (Naufalin et al., 2024). Innovative learning models, such as teaching factory-based approaches, have also been shown to significantly enhance students' work readiness (Wahjusaputri et al., 2024). Therefore, students' skills must be understood comprehensively, covering technical, social, and adaptive dimensions.

In addition to preparing students for employment, vocational education also plays a crucial role in fostering entrepreneurial competence. Work readiness in the era of Industry 4.0 requires not only technical expertise but also communication, collaboration, problem-solving skills, and technological literacy (Nurjanah et al., 2022). Furthermore, entrepreneurial education has been shown to positively influence students' entrepreneurial intentions through the strengthening of behavioral control (Susanti & Nugraha, 2022), while work skills and entrepreneurial attitudes significantly affect graduates' readiness to enter the workforce (Agussalim et al., 2024). Thus, vocational education aims not only to prepare job seekers but also to develop job creators.

Madrasah Aliyah Darul Ulum Purwokondo Jepara represents one educational institution that responds to these challenges by developing skill-based vocational programs, particularly in Graphic Engineering and Culinary Arts.

These programs are designed to align with industrial needs and local economic opportunities. The madrasah also has a strong track record in integrating religious values with skill development, as reflected in various student achievements, which indicates its potential for holistic competency development. Previous studies have shown that integrated vocational education can significantly enhance students' work skills and readiness for employment (Setiawan & Sudira, 2015; Wahyuni, 2021).

However, the implementation of vocational programs in madrasah settings is not without challenges. Issues related to managerial capacity, infrastructure availability, teacher competence, and partnerships with industry remain critical factors influencing program success. Effective implementation requires not only proper planning but also consistent execution and continuous evaluation (Arifin, 2021).

Despite the growing importance of vocational education, studies examining its implementation in madrasah contexts remain limited, particularly in relation to how such programs are managed and how they contribute to students' skill development. Therefore, this study aims to analyze the implementation of vocational programs in enhancing students' skills in Graphic Engineering and Culinary Arts at Madrasah Aliyah Darul Ulum Purwokondo Jepara. The findings are expected to contribute theoretically to the development of vocational education management and practically to support madrasah administrators in improving adaptive and competitive educational services.

METHOD

This study employed a qualitative approach with a case study design. The qualitative approach was selected because the study aims to gain an in-depth understanding of the implementation process of vocational programs within a real-life context, including the dynamics, meanings, and experiences of educational stakeholders. A case study design was used to explore the phenomenon intensively at a single research site, namely the implementation of vocational programs at Madrasah Aliyah Darul Ulum Purwokondo Jepara.

The research was conducted at Madrasah Aliyah Darul Ulum Purwokondo, located in Kalinyamatan District, Jepara Regency, Central Java. The research site was selected purposively on the basis that the madrasah has actively implemented vocational programs. The study was carried out over a four-month period, covering the stages of preparation, data collection, analysis, and report writing.

The research participants were selected using purposive sampling, based on their involvement in and understanding of the vocational programs. The participants included the school principal, vice principals for curriculum and student affairs, vocational program teachers or instructors, students in grades X and XI, and alumni of the vocational program. This selection aimed to obtain comprehensive data from multiple perspectives.

In qualitative research, the researcher serves as the primary instrument (*human instrument*) who is involved in all stages of the research process. To support data collection, additional instruments were used, including semi-structured interview guides, observation sheets, and documentation studies. The interview guides were used to obtain in-depth information, observation sheets were used to examine the implementation process of vocational programs, and documentation was utilized to collect supporting data such as curriculum documents, activity reports, and students' work outputs.

The data consisted of both primary and secondary sources. Primary data were obtained through in-depth interviews and participatory observation, while secondary data were collected from documents relevant to the implementation of vocational programs. Data collection was conducted through methodological triangulation, combining interviews, observations, and documentation to enhance data accuracy.

Data analysis followed an interactive analysis model consisting of three stages: data reduction, data display, and conclusion drawing. Data reduction involved selecting and categorizing data according to the research focus. Data display was presented in a systematic descriptive narrative form, while conclusions were drawn progressively by continuously verifying findings throughout the research process.

The trustworthiness of the data was ensured through source triangulation, technique triangulation, and member checking. Source triangulation was conducted by comparing data from different informants, while technique triangulation involved comparing findings from interviews, observations, and documentation. Member checking was

carried out by confirming the findings with participants to ensure that the researcher's interpretations accurately reflected the actual conditions.

The findings were presented in a descriptive-narrative format based on themes aligned with the research focus. Data presentation was supported by direct quotations from participants to strengthen the validity of the findings and to provide contextual insights into the implementation of vocational programs in the madrasah.

RESULT AND DISCUSSION

Result

Madrasah Aliyah Darul Ulum Purwogondo is located in Kalinyamatan District, Jepara Regency, an area characterized as a buffer zone for labor-intensive industries, particularly in the textile and electronics sectors. The socio-economic conditions of the community, which are predominantly oriented toward industrial employment, have led many students to prefer entering the workforce after graduation rather than pursuing higher education. In response to this condition, the madrasah developed a vocational program in Graphic Engineering and Culinary Arts as a strategic effort to enhance students' skills and strengthen their work readiness and economic independence. The madrasah has 590 students supported by 39 teaching staff and 5 administrative personnel, providing sufficient capacity to implement integrated skill-based programs.

Implementation of the Vocational Program

The implementation of the vocational program began with strategic planning based on an analysis of the socio-economic environment. Initially supported by government assistance programs, the initiative has since been independently sustained by the madrasah as a strategic policy to improve graduate quality. The principal views vocational skills as a fundamental necessity for students in the context of strong local industrial influence, positioning the program as a long-term solution to enhance graduate competitiveness.

The vocational program is integrated into the madrasah curriculum under the coordination of the vice principal for curriculum. Rather than being treated as an additional activity, it is embedded within the regular learning schedule through a structured system. Organizational strategies include grouping students and implementing a moving class system, enabling practical learning to be conducted optimally without disrupting academic activities. Furthermore, vocational learning outcomes are incorporated into report card assessments, thereby gaining formal legitimacy within the madrasah education system.

The implementation adopts a project-based learning approach oriented toward product creation. In Graphic Engineering, students are trained to use design software such as CorelDraw and Photoshop to produce tangible outputs, including stickers, invitations, and screen-printing products. In Culinary Arts, learning progresses gradually from basic skills to the production of marketable food products. The instructional process emphasizes not only technical (hard) skills but also business management and entrepreneurial competencies.

Additionally, the vocational program contributes to character development, fostering discipline, teamwork, responsibility, and self-confidence through hands-on laboratory activities.

Program evaluation is conducted continuously through product-based assessment. Teachers act as quality controllers to ensure that student outputs meet established quality standards. Student products are also utilized in actual madrasah activities, such as event consumption and internal needs, and are published through social media as a form of public recognition-based evaluation.

Supporting and Inhibiting Factors

The findings indicate that the main constraints in the implementation of the vocational program include limited facilities and infrastructure, as well as the lack of alignment between teachers' competencies and specific vocational fields. These conditions have the potential to affect the quality of learning if not balanced with appropriate management strategies.

On the other hand, the program is supported by strong social capital through the involvement of alumni and industry practitioners as guest instructors. Internal support from the student affairs division also plays a significant

role, particularly in shaping students' character. The synergy between these internal and external factors enables the vocational program to operate effectively despite existing limitations.

Impact of the Program on Students' Skills

The vocational program has proven effective in improving students' technical skills in both Graphic Engineering and Culinary Arts. Students are able to produce tangible products with functional and economic value and actively participate in the madrasah production units.

In addition to technical competencies, the program significantly enhances soft skills such as discipline, teamwork, responsibility, and self-confidence. Students demonstrate improved abilities to work both independently and collaboratively.

Moreover, the program increases students' work readiness and entrepreneurial interest. This is reflected in their confidence in marketing products and their participation in bazaars and independent production activities. The madrasah also provides internal certification as formal recognition of students' competencies, thereby increasing graduates' competitiveness in the labor market.

Program Optimization Strategies

To enhance the effectiveness of the vocational program, the madrasah plans to strengthen partnerships with the business and industrial sectors through formal collaborations, such as internship programs and industry-based certification. In addition, the madrasah plans to upgrade facilities and technology, particularly in Graphic Engineering, to align with modern industry standards. Curriculum development based on industry needs is also a primary focus to ensure the sustainability of the vocational program.

In general, the synthesis of the research findings based on interview results, observational data, and document analysis is presented as follows:

Table 1. Synthesis of Research Findings Based on Data Triangulation

No	Focus of Findings	Interview Results	Observation Results	Documentation Results	Synthesis of Findings
1	Vocational Program Implementation	The vocational program is a strategic policy of the madrasah to respond to labor market needs	Vocational activities are integrated into the regular learning schedule	Vocational curriculum and schedules are available	The vocational program has been systematically integrated into madrasah management
2	Program Planning	The program is designed based on industrial conditions and student needs	No resistance from teachers in implementation	Planning documents and activity allocations are available	Planning is contextual and based on local needs
3	Program Organization	Managed by the vice principal and vocational teachers	Learning is conducted in small groups using a moving class system	Learning schedules and group divisions are available	Program organization is effective and well-structured
4	Learning Implementation	Learning is project- and product-based	Students actively engage in laboratory practice	Student work products (designs, food products) are documented	Vocational learning is practical and product-oriented

No	Focus of Findings	Interview Results	Observation Results	Documentation Results	Synthesis of Findings
5	Program Evaluation	Teachers conduct product-based assessments	Teachers provide direct feedback on student work	Products are used in madrasah activities	Evaluation is based on product quality (quality control)
6	Inhibiting Factors	Limited facilities and teacher competency alignment	Practice facilities are still limited	Inventory data indicate limited equipment	Main constraints are infrastructure and human resources
7	Supporting Factors	Support from alumni and industry practitioners	Guest instructors participate in learning	Collaboration documentation is available	Social capital and networks are key strengths
8	Hard Skills Impact	Students are able to produce products	Students are involved in production units	Documentation of student work is available	Technical skills improvement is evident
9	Soft Skills Impact	Students become more disciplined and confident	Teamwork and responsibility are observed during practice	Not directly documented but confirmed through interviews	The program enhances character and soft skills
10	Work Readiness & Entrepreneurship	Students begin to market products	Students participate in bazaars and production	Documentation of bazaar activities is available	The program improves work readiness and entrepreneurial spirit
11	Competency Certification	The madrasah provides vocational certificates	Not directly observed	Certificate documents are available	Certification enhances graduate competitiveness
12	Digitalization & Branding	Student work is promoted via social media	Documentation and publication activities are observed	Social media archives are available	Digitalization serves as evaluation and promotion tools
13	Optimization Strategy	Plans for collaboration with industry and training centers	Not fully implemented yet	Draft MoUs and program plans are available	The madrasah is oriented toward sustainable development

Discussion

The findings indicate that the implementation of the vocational program represents an adaptive response of the madrasah to the demands of the surrounding industrial environment. This finding is consistent with previous studies suggesting that educational institutions need to align their learning programs with labor market demands to enhance graduates' competitiveness (Nugroho et al., 2022; Suyitno, 2020). Furthermore, the success of vocational program implementation is strongly influenced by the leadership of the madrasah principal in initiating and sustaining the program (Hidayat & Patras, 2019; Wahyuni et al., 2021). This suggests that adaptive leadership plays a crucial role in the success of educational innovation.

The project-based learning approach applied in the vocational program has been proven to improve students' skills through direct experience. This finding aligns with previous research indicating that project-based learning enhances students' work readiness and practical skills (Setiawan & Sudira, 2015; Sudira, 2017). In addition, the teaching factory approach, which simulates real industrial conditions, has been shown to effectively improve the quality of vocational learning (Siswandi & Sukoco, 2016; Yoto & Widiyanti, 2018). Therefore, practice- and production-based learning is a relevant and effective approach in vocational education.

The vocational program not only improves students' technical skills but also contributes to the development of soft skills. This finding is consistent with studies showing that vocational education enhances employability skills such as discipline, responsibility, and teamwork (Naufalin et al., 2024; Santosa et al., 2021). Moreover, hands-on learning experiences in vocational education positively influence students' confidence and work readiness (Nurjanah et al., 2022). This indicates that vocational education plays a significant role in developing students' competencies in a holistic manner.

The findings reveal that the involvement of alumni and industry practitioners serves as a major supporting factor in the implementation of the vocational program. This is in line with previous studies emphasizing that partnerships with industry are key to the success of vocational education (Arifin, 2021; Mulyani, 2019). Additionally, collaboration between educational institutions and the labor market enhances curriculum relevance and graduate quality (Rahmawati & Suryono, 2021). Thus, strengthening networks and partnerships is an essential strategy in developing vocational programs.

Limited facilities and the lack of alignment between teachers' competencies and vocational subjects remain the main challenges in implementing vocational programs. These findings are consistent with studies indicating that infrastructure limitations and human resource constraints are major obstacles in vocational education development (Wahyuni et al., 2021; Wibowo, 2016). However, efforts to strengthen partnerships and improve facilities demonstrate that the madrasah is oriented toward continuous quality improvement (Nugroho et al., 2022).

Overall, this study shows that vocational education in madrasah can serve as a strategic alternative for improving skill-based education quality. These findings support previous studies highlighting that vocational education enhances students' work readiness and independence (Sudira, 2017; Suyitno, 2020).

CONCLUSION

The findings of this study indicate that the implementation of the vocational program at Madrasah Aliyah Darul Ulum Purwokondo Jeparu has been carried out systematically and adaptively in responding to the needs of the social environment and the labor market through the integration of Graphic Engineering and Culinary programs into the madrasah curriculum. Project- and production-based learning has proven effective in improving students' technical skills (*hard skills*) while simultaneously developing non-technical skills (*soft skills*), such as discipline, responsibility, teamwork, and self-confidence, thereby enhancing students' work readiness and independence.

The success of this program is supported by adaptive school leadership, the integration of vocational programs into the instructional system, and the utilization of social capital through the involvement of alumni and industry practitioners. However, challenges remain, particularly in terms of limited facilities and the mismatch between teachers' competencies and vocational subjects.

This study offers novelty by examining the implementation of vocational education within a religious-based madrasah context using a context-based vocational model. It demonstrates that vocational education in madrasahs can serve as an effective strategy for integrating skill development and character building in a holistic manner. Nevertheless, this study is limited by its single-site focus and qualitative approach, which does not quantitatively assess long-term impacts. Therefore, future research is recommended to expand the research context and employ longitudinal or mixed-method approaches to obtain more comprehensive findings.

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