Stakeholder Synergy in Realizing Muhammadiyah Vocational High School as a Center of Excellence Based on Muhammadiyah Values

Uswatun Khasanah [1✉], Septian Nur Ika Trisnawati [2], Muhammad Fajrul Falaah [3]

Darul Ulum Islamic Centre Sudirman University, Semarang[1]
Institut Islam Mambaul Ulum, Surakarta[2]
Universitas Tunas Pembangunan, Surakarta[3]

✉Corresponding Email: uswatunkhasanah6815@gmail.com

ABSTRACT

The purpose of this study is to explore how the collaboration of stakeholders can realize SMK Muhammadiyah as a Center of Excellence based on Muhammadiyah values. The study subjects included principals, teachers, education personnel, students, parents, and business and industry (DUDI) partners, who were selected through purposive sampling techniques. Using a qualitative descriptive approach with a case study method, data were collected through in-depth interviews, observations, and document analysis. Data analysis used the Miles and Huberman model. Triangulation was applied to ensure data credibility. The findings show that effective stakeholder synergy plays an important role in optimizing curriculum relevance, improving teaching quality, and enhancing students' employability. Strong industry partnerships contribute to the development of students' practical skills through internships and work-based learning. In addition, Muhammadiyah values, such as hard work (al-jihad fi sabilillah), independence (al-istiqlal), and social concern (at-ta'awun), are integrated into the curriculum, fostering character development in addition to technical competence. This study provides an important contribution theoretically by showing that vocational education is not only oriented to the development of technical skills but also to the formation of Islamic character. Practically, the results of this study can be a model for strengthening partnerships between schools and industries through project-based learning and value integration. This study highlights the importance of involving various stakeholders in vocational education reform, providing insights for policymakers, educators, and industry leaders to advance vocational education strategies that are in line with industry demands and character-based education.

Keywords: education, stakeholder, muhammadiyah, collaboration, employability

INTRODUCTION

In the era of globalization, which is full of industrial challenges and technological developments[1], the education system must be able to adapt to meet the needs of the world of work[2]. However, one of the main challenges facing the world of education in Indonesia is the gap between graduate competencies and labor needs [3]. Education not only aims to prepare students to become workers but also to form a whole human being who has critical thinking, life skills, the ability to innovate, and social sensitivity[4][5]. Therefore, education must be able to prepare individuals to face the various dynamics of life, not limited to the world of work. Theoretically, this is in line with Human Capital Theory, which emphasizes the importance of education and training in improving labor productivity and economic growth[6][7][8]. According to this perspective, investment in vocational education should improve the employability of graduates by equipping them with industry-relevant skills. In addition, the Labor Force Development Model shows that effective vocational training programs must be demand-driven, focusing on industry needs and incorporating work-based learning elements[9][10]. This theoretical framework provides a basis for understanding the role of vocational education in bridging the skills gap and reducing unemployment[11].

One of the education levels that contribute to playing a crucial role in the availability of industry and providing skilled labor is Vocational High School (SMK)[12]. As part of vocational education, vocational high schools are designed to equip students with practical skills that meet industry demands[13]. The essence of Upskilling in vocational education hinges on enhancing educators' capabilities, strengthening sustainable industry partnerships to meet workforce demands, evaluating effective industry development

[1] "Gabi Dei Ottati, 'An Industrial District Facing the Challenges of Globalization: Prato Today', *European Planning Studies*, 17.12 (2009), 1817–35 <https://doi.org/10.1080/09654310903322322>".

[2] "Lynn Ilon, 'Structural Adjustment and Education: Adapting to a Growing Global Market', *International Journal of Educational Development*, 14.2 (1994), 95–108 <https://doi.org/10.1016/0738-0593(94)90015-9>."

[3] "R. Madhakomala, M. Akrimul Hakim, and Nabillah Syifauzzuhrah, 'PROBLEMS OF EDUCATION IN INDONESIA AND ALTERNATIVE SOLUTIONS', *International Journal of Business, Law, and Education*, 3.3 (2022), 135–44 <https://doi.org/10.56442/ijble.v3i3.64>."

[4] "Lene Buchert, 'Learning Needs and Life Skills for Youth: An Introduction', *International Review of Education*, 60.2 (2014), 163–76 <https://doi.org/10.1007/s11159-014-9431-3>."

[5] "Ioanna Garefi and others, 'SOCIAL INNOVATION EDUCATION AND SOCIAL INNOVATION SKILL DEVELOPMENT', 2020, pp. 6118–28 <https://doi.org/10.21125/iceri.2020.1317>."

[6] "M. Frese and A. Rauch, 'Entrepreneurship, Psychology Of', in *International Encyclopedia of the Social & Behavioral Sciences* (Elsevier, 2001), pp. 4552–56 <https://doi.org/10.1016/B0-08-043076-7/01420-0>."

[7] "Katerina Petchko, 'Theory and Theoretical Frameworks', in *How to Write About Economics and Public Policy* (Elsevier, 2018), pp. 181–206 <https://doi.org/10.1016/B978-0-12-813010-0.00010-7>."

[8] "E.R. Eide and M.H. Showalter, 'Human Capital', in *International Encyclopedia of Education* (Elsevier, 2010), pp. 282–87 <https://doi.org/10.1016/B978-0-08-044894-7.01213-6>."

[9] "Charu Varma and Saroj Malik, 'Perspective Chapter: TVET in the 21st Century – A Focus on Innovative Teaching and Competency Indicators', 2024 <https://doi.org/10.5772/intechopen.112516>."

[10] "Fitri Nur Mahmudah and Budi Santosa, 'Vocational School Alignment Based-on Industry Needs', *Journal of Vocational Education Studies*, 4.1 (2021), 36 <https://doi.org/10.12928/joves.v4i1.3611>."

[11] "Abdullah Baqadir, Fiona Patrick, and George Burns, 'Addressing the Skills Gap in Saudi Arabia: Does Vocational Education Address the Needs of Private Sector Employers?', *Journal of Vocational Education & Training*, 63.4 (2011), 551–61 <https://doi.org/10.1080/13636820.2011.589533>."

[12] "Dedy Yusuf Aditya and Gita Kencanawaty, 'Analisis Kebijakan Program Sekolah Menengah Kejuruan Pusat Keunggulan (SMK PK) Di Indonesia Dengan CIPP', *Jurnal Bintang Manajemen (JUBIMA)*, 2.1 (2024), 85–100 <https://doi.org/https://doi.org/ 10.55606/jubima.v2i1.2618>."

[13] "Suharno, Nugroho Agung Pambudi, and Budi Harjanto, 'Vocational Education in Indonesia: History, Development, Opportunities, and Challenges', *Children and Youth Services Review*, 115 (2020), 105092 <https://doi.org/10.1016/j.childyouth.2020.105092>."

models, and fostering strategic local and international collaborations[14] [15] [16] [17].

The fact shows that educational development is still faced with a large unemployment rate due to the gap between educational output and employment and the availability of formal employment. Graduates from Vocational High Schools (SMK) are considered one of the largest contributors to unemployment in Indonesia[18]. The number of jobless individuals keeps increasing every year, but this is not accompanied by sufficient job creation[19]. This is particularly evident in vocational education, where graduates of Vocational High Schools (SMK) still experience relatively high unemployment rates compared to graduates of other levels of education [20]. Based on Central Bureau of Statistics data, the number of unemployed SMK graduates in 2020 was 13.55%, in 2021 it was 11.13%, and in 2022 it was 9.42%. This number shows a decrease in the unemployment rate, but still requires further efforts to ensure that SMK graduates have skills that match the needs of the labor market.

Conversely, several countries have successfully implemented vocational education systems that effectively connect education with employment. Germany, for example, utilizes a dual system that merges academic instruction in schools with hands-on training in companies, resulting in a productive balance of knowledge and practical skills. This approach enables companies to effectively meet their skilled labor needs, while trainees gain skills relevant to the job market[21]. Similary, Finland has a very popular and inclusive vocational education and training (VET) system compared to other OECD countries. Finland's success in vocational education is due to the flexibility of the system, its accessibility to various age groups, and the relevance of the curriculum to the needs of the world of work[22]. In the broader European Union context, vocational education remains a preferred path, as shown by the 49% of upper-secondary students enrolled in vocational programs by 2022[23]. These statistics highlight that integrating vocational education with industry, designing well-structured training programs, and fostering solid collaboration among stakeholders can play a key role in significantly reducing youth unemployment.

To tackle issues within vocational education, the Indonesian government has implemented several

[14] "B Fairman and others, 'Re-Skilling Vocational Education and Training Practitioners in Indonesia', *Journal of Physics: Conference Series*, 1516.1 (2020), 012045 <https://doi.org/10.1088/1742-6596/1516/1/012045>."

[15] "Ladislaus Semali, 'Leveraging Multistakeholder Partnerships in Technical, Vocational Education, and Training', *Vocation, Technology & Education*, 1 (2024) <https://doi.org/10.54844/vte.2024.0558>."

[16] "Stephanie Allais, 'Will Skills Save Us? Rethinking the Relationships between Vocational Education, Skills Development Policies, and Social Policy in South Africa', *International Journal of Educational Development*, 32.5 (2012), 632–42 <https://doi.org/10.1016/j.ijedudev.2012.01.001>."

[17] "Junmin Li and Matthias Pilz, 'International Transfer of Vocational Education and Training: A Literature Review', *Journal of Vocational Education & Training*, 75.2 (2023), 185–218 <https://doi.org/10.1080/13636820.2020.1847566>."

[18] "Nurina Paramitasari and others, 'Charting Vocational Education: Impact of Agglomeration Economies on Job–Education Mismatch in Indonesia', *Asia-Pacific Journal of Regional Science*, 8.2 (2024), 461–91 <https://doi.org/10.1007/s41685-024-00333-x>."

[19] "Arifuddin Muda Harahap and others, 'KETIDAKSEIMBANGAN ANTARA ANGKATAN KERJA DENGAN KESEMPATAN KERJA BERDASARKAN UU NO. 11 TAHUN 2020', *JURNAL RECTUM: Tinjauan Yuridis Penanganan Tindak Pidana*, 5.1 (2023), 543 <https://doi.org/10.46930/jurnalrectum.v5i1.2728>."

[20] "Yoana, Ilmiawan Auwalin, and Rumayya, 'The Role of Vocational Education on Unemployment in Indonesia', *Cogent Education*, 11.1 (2024) <https://doi.org/10.1080/2331186X.2024.2340858>."

[21] "German Embassy, 'The German Vocational Training System: A Model for Success', *Https://Www.Germany.Info/Us-En/Welcome/Wirtschaft/03-Wirtschaft/1048296-1048296*, 2025."

[22] "Ministry of Education and Culture Finland, 'Education at a Glance: Vocational Education and Training Is More Popular in Finland than in Other OECD Countries.', *Https://Okm.Fi/En/-/Education-at-a-Glance-Vocational-Education-and-Training-Is-More-Popular-in-Finland-than-in-Other-Oecd-Countries*, 2025."

[23] "Eurosta, 'Vocational Education Statistics. European Commission', *Tps://Ec.Europa.Eu/Eurostat/Statistics-Explained/Index.Php?Title=Vocational_education_statistics*, 2025."

strategic initiatives, including the Vocational High School Center of Excellence (SMK PK) program. This initiative is designed to serve as a catalyst for improving the quality of student learning outcomes in alignment with the expectations of the business sector, industry, and the labor market[24]. In 2023 there were 4,021 applicants for SMK PK and 159 for the SMK PK Support Matching Scheme (SPD) and 63 for the SMK PK SPD Advanced, with a total of 1,557,027 students affected by the SMK PK program.

However, improving the quality of vocational education is not only about aligning it with industry demands, but also integrating values that shape students' character and work ethic[25]. Muhammadiyah, as one of the largest Islamic organizations in Indonesia, has a strong educational vision that combines technical skills with the development of Islamic character[26]. At SMK Muhammadiyah, values such as hard work (al-jihad fi sabilillah)[27], independence (al-istiqlal)[28], and social awareness (at-ta'awun)[29] are integrated into the school's curriculum and culture. These values are expected to shape graduates who are not only technically competent, but also have a strong moral and ethical foundation in the world of work. Achieving this goal cannot be done by the school independently. It requires strong synergy between the various stakeholders involved in the education ecosystem, including the government, schools, society, and the private sector. Although the SMK PK program aims to bridge the gap between vocational education and industry demands, several challenges remain unresolved.

Several previous studies have highlighted the importance of vocational education in reducing unemployment and improving job skills. For example, a study by Sudaryono et al. (2022) showed that a structured internship program can increase the employability skills of vocational students[30]. Another study by Agustian et al. (2024) emphasized the need for synergy between schools and industries to improve the competitiveness of SMK graduates[31]. Meanwhile, research by Misbahudin et al. (2022) highlighted the importance of bridging the gap between the competencies possessed by graduates of Vocational High Schools (SMK) and the needs of the industrial world[32]. This research has novelty in its focus on examining the extent to which synergies between stakeholders affect the overall success of the SMK PK program Therefore, in-depth research is needed to understand the dynamics of inter-stakeholder synergy and identify effective strategies to enhance this collaboration.

---

[24] "I Made Indra and Fanny Novika, 'PENDAMPINGAN PENYUSUNAN RENCANA STRATEGIS, IMPLEMENTASI VISI MISI DAN EVALUASI KEGIATAN YANG EFEKTIF EFISIEN MENCAPAI SMK PUSAT KEUNGGULAN (SMKPK)IMade IndraP1, Fanny Novika21,2, Sekolah Tinggi Manajemen Asuransi Trisakti(STMA Trsiakti)Email: Indraimade1@', *Indonesian Journal of Engagement, Community Services, Empowerment and Development*, 2.1 (2022), 149–56 <https://doi.org/https://doi.org/10.53067/ijecsed.v2i1>."

[25] "Choyrul Anwar and others, 'The Capability of Vocational Education Students in Industrial Practice Learning Programs', *Journal of Technology and Science Education*, 13.3 (2023), 657 <https://doi.org/10.3926/jotse.1960>."

[26] "Desma Kurniawan, Muh. Nur Rochim Maksum, and Triono Ali Mustofa, 'Transformation of Educational Intitutional in the Muhmmadiyah Organization', *Proceeding ISETH (International Summit on Science, Technology, and Humanity)*, 2024, 399–407 <https://doi.org/10.23917/iseth.3844>."

[27] "Abdul Mu'ti, *Ta'awun Untuk Negeri: Konteks Keindonesiaan* (Surakarta: Muhammadiyah University Press, 2019)."

[28] "Santoso Santoso and Raja Jeldi, 'Peran Program Didikan Subuh Dalam Pengembangan Karakter Kemandirian Beribadah Anak', *Jurnal Islamika*, 2.2 (2019), 120–31."

[29] "Indah Pratiwi and Sukri Sukri, 'MEMAKNAI NILAI-NILAI PEDOMAN HIDUP ISLAMI WARGA MUHAMMADIYAH PADA PROSES PENGANGGARAN STIE MUHAMMADIYAH PALOPO', *CEMERLANG : Jurnal Manajemen Dan Ekonomi Bisnis*, 2.4 (2022), 95–109 <https://doi.org/10.55606/cemerlang.v2i4.494>."

[30] "Amdi Nur Arifitin Nadiya and Selly Andari, 'PERAN KEPALA SEKOLAH DALAM MENINGKATKAN KOMPETENSI PESERTA DIDIK MELALUI PENGELOLAAN SMK PUSAT KEUNGGULAN (PK) DI SMK NEGERI 1 KOTA PROBOLINGGO', *Inspirasi Manajemen Pendidikan*, 10.4 (2023), 788–95."

[31] "Nadiya and Andari."

[32] "Nadiya and Andari."

RESEARCH METHODOLOGY

This study uses a qualitative descriptive method with a case study approach. The case study was chosen because it allows researchers to gain an in-depth understanding of the phenomenon under study in a specific context, namely the implementation of the SMK Centers of Excellence program. This approach is relevant because the study seeks to explore the experiences of stakeholders in the development of vocational education without manipulating the variables under study. Here is a picture of your research design flow, which illustrates the stages:
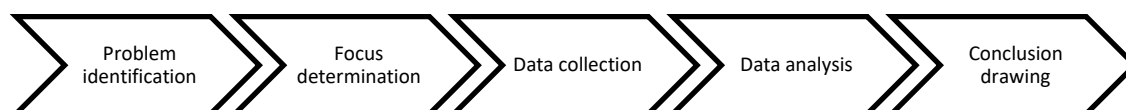
```
Problem          Focus          Data collection    Data analysis    Conclusion
identification   determination                                       drawing
```

Figure 1. Research Design Flow

This research was conducted from October 2024 to February 2025, with a duration of four months. This research was conducted at the Vocational High School Centers of Excellence, Muhammadiyah Delanggu, which was chosen because it has a leading program in vocational skills development and has been designated as a center of excellence. The school has the facilities, curriculum, and industry collaboration that enable in-depth study of the implementation of excellence-based vocational education. The research subjects included principals, teachers, education staff, parents, and students, selected using purposive sampling. The number of participants consisted of 1 principal, 5 teachers, 3 education staff, 5 parents, 10 students, and 3 partners (DUDI) who had direct experience in the implementation of the Centers of Excellence program.

The data were obtained through comprehensive interviews, on-site observations, and analysis of relevant documents. Semi-structured interviews involved principals, teachers, administrative staff, parents, and students to gain insights into their perceptions of the program's objectives, functions, challenges, and outcomes. Observations were carried out in the school environment to observe learning activities, use of facilities, and industry involvement. Meanwhile, the documentation study involved the analysis of documents such as curricula, program reports, and student assessment results to obtain additional evidence related to program implementation.

This study employed the Miles and Huberman analytical framework, which involves three key phases: data reduction, data display, and conclusion drawing. To enhance the credibility of the findings, the research applied source triangulation, methodological triangulation, and theoretical triangulation. In addition, the study also ensured transferability by providing a detailed contextual description, dependability by systematically recording the entire research process, and confirmability by ensuring that the findings were based on verifiable objective data.

RESULTS AND DISCUSSION
Results

Based on the results of interviews, observations, and documentation studies, several main findings were found related to stakeholder synergy in realizing the SMK Centers of Excellence, SMK Muhammadiyah Delanggu:

Table 1.

Findings of Stakeholder Synergy in SMK Centers of Excellence Muhammadiyah Delanggu

No	Theme	Description
1	The role of the school principal	The principal aligns the school's vision and mission with industry needs through collaborative planning. The SMK PK program, focused on Nursing Assistant, is implemented in collaboration with Jenderal Achmad Yani University. A development team involving various stakeholders is formed to implement the Vocational High School Skills Development Program. Muhammadiyah values such as al-jihad fi sabilillah, al-istiqlal, and at-ta'awun are integrated in leadership and decision-making.
2	The role of teachers	Teachers implement a project-based curriculum that aligns with industry standards. Students are involved in real-world simulations, especially in the Nursing Assistant major, by working in teams on patient care projects. Teachers also implement Muhammadiyah values through Islamic character building, role modeling, and integration of professional ethics in learning.
3	The role of the educational staff	Education staff manage facilities, support teacher training, and oversee administrative and financial processes. They ensure effective communication between schools, parents, and industry partners. Their role reflects the value of al-istiqlal in managing tasks independently and at-ta'awun in supporting the creation of a conducive learning environment.
4	The role of parents	Parents actively participate in school committees, provide input into curriculum development, and encourage students to participate in internship and training programs. The role of parents reflects the value of at-ta'awun through cooperation in education and strengthening Muhammadiyah Islamic values at home.
5	The role of student	Students are involved in project-based learning, internships, and training to develop soft and hard skills. Students show the value of al-jihad fi sabilillah through perseverance in learning, al-istiqlal in work independence, and at-ta'awun in collaborative activities and community service.
6	Participation of the business and industry world (DUDI)	Industry partnerships help align the curriculum with the needs of the world of work, provide internship opportunities, and facilitate job placement for graduates. DUDI also functions as a provider of practitioner services to support learning. The involvement of DUDI reflects support for professional ethics, discipline, and responsibility in line with Muhammadiyah values, as well as encouraging social care through collaborative programs.

Discussion

The SMK Center of Excellence (SMK PK) is a vocational school development initiative aimed at enhancing the quality and performance of schools with specific skill competencies. This enhancement is reinforced through collaboration and alignment with the business sector, industry, and labor market.

Ultimately, these schools are expected to serve as role models and hubs that inspire and support the improvement of other vocational schools[33]. The SMK Centers of Excellence Program aims to achieve several strategic goals: (1) Enhancing collaboration between the Ministry of Education, Culture, Research, and Technology and local government entities; (2) Advancing the quality of human resources within vocational high schools; (3) Equipping students with both technical and soft skills that align with labor market requirements, while also fostering character development rooted in Pancasila values; (4) Promoting data-informed planning through effective school management practices; (5) Increasing operational efficiency and minimizing complexity by leveraging digital platforms; (6) Providing learning facilities and equipment that meet industry standards; and (7) Strengthening partnerships between the Ministry and industry in the areas of program development and mentoring for the SMK Centers of Excellence[34][35][36]. To further strengthen the role of SMK Muhammadiyah as a Center of Excellence, stakeholder synergy is very important. Muhammadiyah has an extensive network that includes schools, universities, social organizations, and the business sector. By utilizing this network, SMK Muhammadiyah can optimize collaboration between education providers, industry, and the community.

The SMK Centers of Excellence program involves stakeholders, including universities and local governments, to support mentoring for SMK Centers of Excellence[37]. The program aims to produce graduates who are ready for work or entrepreneurship through the harmonization of vocational education that is integrated and aligned with the world of work[38]. The principal as a leader has a key role in aligning the school's vision and mission with industry needs[39]. In the context of vocational education, principals have a strategic role in ensuring that the school's vision and mission are not only administrative but also reflect the needs of the world of work and industry (DUDI)[40][41]. In its implementation, the SMK Center of Excellence SMK Muhammadiyah Delanggu implements the SMK PK program with nursing assistant majors and is assisted by Jenderal Achmad Yani University. This is in line with[42], who state that in addition to obtaining support from the local government, schools also get assistance from vocational universities. This is because the implementation of vocational education is intended to produce graduates who are ready

[33] "Firman Firman and Fathurrahman Fathurrahman, 'Pendampingan SMK Pusat Keunggulan Ekonomi Kreatif SMKS YAPIS Timika Papua Program Unggulan Teknik Komputer Jaringan', *Jurnal ABDIMASA Pengabdian Masyarakat*, 4.1 (2021), 38–42 <https://doi.org/https://doi.org/10.36232/jurnalabdimasa.v4i1.2737>."

[34] "Husni Anwar and others, 'Manajemen Program SMK Pusat Keunggulan Di SMKN 1 Sungai Rumbai', *Jurnal Pendidikan Dan Kewirausahaan*, 12.1 (2024), 131–54 <https://doi.org/https://doi.org/10.47668/pkwu.v12i1.1052>."

[35] "Evi Dora Sembiring and Sari Putri Pertiwi, 'Analysis The Governance of Center Excellence Vocational School Program SMKS Yabhinka Cilegon on Improving Student Competence at the Industrial Era 4.0', *Management Science Research Journal*, 4.1 (2025), 96–104 <https://doi.org/https://doi.org/10.56548/msr.v4i1.149>."

[36] "Sundusiah Sundusiah and others, 'Model of Organizational Creativity Strategy in Improving Positional Advantage of Vocational Schools in West Java', *JPPI (Jurnal Penelitian Pendidikan Indonesia)*, 10.4 (2024) <https://doi.org/10.29210/020245368>."

[37] "Wina Ahmanda and others, 'Implementasi Program SMK Pusat Keunggulan Dilihat Dari Konsep 8+i Link and Match', *Jurnal Pendidikan Teknik Bangunan*, 2.2 (2022), 59–74 <https://doi.org/10.17509/jptb.v2i2.51290>."

[38] "Leny Lince, 'Implementasi Kurikulum Merdeka Untuk Meningkatkan Motivasi Belajar Pada Sekolah Menengah Kejuruan Pusat Keunggulan', *Prosiding Seminar Nasional Fakultas Tarbiyah Dan Ilmu Keguruan IAIM Sinjai*, 1 (2022), 38–49 <https://doi.org/10.47435/sentikjar.v1i0.829>."

[39] "Gregory G Dess and Joseph C Picken, 'Changing Roles: Leadership in the 21st Century', *Organizational Dynamics*, 28.3 (2000), 18–34 <https://doi.org/10.1016/S0090-2616(00)88447-8>."

[40] "Henry Mintzberg, 'The Design School: Reconsidering the Basic Premises of Strategic Management', *Strategic Management Journal*, 11.3 (1990), 171–95 <https://doi.org/10.1002/smj.4250110302>."

[41] "Les Bell, 'Strategic Planning and School Management: Full of Sound and Fury, Signifying Nothing?', *Journal of Educational Administration*, 40.5 (2002), 407–24 <https://doi.org/10.1108/09578230210440276>."

[42] "Nadiya & Andari (2023)"

to work and have skills[43] [44]that are coherent with the needs of the world of work. Consistent with findings from related research, the effectiveness of the SMK Center of Excellence program largely relies on strong collaboration between schools and the business and industrial sectors, as well as the principal's ability to align the school's vision and mission with the expectations of industry partners (DUDI)[45]. The involvement of vocational colleges, such as Jenderal Achmad Yani University, not only improves the quality of the curriculum and learning facilities but also opens access for students to do fieldwork practices that are in line with industry standards.

Teachers support this vision by implementing a project-based learning curriculum, which not only improves technical skills but also students' soft skills such as teamwork and time management so as to ensure the implementation of learning that is aligned with the concept of DUDI[46]. In the Nursing Assistant department of SMK Pusat Keunggulan Muhammadiyah Delanggu, project-based learning asks students to design and implement a patient care project that includes care planning, implementation of basic medical actions, and medical documentation. Vocational education emphasizes the link between learning and real experience in the field, as explained by Yunita et al. (2025), that contextual learning is of primary importance in preparing students for the industrial world[47]. With this project-based learning, students can engage in projects that allow them to develop critical skills, improve concept understanding, and increase learning motivation[48] [49] [50] [51]. Muhammadiyah's main values, such as hard work, responsibility, and community service, are also the foundation of vocational curriculum development at SMK Muhammadiyah Delanggu. This finding is in line with previous research, which shows that the use of project-based learning and experiential learning models improves students' technical skills and soft skills, such as creativity, communication, and collaboration[52] [53].

---

[43] "Latifahtur Rahmah and Supari Muslim, 'Implementation of Competence Certification Test for the Improvement of Vocational School of Work Graduation Readiness', in *Proceedings of the 1st Vocational Education International Conference (VEIC 2019)* (Paris, France: Atlantis Press, 2019) <https://doi.org/10.2991/assehr.k.191217.038>."

[44] "Md. Abdur Rahman Forhad and others, 'Does a Vocational Education Program Prepare Competent Graduates for Further Academic Programs?', *Higher Education, Skills and Work-Based Learning*, 13.6 (2023), 1108–25 <https://doi.org/10.1108/HESWBL-02-2023-0023>."

[45] "Nadiya and Andari."

[46] "Nurlaili Sunawardhani and Casmudi, 'Implementasi Program SMK Pusat Keunggulan Berbasis Kompetensi Keahlian Agribisnis Ternak Unggas Di SMK Negeri 3 Penajam Paser Utara', *EDUKATIF: JURNAL ILMU PENDIDIKAN*, 4.3 (2022), 4968–81."

[47] "Fransiska Dwi Yunitasari, Nuniek Herdyastuti, and Achmad Imam Agung, 'KOLABORASI SEKOLAH DAN INDUSTRI: PEMBELAJARAN BERBASIS PROYEK TERINTEGRASI INDUSTRI (PjBL-T)', *Pendas: Jurnal Ilmiah Pendidikan Dasar2*, 10.1 (25AD), 123–34 <https://doi.org/https://doi.org/10.23969/jp.v10i01.23592>."

[48] "Irit Sasson, Itamar Yehuda, and Noam Malkinson, 'Fostering the Skills of Critical Thinking and Question-Posing in a Project-Based Learning Environment', *Thinking Skills and Creativity*, 29 (2018), 203–12 <https://doi.org/10.1016/j.tsc.2018.08.001>."

[49] "Miri Barak and Yehudit Judy Dori, 'Enhancing Undergraduate Students' Chemistry Understanding through Project-Based Learning in an IT Environment', *Science Education*, 89.1 (2005), 117–39 <https://doi.org/10.1002/sce.20027>."

[50] "Sekar Dwi Ardianti and Sulasfiana Alfi Raida, 'The Effect of Project Based Learning with Ethnoscience Approach on Science Conceptual Understanding', *Journal of Innovation in Educational and Cultural Research*, 3.2 (2022), 207–14 <https://doi.org/10.46843/jiecr.v3i2.89>."

[51] "Yaiza Viñuela and Ana María de Caso Fuertes, 'Improving Motivation in Pre-School Education through the Use of Project-Based Learning and Cooperative Learning', *Frontiers in Education*, 7 (2023) <https://doi.org/10.3389/feduc.2022.1094004>."

[52] "Fahru Riza and Lismi Animasi Chisbiyah, 'Komparasi Model Pembelajaran Project-Based Learning Dengan Experiental Learning Pada Pembelajaran Kewirausahaan SMK', *Briliant: Jurnal Riset Dan Konseptual*, 9.4 (2024), 948–56 <https://doi.org/10.28926/briliant.v9i4.1753>."

[53] "Zulfannur Zulfannur, Lilik Anifah, and I Gusti Putu Asto Buditjahjanto, 'Pengaruh Problem Solving Skill Dalam

Educational staff also ensure the smooth operation of the SMK Centers of Excellence through the management of practical facilities and the implementation of training and internship programs. This is important because adequate practical facilities will support students in developing skills that are relevant to the needs of the world of work[54]. This is in line with the main concept of vocational education, which emphasizes practical skills and job readiness[55], as stated by Hamid et al. (2014), that vocational education aims to create a competent workforce through an approach based on direct practice and industrial experience[56]. The application of Muhammadiyah values in the role of education personnel can be seen through various concrete activities. For example, in the spirit of al-jihad fi sabilillah (hard work), education personnel at SMK Muhammadiyah Delanggu ensure that the nursing laboratory is always equipped with industry-standard practical equipment so that students can practice optimally before entering the world of work. This value is in line with the goals of Muhammadiyah education, which not only emphasizes intellectual aspects but also work ethic and dedication. As affirmed by Abdullah (2024), Muhammadiyah education is directed to produce progressive people who work hard and have a good character[57]. The value of al-istiqlal (independence) is reflected in the transparent and professional administration and financial management of the school, including budgeting to support teacher training and school facility improvements. Good management will ensure that all programs run, including internships and training activities, can run well and effectively [58] [59].

Parents at SMK Center of Excellence Muhammadiyah Delanggu play an essential role in supporting student development through active communication and involvement in school programs. Their participation in school committee meetings enables them to provide valuable input on curriculum and program development, ensuring alignment with industry needs and relevance to the current era. Parental involvement also reflects the core values of Muhammadiyah: al-jihad fi sabilillah (hard work), al-istiqlal (independence), and at-ta'awun (social awareness and cooperation). The spirit of al-jihad fi sabilillah is seen in parents' active engagement in school discussions to ensure relevant and future-ready education. Al-istiqlal is reflected in their guidance to foster student independence in managing study time and internships. At-ta'awun is visible in the collaboration between parents, schools, and industries in social initiatives like free health services, where parents offer both moral and material support. The involvement of parents in these programs also shows the contextual implementation of Islamic values in vocational

Model Pembelajaran Project Based Learning Terhadap Hasil Belajar Siswa Sekolah Menengah Kejuruan', *Jurnal Studi Guru Dan Pembelajaran*, 7.1 (2024), 409–18 <https://doi.org/10.30605/jsgp.7.1.2024.3972>."

[54] "Umar Ruhi, Bharti Pandya, and Helen Louise Patterson, 'The Readiness of Workforce for the World of Work in 2030: Perceptions of University Students', *International Journal of Business Performance Management*, 1.1 (2021), 1 <https://doi.org/10.1504/IJBPM.2021.10036854>."

[55] "Kusnar Budi, 'Educating for Character in Work Readiness Through Vocational Higher Education in the Digital Era', in *Proceedings of the 3rd International Conference on Vocational Higher Education (ICVHE 2018)* (Paris, France: Atlantis Press, 2020) <https://doi.org/10.2991/assehr.k.200331.144>."

[56] "Mohd Halimudin Mohd Isa Hamid, Maslin Masrom, and Kamilah Radin Salim, 'Review of Learning Models for Production Based Education Training in Technical Education', in *2014 International Conference on Teaching and Learning in Computing and Engineering* (IEEE, 2014), pp. 206–11 <https://doi.org/10.1109/LaTiCE.2014.47>."

[57] "M. Amin Abdullah, 'The Manhaj of Muhammadiyah Progressive Islam: Theological, Philosophical, and Ethical Perspectives', *Progresiva : Jurnal Pemikiran Dan Pendidikan Islam*, 13.02 (2024), 165–80 <https://doi.org/10.22219/progresiva.v13i02.33887>."

[58] "Sudarsan Rangan and Malini Natarajarathinam, 'How to Structure an Internship That Is Great for the Intern and the Manager?', in *2014 ASEE Annual Conference & Exposition Proceedings* (ASEE Conferences), pp. 24.678.1-24.678.7 <https://doi.org/10.18260/1-2--20569>."

[59] "Nikki Forrester, 'How to Run a Successful Internship Programme', *Nature*, 635.8037 (2024), 243–45 <https://doi.org/10.1038/d41586-024-03461-8>."

education, as found in Parjiman's research (2023), which emphasizes the importance of internalizing Islamic values in establishing a collaborative and participatory Muhammadiyah school culture[60].

Students show enthusiasm in taking part in project-based learning, internships, and practical activities designed to prepare them to become a competent workforce. One significant form of engagement is in project-based learning, which allows students to apply the theory learned in a practical context. In addition, students are also involved in internship programs established by the school with various industry partners. This internship program gives them the opportunity to gain hands-on experience in the field, understand the dynamics of the business world, and hone the technical skills they have learned at school in order to improve their abilities and insights[61] [62]. In addition, the internship program also helps students and teachers to measure how well mastery of the material or competencies possessed by students[63]. A similar study conducted by Midiaty et al. (2024) showed that students' involvement in internship programs and project-based learning significantly improved their understanding of core competencies and encouraged work readiness[64]. Student involvement in project-based learning, internships, and practical activities reflects Muhammadiyah's core values, namely al-jihad fi sabilillah (hard work), al-istiqlal (independence), and at-ta'awun (social awareness and cooperation). The spirit of al-jihad fi sabilillah is evident in the enthusiasm of students to face the challenges of project-based learning and internships, where they strive earnestly to master technical skills that are in line with industry needs. The value of al-istiqlal is manifested in the ability of students to develop themselves independently, both through seeking work experience outside of routine school activities and by demonstrating a professional attitude in each task assigned during internships. Meanwhile, the value of at-ta'awun is seen in the close cooperation between students, teachers, and industry partners in carrying out projects and internship programs, which not only benefits students but also the work environment and society.

Partnerships with DUDI bring various benefits, especially in resource development. This development includes the use of available facilities, mentoring, the role of DUDI as a consultant, and the organization of various training activities[65]. A core principle of vocational education is the alignment between educational institutions and the labor market. This concept aligns with Human Capital Theory, which posits that investing in education, skills training, and work experience enhances the productivity of the workforce[66]. Curriculum synchronization between the SMK Center of Excellence SMK

---

[60] "Parjiman Parjiman and others, 'Rahmatan Lil Alamin Islamic Value Education Model Based on Muhammadiyah School Culture', *MUDARRISA: Jurnal Kajian Pendidikan Islam*, 15.2 (2023), 269–90 <https://doi.org/10.18326/mudarrisa.v15i2.387>."

[61] "Lani Clough and Tami Lunsford, 'The MATE Technical Internship Program: Providing Students with Hands-on, Real-World Workplace Experiences and Employers with Future Employees', in *OCEANS 2006* (IEEE, 2006), pp. 1–3 <https://doi.org/10.1109/OCEANS.2006.306861>."

[62] "Ilias Kapareliotis, Katerina Voutsina, and Athanasios Patsiotis, 'Internship and Employability Prospects: Assessing Student's Work Readiness', *Higher Education, Skills and Work-Based Learning*, 9.4 (2019), 538–49 <https://doi.org/10.1108/HESWBL-08-2018-0086>."

[63] "Mazaya Razan Alsya Nur Shabrina and Triana Rosalina Noor, 'Relevansi Antara Kompetensi Mata Pelajaran Produktif Dengan Pelaksanaan Praktik Kerja Lapangan Siswa', *Indonesian Journal of Innovation Science and Knowledge*, 1.1 (2024), 335–34 <https://doi.org/https://doi.org/10.31004/ijisk.v1i1.58>."

[64] "Midiaty Midiaty, Widyatmike Gede Mulawarman, and Muh. Amir Masruhim, 'Analisis Implementasi Manajemen Kurikulum Merdeka Dalam Meningkatkan Mutu Pendidikan SMK Pusat Keunggulan', *Jurnal Ilmu Manajemen Dan Pendidikan*, 4.2 (2024), 123–34."

[65] "Bambang Ixtiarto and Budi Sutrisno, 'KEMITRAAN SEKOLAH MENENGAH KEJURUAN DENGAN DUNIA USAHA DAN DUNIA INDUSTRI (Kajian Aspek Penhgelolaan Pada SMK Muhammadiyah 2 Wuryantoro Kabupaten Wonogiri)', *Jurnal Pendidikan Ilmu Sosial*, 26.1 (2016), 57–69 <https://doi.org/10.2317/jpis.v26i1.2130>."

[66] "Richard Blundell and others, 'Human Capital Investment: The Returns from Education and Training to the Individual, the Firm and the Economy', *Fiscal Studies*, 20.1 (1999), 1–23 <https://doi.org/10.1111/j.1475-

Muhammadiyah Delanggu and DUDI is the concept of link and match between SMK and DUDI[67]. Collaboration with the Business World and the Industrial World (DUDI) at SMK Muhammadiyah is a manifestation of Muhammadiyah's core values, namely al-jihad fi sabilillah (hard work), al-istiqlal (independence), and at-ta'awun (social awareness and cooperation). The value of al-jihad fi sabilillah is reflected in the effort to synchronize the curriculum with the DUDI (vocational education and training institutions), which ensures that graduates have the competencies that are in line with industry standards and are ready to compete in the world of work. The spirit of al-istiqlal is seen in the provision of students with the independence to develop their skills and professionalism through training and job opportunities provided by the DUDI. At-ta'awun, or mutual cooperation, is reflected in the collaborative efforts between vocational schools and industry, where DUDI serves as a partner in offering hands-on training facilities, skill development programs, and advisory support to enhance vocational education quality. These collaborative values embody Muhammadiyah's educational mission—to cultivate graduates who are not only technically competent but also grounded in strong Islamic values. As emphasized by Ahmad et al. (2024), Muhammadiyah education is committed to producing capable and highly skilled individuals[68], which is an important foundation in the modern world of work.

The findings of this research indicate that the implementation of the Vocational High School Center of Excellence (SMK PK) program at Muhammadiyah Delanggu has contributed positively to enhancing students' readiness for employment. This is evident in various areas, including the development of student competencies aligned with industry requirements, the reinforcement of partnerships with business and industrial sectors, and the advancement of teacher capabilities in delivering an industry-oriented curriculum. This study reveals that the implementation of the Vocational High School Center of Excellence (SMK PK) program at Muhammadiyah Delanggu has positively influenced students' employability. The impact is reflected in several key areas, including enhanced student skillsets aligned with industry demands, strengthened collaboration with the business and industrial sectors, and improved educator competencies in delivering curricula tailored to industry standards. More than just vocational education, the implementation of this program is also aligned with Muhammadiyah's core values, namely hard work (al-jihad fi sabilillah), independence (al-istiqlal), and social care (at-ta'awun). Hard work is reflected in the dedication of students in honing their abilities to meet the needs of industry, while independence is emphasized through strengthening the competencies of students, preparing them to compete and adapt in the world of work as professionals or entrepreneurs. Social concern is fostered through collaboration between schools, the business world, and the community, to ensure that vocational education not only benefits individuals, but also contributes to a broader social impact.

These findings have significant implications for vocational education policy and curriculum development in Indonesia. Schools must continuously update curricula to align with industry advancements, incorporating both technical skills and essential soft skills such as communication, problem-solving, and time management. The study highlights the need for policies promoting strong collaboration between schools and industry, including apprenticeship programs, teaching factories, and industry-based certifications, to ensure graduates are job-ready. A competency-based education model supported by adequate facilities is shown to enhance graduate quality. Therefore, government and

---

5890.1999.tb00001.x>."
[67] "Dwi Astarani Aslindar, Shofiatul Mila, and Rizki Ridhasyah, 'SINKRONISASI KURIKULUM JURUSAN AKUNTANSI DAN KEUANGAN LEMBAGA DI SMK NU 01 KENDAL', *SELAPARANG Jurnal Pengabdian Masyarakat Berkemajuan*, 5.1 (2021), 415–19."
[68] "Syifa Fauziah Ahmad, Putri Gita Lestari, and Ahmad Ruslan, 'PERAN FILOSOFI AHMAD DAHLAN DALAM MEMBANGUN PENDIDIKAN BERBASIS KARAKTER DI ERA PARADIGMA BARU', *Didaktik : Jurnal Ilmiah PGSD STKIP Subang2024*, 10.4 (2024), 233–45."

stakeholders should prioritize providing industry-relevant learning resources. At the micro level, improving teacher and staff capacity through industry-based training and certification is crucial for delivering relevant skills to students. Practically, this research models how integrating industry needs into vocational curricula via project-based learning and school-industry partnerships improves both technical and soft skills. Theoretically, it expands vocational education's role beyond skill development to include character building grounded in Muhammadiyah Islamic values: al-jihad fi sabilillah (hard work), al-istiqlal (independence), and at-ta'awun (social care). Methodologically, the qualitative case study approach effectively explores connections between policy, curriculum, and industry collaboration, serving as a reference for future research. Ultimately, SMK PK Muhammadiyah Delanggu's success in upgrading student skills, fostering industry partnerships, and embedding core Islamic values demonstrates how vocational education can prepare graduates to contribute meaningfully to both work and society. These insights underscore the need for ongoing curriculum renewal, strong industry ties, and competency-based learning supported by appropriate facilities.

CONCLUSION

Based on the results of the study, the implementation of the Muhammadiyah Delanggu Vocational Excellence Center (PK) program shows that the success of vocational education depends heavily on the synergy between the principal, teachers, education staff, parents, students, and the business and industrial world (DUDI). Strong collaboration between schools and the business and industrial world (DUDI) is the main factor in ensuring that graduates have the skills that match industry needs. Synergy between stakeholders - principals, teachers, education staff, parents, students, and the business world / industry - is the main key to the success of the SMK Center of Excellence program at SMK Muhammadiyah Delanggu. Through close cooperation and effective coordination, all parties play a role in improving the quality of education, preparing students with relevant skills, and bridging the gap between the world of education and the world of work. The active involvement of all stakeholders ensures the achievement of the Vocational High School Program objectives, producing graduates who are ready to compete in the industrial world.

From these findings, a new idea was developed, namely a more systematic and sustainable model of integration of partnerships between schools and the business and industrial worlds. This model emphasizes project-based learning, structured internships, and capacity building for teachers and education personnel through training in industry. In addition, this approach also proposes the involvement of parents in providing more intensive moral and academic support to students. With a more holistic integration model, the Vocational Secondary School Program is not only oriented towards technical skills, but also builds soft skills and more mature work readiness for students. This idea is expected to be the basis for the development of vocational education policies that are more adaptive to industry dynamics and labor market needs. In addition, the integration of Muhammadiyah values such as hard work (al-jihad fi sabilillah), independence (al-istiqlal), and social awareness (at-ta'awun) plays an important role in shaping students' character and professionalism. To expand the scope of understanding about the integration of school-industry partnerships, it is suggested that further research be conducted in various other vocational school contexts, both in Muhammadiyah and non-Muhammadiyah environments. This further research can explore the effectiveness of different collaboration models, challenges in implementing partnerships, and their influence on students' work readiness in the long term. In addition, cross-regional comparative studies can also provide deeper insights into the adaptation of this integration model to local dynamics and regional employment market needs.

REFERENCE

Abdullah, M. Amin, 'The Manhaj of Muhammadiyah Progressive Islam: Theological, Philosophical, and Ethical Perspectives', *Progresiva : Jurnal Pemikiran Dan Pendidikan Islam*, 13.02 (2024), 165–80 <https://doi.org/10.22219/progresiva.v13i02.33887>

Aditya, Dedy Yusuf, and Gita Kencanawaty, 'Analisis Kebijakan Program Sekolah Menengah Kejuruan Pusat Keunggulan (SMK PK) Di Indonesia Dengan CIPP', *Jurnal Bintang Manajemen (JUBIMA)*, 2.1 (2024), 85–100 <https://doi.org/https://doi.org/ 10.55606/jubima.v2i1.2618>

Ahmad, Syifa Fauziah, Putri Gita Lestari, and Ahmad Ruslan, 'PERAN FILOSOFI AHMAD DAHLAN DALAM MEMBANGUN PENDIDIKAN BERBASIS KARAKTER DI ERA PARADIGMA BARU', *Didaktik : Jurnal Ilmiah PGSD STKIP Subang2024*, 10.4 (2024), 233–45

Ahmanda, Wina, Arris Maulana, R Eka Murtinugraha, and Shilmi Arifah, 'Implementasi Program SMK Pusat Keunggulan Dilihat Dari Konsep 8+i Link and Match', *Jurnal Pendidikan Teknik Bangunan*, 2.2 (2022), 59–74 <https://doi.org/10.17509/jptb.v2i2.51290>

Allais, Stephanie, 'Will Skills Save Us? Rethinking the Relationships between Vocational Education, Skills Development Policies, and Social Policy in South Africa', *International Journal of Educational Development*, 32.5 (2012), 632–42 <https://doi.org/10.1016/j.ijedudev.2012.01.001>

Anwar, Choyrul, Nur Kholifah, Muhammad Nurtanto, and Hamid Ramadhan Nur, 'The Capability of Vocational Education Students in Industrial Practice Learning Programs', *Journal of Technology and Science Education*, 13.3 (2023), 657 <https://doi.org/10.3926/jotse.1960>

Anwar, Husni, Sirajul Munir, Muhammad Fazis, Adripen Adripen, and David David, 'Manajemen Program SMK Pusat Keunggulan Di SMKN 1 Sungai Rumbai', *Jurnal Pendidikan Dan Kewirausahaan*, 12.1 (2024), 131–54 <https://doi.org/https://doi.org/10.47668/pkwu.v12i1.1052>

Ardianti, Sekar Dwi, and Sulasfiana Alfi Raida, 'The Effect of Project Based Learning with Ethnoscience Approach on Science Conceptual Understanding', *Journal of Innovation in Educational and Cultural Research*, 3.2 (2022), 207–14 <https://doi.org/10.46843/jiecr.v3i2.89>

Aslindar, Dwi Astarani, Shofiatul Mila, and Rizki Ridhasyah, 'SINKRONISASI KURIKULUM JURUSAN AKUNTANSI DAN KEUANGAN LEMBAGA DI SMK NU 01 KENDAL', *SELAPARANG Jurnal Pengabdian Masyarakat Berkemajuan*, 5.1 (2021), 415–19

Baqadir, Abdullah, Fiona Patrick, and George Burns, 'Addressing the Skills Gap in Saudi Arabia: Does Vocational Education Address the Needs of Private Sector Employers?', *Journal of Vocational Education & Training*, 63.4 (2011), 551–61 <https://doi.org/10.1080/13636820.2011.589533>

Barak, Miri, and Yehudit Judy Dori, 'Enhancing Undergraduate Students' Chemistry Understanding through Project-Based Learning in an IT Environment', *Science Education*, 89.1 (2005), 117–39 <https://doi.org/10.1002/sce.20027>

Bell, Les, 'Strategic Planning and School Management: Full of Sound and Fury, Signifying Nothing?', *Journal of Educational Administration*, 40.5 (2002), 407–24 <https://doi.org/10.1108/09578230210440276>

Blundell, Richard, Lorraine Dearden, Costas Meghir, and Barbara Sianesi, 'Human Capital Investment: The Returns from Education and Training to the Individual, the Firm and the Economy', *Fiscal Studies*, 20.1 (1999), 1–23 <https://doi.org/10.1111/j.1475-5890.1999.tb00001.x>

Buchert, Lene, 'Learning Needs and Life Skills for Youth: An Introduction', *International Review of Education*, 60.2 (2014), 163–76 <https://doi.org/10.1007/s11159-014-9431-3>

Budi, Kusnar, 'Educating for Character in Work Readiness Through Vocational Higher Education in the Digital Era', in *Proceedings of the 3rd International Conference on Vocational Higher Education (ICVHE 2018)* (Paris, France: Atlantis Press, 2020) <https://doi.org/10.2991/assehr.k.200331.144>

Clough, Lani, and Tami Lunsford, 'The MATE Technical Internship Program: Providing Students with Hands-on, Real-World Workplace Experiences and Employers with Future Employees', in *OCEANS 2006* (IEEE, 2006), pp. 1–3 <https://doi.org/10.1109/OCEANS.2006.306861>

Dess, Gregory G, and Joseph C Picken, 'Changing Roles: Leadership in the 21st Century', *Organizational Dynamics*, 28.3 (2000), 18–34 <https://doi.org/10.1016/S0090-2616(00)88447-8>

Eide, E.R., and M.H. Showalter, 'Human Capital', in *International Encyclopedia of Education* (Elsevier,

2010), pp. 282–87 <https://doi.org/10.1016/B978-0-08-044894-7.01213-6>

Embassy, German, 'The German Vocational Training System: A Model for Success', *Https://Www.Germany.Info/Us-En/Welcome/Wirtschaft/03-Wirtschaft/1048296-1048296*, 2025

Eurosta, 'Vocational Education Statistics. European Commission', *Ttps://Ec.Europa.Eu/Eurostat/Statistics-Explained/Index.Php?Title=Vocational_education_statistics*, 2025

Fairman, B, A Voak, H Abdullah, and A Indarjo, 'Re-Skilling Vocational Education and Training Practitioners in Indonesia', *Journal of Physics: Conference Series*, 1516.1 (2020), 012045 <https://doi.org/10.1088/1742-6596/1516/1/012045>

Finland, Ministry of Education and Culture, 'Education at a Glance: Vocational Education and Training Is More Popular in Finland than in Other OECD Countries.', *Https://Okm.Fi/En/-/Education-at-a-Glance-Vocational-Education-and-Training-Is-More-Popular-in-Finland-than-in-Other-Oecd-Countries*, 2025

Firman, Firman, and Fathurrahman Fathurrahman, 'Pendampingan SMK Pusat Keunggulan Ekonomi Kreatif SMKS YAPIS Timika Papua Program Unggulan Teknik Komputer Jaringan', *Jurnal ABDIMASA Pengabdian Masyarakat*, 4.1 (2021), 38–42 <https://doi.org/https://doi.org/10.36232/jurnalabdimasa.v4i1.2737>

Forhad, Md. Abdur Rahman, Gazi Mahabubul Alam, Afruza Haque, Md. Sawgat Khan, and Mamunur Rashid, 'Does a Vocational Education Program Prepare Competent Graduates for Further Academic Programs?', *Higher Education, Skills and Work-Based Learning*, 13.6 (2023), 1108–25 <https://doi.org/10.1108/HESWBL-02-2023-0023>

Forrester, Nikki, 'How to Run a Successful Internship Programme', *Nature*, 635.8037 (2024), 243–45 <https://doi.org/10.1038/d41586-024-03461-8>

Frese, M., and A. Rauch, 'Entrepreneurship, Psychology Of', in *International Encyclopedia of the Social & Behavioral Sciences* (Elsevier, 2001), pp. 4552–56 <https://doi.org/10.1016/B0-08-043076-7/01420-0>

Garefi, Ioanna, Irene Kalemaki, Antonia Schorer, and Aristidis Protopsaltis, 'SOCIAL INNOVATION EDUCATION AND SOCIAL INNOVATION SKILL DEVELOPMENT', 2020, pp. 6118–28 <https://doi.org/10.21125/iceri.2020.1317>

Harahap, Arifuddin Muda, Rizky Olivia Kartina Harahap, Siti Nur Azizah, Herianto Herianto, Pebri Anto Purba, Faiz Azhar Lubis, and others, 'KETIDAKSEIMBANGAN ANTARA ANGKATAN KERJA DENGAN KESEMPATAN KERJA BERDASARKAN UU NO. 11 TAHUN 2020', *JURNAL RECTUM: Tinjauan Yuridis Penanganan Tindak Pidana*, 5.1 (2023), 543 <https://doi.org/10.46930/jurnalrectum.v5i1.2728>

Ilon, Lynn, 'Structural Adjustment and Education: Adapting to a Growing Global Market', *International Journal of Educational Development*, 14.2 (1994), 95–108 <https://doi.org/10.1016/0738-0593(94)90015-9>

Indah Pratiwi, and Sukri Sukri, 'MEMAKNAI NILAI-NILAI PEDOMAN HIDUP ISLAMI WARGA MUHAMMADIYAH PADA PROSES PENGANGGARAN STIE MUHAMMADIYAH PALOPO', *CEMERLANG : Jurnal Manajemen Dan Ekonomi Bisnis*, 2.4 (2022), 95–109 <https://doi.org/10.55606/cemerlang.v2i4.494>

Indra, I Made, and Fanny Novika, 'PENDAMPINGAN PENYUSUNAN RENCANA STRATEGIS, IMPLEMENTASI VISI MISI DAN EVALUASI KEGIATAN YANG EFEKTIF EFISIEN MENCAPAI SMK PUSAT KEUNGGULAN (SMKPK)IMade IndraP1, Fanny Novika21,2, Sekolah Tinggi Manajemen Asuransi Trisakti(STMA Trsiakti)Email: Indraimade1@', *Indonesian Journal of Engagement, Community Services, Empowerment and Development*, 2.1 (2022), 149–56 <https://doi.org/https://doi.org/10.53067/ijecsed.v2i1>

Ixtiarto, Bambang, and Budi Sutrisno, 'KEMITRAAN SEKOLAH MENENGAH KEJURUAN DENGAN DUNIA USAHA DAN DUNIA INDUSTRI (Kajian Aspek Penhgelolaan Pada SMK Muhammadiyah 2 Wuryantoro Kabupaten Wonogiri)', *Jurnal Pendidikan Ilmu Sosial*, 26.1 (2016), 57–69 <https://doi.org/10.2317/jpis.v26i1.2130>

Kapareliotis, Ilias, Katerina Voutsina, and Athanasios Patsiotis, 'Internship and Employability Prospects:

Assessing Student's Work Readiness', *Higher Education, Skills and Work-Based Learning*, 9.4 (2019), 538–49 <https://doi.org/10.1108/HESWBL-08-2018-0086>

Kurniawan, Desma, Muh. Nur Rochim Maksum, and Triono Ali Mustofa, 'Transformation of Educational Intitutional in the Muhmmadiyah Organization', *Proceeding ISETH (International Summit on Science, Technology, and Humanity)*, 2024, 399–407 <https://doi.org/10.23917/iseth.3844>

Li, Junmin, and Matthias Pilz, 'International Transfer of Vocational Education and Training: A Literature Review', *Journal of Vocational Education & Training*, 75.2 (2023), 185–218 <https://doi.org/10.1080/13636820.2020.1847566>

Lince, Leny, 'Implementasi Kurikulum Merdeka Untuk Meningkatkan Motivasi Belajar Pada Sekolah Menengah Kejuruan Pusat Keunggulan', *Prosiding Seminar Nasional Fakultas Tarbiyah Dan Ilmu Keguruan IAIM Sinjai*, 1 (2022), 38–49 <https://doi.org/10.47435/sentikjar.v1i0.829>

Madhakomala, R., M. Akrimul Hakim, and Nabillah Syifauzzuhrah, 'PROBLEMS OF EDUCATION IN INDONESIA AND ALTERNATIVE SOLUTIONS', *International Journal of Business, Law, and Education*, 3.3 (2022), 135–44 <https://doi.org/10.56442/ijble.v3i3.64>

Mahmudah, Fitri Nur, and Budi Santosa, 'Vocational School Alignment Based-on Industry Needs', *Journal of Vocational Education Studies*, 4.1 (2021), 36 <https://doi.org/10.12928/joves.v4i1.3611>

Midiaty, Midiaty, Widyatmike Gede Mulawarman, and Muh. Amir Masruhim, 'Analisis Implementasi Manajemen Kurikulum Merdeka Dalam Meningkatkan Mutu Pendidikan SMK Pusat Keunggulan', *Jurnal Ilmu Manajemen Dan Pendidikan*, 4.2 (2024), 123–34

Mintzberg, Henry, 'The Design School: Reconsidering the Basic Premises of Strategic Management', *Strategic Management Journal*, 11.3 (1990), 171–95 <https://doi.org/10.1002/smj.4250110302>

Mohd Isa Hamid, Mohd Halimudin, Maslin Masrom, and Kamilah Radin Salim, 'Review of Learning Models for Production Based Education Training in Technical Education', in *2014 International Conference on Teaching and Learning in Computing and Engineering* (IEEE, 2014), pp. 206–11 <https://doi.org/10.1109/LaTiCE.2014.47>

Mu'ti, Abdul, *Ta'awun Untuk Negeri: Konteks Keindonesiaan* (Surakarta: Muhammadiyah University Press, 2019)

Nadiya, Amdi Nur Arifitin, and Selly Andari, 'PERAN KEPALA SEKOLAH DALAM MENINGKATKAN KOMPETENSI PESERTA DIDIK MELALUI PENGELOLAAN SMK PUSAT KEUNGGULAN (PK) DI SMK NEGERI 1 KOTA PROBOLINGGO', *Inspirasi Manajemen Pendidikan*, 10.4 (2023), 788–95

Ottati, Gabi Dei, 'An Industrial District Facing the Challenges of Globalization: Prato Today', *European Planning Studies*, 17.12 (2009), 1817–35 <https://doi.org/10.1080/09654310903322322>

Paramitasari, Nurina, Khoirunnurrofik Khoirunurrofik, Benedictus Raksaka Mahi, and Djoni Hartono, 'Charting Vocational Education: Impact of Agglomeration Economies on Job–Education Mismatch in Indonesia', *Asia-Pacific Journal of Regional Science*, 8.2 (2024), 461–91 <https://doi.org/10.1007/s41685-024-00333-x>

Parjiman, Parjiman, Sutarman, Muhammad Ragil Kurniawan, Sutrisno, and Kun Hidayat, 'Rahmatan Lil Alamin Islamic Value Education Model Based on Muhammadiyah School Culture', *MUDARRISA: Jurnal Kajian Pendidikan Islam*, 15.2 (2023), 269–90 <https://doi.org/10.18326/mudarrisa.v15i2.387>

Petchko, Katerina, 'Theory and Theoretical Frameworks', in *How to Write About Economics and Public Policy* (Elsevier, 2018), pp. 181–206 <https://doi.org/10.1016/B978-0-12-813010-0.00010-7>

Rahmah, Latifahtur, and Supari Muslim, 'Implementation of Competence Certification Test for the Improvement of Vocational School of Work Graduation Readiness', in *Proceedings of the 1st Vocational Education International Conference (VEIC 2019)* (Paris, France: Atlantis Press, 2019) <https://doi.org/10.2991/assehr.k.191217.038>

Rangan, Sudarsan, and Malini Natarajarathinam, 'How to Structure an Internship That Is Great for the Intern and the Manager?', in *2014 ASEE Annual Conference & Exposition Proceedings* (ASEE Conferences), pp. 24.678.1-24.678.7 <https://doi.org/10.18260/1-2--20569>

Riza, Fahru, and Lismi Animasi Chisbiyah, 'Komparasi Model Pembelajaran Project-Based Learning

Dengan Experiental Learning Pada Pembelajaran Kewirausahaan SMK', *Briliant: Jurnal Riset Dan Konseptual*, 9.4 (2024), 948–56 <https://doi.org/10.28926/briliant.v9i4.1753>

Ruhi, Umar, Bharti Pandya, and Helen Louise Patterson, 'The Readiness of Workforce for the World of Work in 2030: Perceptions of University Students', *International Journal of Business Performance Management*, 1.1 (2021), 1 <https://doi.org/10.1504/IJBPM.2021.10036854>

Santoso, Santoso, and Raja Jeldi, 'Peran Program Didikan Subuh Dalam Pengembangan Karakter Kemandirian Beribadah Anak', *Jurnal Islamika*, 2.2 (2019), 120–31

Sasson, Irit, Itamar Yehuda, and Noam Malkinson, 'Fostering the Skills of Critical Thinking and Question-Posing in a Project-Based Learning Environment', *Thinking Skills and Creativity*, 29 (2018), 203–12 <https://doi.org/10.1016/j.tsc.2018.08.001>

Semali, Ladislaus, 'Leveraging Multistakeholder Partnerships in Technical, Vocational Education, and Training', *Vocation, Technology & Education*, 1 (2024) <https://doi.org/10.54844/vte.2024.0558>

Sembiring, Evi Dora, and Sari Putri Pertiwi, 'Analysis The Governance of Center Excellence Vocational School Program SMKS Yabhinka Cilegon on Improving Student Competence at the Industrial Era 4.0', *Management Science Research Journal*, 4.1 (2025), 96–104 <https://doi.org/https://doi.org/10.56548/msr.v4i1.149>

Shabrina, Mazaya Razan Alsya Nur, and Triana Rosalina Noor, 'Relevansi Antara Kompetensi Mata Pelajaran Produktif Dengan Pelaksanaan Praktik Kerja Lapangan Siswa', *Indonesian Journal of Innovation Science and Knowledge*, 1.1 (2024), 335–34 <https://doi.org/https://doi.org/10.31004/ijisk.v1i1.58>

Suharno, Nugroho Agung Pambudi, and Budi Harjanto, 'Vocational Education in Indonesia: History, Development, Opportunities, and Challenges', *Children and Youth Services Review*, 115 (2020), 105092 <https://doi.org/10.1016/j.childyouth.2020.105092>

Sunawardhani, Nurlaili, and Casmudi, 'Implementasi Program SMK Pusat Keunggulan Berbasis Kompetensi Keahlian Agribisnis Ternak Unggas Di SMK Negeri 3 Penajam Paser Utara', *EDUKATIF: JURNAL ILMU PENDIDIKAN*, 4.3 (2022), 4968–81

Sundusiah, Sundusiah, Agus Rahayu, Disman Disman, Edi Suryadi, and Muhamad Arief Ramdhany, 'Model of Organizational Creativity Strategy in Improving Positional Advantage of Vocational Schools in West Java', *JPPI (Jurnal Penelitian Pendidikan Indonesia)*, 10.4 (2024) <https://doi.org/10.29210/020245368>

Varma, Charu, and Saroj Malik, 'Perspective Chapter: TVET in the 21st Century – A Focus on Innovative Teaching and Competency Indicators', 2024 <https://doi.org/10.5772/intechopen.112516>

Viñuela, Yaiza, and Ana María de Caso Fuertes, 'Improving Motivation in Pre-School Education through the Use of Project-Based Learning and Cooperative Learning', *Frontiers in Education*, 7 (2023) <https://doi.org/10.3389/feduc.2022.1094004>

Yoana, Ilmiawan Auwalin, and Rumayya, 'The Role of Vocational Education on Unemployment in Indonesia', *Cogent Education*, 11.1 (2024) <https://doi.org/10.1080/2331186X.2024.2340858>

Yunitasari, Fransiska Dwi, Nuniek Herdyastuti, and Achmad Imam Agung, 'KOLABORASI SEKOLAH DAN INDUSTRI: PEMBELAJARAN BERBASIS PROYEK TERINTEGRASI INDUSTRI (PjBL-T)', *Pendas: Jurnal Ilmiah Pendidikan Dasar2*, 10.1 (25AD), 123–34 <https://doi.org/https://doi.org/10.23969/jp.v10i01.23592>

Zulfannur, Zulfannur, Lilik Anifah, and I Gusti Putu Asto Buditjahjanto, 'Pengaruh Problem Solving Skill Dalam Model Pembelajaran Project Based Learning Terhadap Hasil Belajar Siswa Sekolah Menengah Kejuruan', *Jurnal Studi Guru Dan Pembelajaran*, 7.1 (2024), 409–18 <https://doi.org/10.30605/jsgp.7.1.2024.3972>