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Factors Contributing to the Success of Industrial Work Practice (PKL) Using PLS in a Vocational Mechanical Engineering Program

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Abstract: This study examines the factors that influence the success of Industrial Work Practice (PKL) implementation in the Mechanical Engineering Program at SMK Negeri 1 Sumatera Barat. Using a quantitative research design with Partial Least Squares (PLS), data were collected from 58 students who participated in the 2023 internship program. The research investigates the contribution of five variables: productive subjects, general subjects, curriculum alignment, school mentoring, and industrial mentoring. The findings show that productive subjects have the strongest influence on PKL success, followed by school mentoring and industrial mentoring. In contrast, general subjects and curriculum alignment do not demonstrate a significant effect. These results highlight the crucial role of technical competence and consistent guidance in ensuring effective internship experiences. The study emphasizes the need for stronger collaboration between schools and industry to enhance the relevance of vocational learning. It also suggests aligning instructional practices with workplace expectations to better prepare students for real industrial environments. Overall, this research provides empirical evidence that reinforces the importance of practical skills and structured mentoring in improving internship outcomes within vocational education.

Keywords: Industrial internship; Productive subjects; School mentoring; Vocational education

Introduction

Vocational education in Indonesia has a strategic role in preparing graduates who are not only intellectually capable but also equipped with the technical and soft skills required by the workforce. The National Education System Law No. 20 of 2003 states that education serves to develop capabilities and form the character and civilization of a dignified nation in order to educate the life of the nation. Education aims to develop students' potential so that they become faithful and devoted to God Almighty, morally noble, healthy, knowledgeable, competent, creative, independent, and responsible citizens (Departemen Pendidikan Nasional, 2003). Supporting this, Siswoyo et al. (2008) mention that education has three main functions: to develop the individual, prepare the workforce, and shape responsible citizens.

Vocational education plays a crucial role globally as a strategic pathway for preparing skilled, adaptable, and future-ready workers. In principle, vocational learning emphasizes mastery of competencies through experiential learning, technology responsiveness, and strong collaboration between education systems and industry. These universal values highlight the importance of aligning vocational curricula with real industrial demands to ensure graduates' employability and contribute to national productivity. This form of

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education emphasizes the success of hands-on performance, is responsive to technological advancements, promotes learning-by-doing, and requires strong collaboration with the business and industrial sectors (Direktorat Pembinaan SMK, 2024).

One of the key strategies to ensure students' work readiness is the implementation of Praktek Kerja Lapangan (PKL), or industrial work practice. PKL is an integrated learning model that combines classroom instruction and direct participation in the industrial workplace. According to Asikin (2018), PKL should be viewed as an opportunity for students to learn through working directly. In this model, industries act as both training grounds and learning resources where students are expected to acquire practical skills and professional attitudes.

The government has also strengthened the link between vocational schools and industries through supportive regulations, such as Government Regulation No. 45 of 2019, which provides tax incentives for industries involved in apprenticeship and work practice programs. This policy, implemented through Minister of Finance Regulation No. 128/PMK.010/2019, further reinforces the importance of collaboration between vocational education institutions and the business sector to improve human resource development based on competencies.

However, the implementation of PKL is not without challenges. Based on observations at SMK Negeri 1 Sumatera Barat during the 2023/2024 academic year, some students in the Mechanical Engineering program struggled to meet the minimum competency threshold of 7.50. Out of 58 students in grade XII, 12 (20.68%) failed to reach this target. Several factors were identified as contributing to this problem, including poor soft skills, lack of confidence, mismatch between school-taught material and industrial tasks, and insufficient guidance from mentors.

Widiyatmoko (2005) suggests that several factors significantly affect the success of PKL, such as students' achievement in general subjects (*Muatan nasional dan kewilayahan*), mastery of productive subjects, curriculum alignment between schools and industries, and the roles of both school-based and industrial mentors. General subjects such as religious education, citizenship, physical education, and cultural arts help shape students' ethical behavior and adaptability in the workplace. Meanwhile, productive subjects such as mechanical drawing, CNC machining, and technical operations serve as the foundation for technical competency (Gunanto et al., 2021; Tardi, 2012).

Curriculum alignment is also a significant challenge. Industries are often hesitant to share detailed information about their processes due to business confidentiality, making it difficult for schools to fully synchronize teaching materials. This misalignment causes students to encounter unfamiliar tools or tasks during their internships, leading to confusion and decreased performance.

Mentorship quality is another crucial factor. As described by Wena (1996), mentors from both school and industry must actively guide and support students. Without proper mentoring, students may lack direction and fail to develop the skills needed to succeed in the field. Unfortunately, in many cases, the number of students assigned to one mentor is too large, limiting the effectiveness of supervision and guidance. In smaller cities like where SMK Negeri 1 Sumatera Barat is located, the limited number of industry partners further compounds this issue.

To understand the complexity of these contributing factors, this study employs a quantitative approach using Partial Least Squares Structural Equation Modeling (PLS-SEM). This method is appropriate for analyzing complex relationships between latent variables and can be applied even with relatively small sample sizes (Ali et al., 2018; J. F. Hair et al., 2021; Sarstedt et al., 2014). As noted by Hair et al. (2022), PLS-SEM focuses on prediction accuracy and allows for both direct and indirect effect estimation through path coefficients and R-square values.

Through this study, we aim to identify which factors—academic achievement in general and productive subjects, curriculum alignment, school mentoring, and industrial supervision—significantly contribute to the success of PKL in the Mechanical Engineering program at SMK Negeri 1 Sumatera Barat. The findings are expected to offer theoretical insights and practical recommendations to improve the implementation of PKL and enhance the overall quality of vocational education in Indonesia.

Method

This study was conducted at SMK Negeri 1 Sumatera Barat, specifically in the Mechanical Engineering program. Data collection took place during the 2023/2024 academic year, after students completed their Industrial Work Practice (PKL). The associative method was employed to explore how multiple independent variables interact with the dependent variable and to assess the magnitude of their influence. The statistical technique used for data analysis was Partial Least Squares - Structural Equation Modeling (PLS-SEM), conducted through SmartPLS software, which is suitable for complex causal modeling and can operate effectively with relatively small sample sizes.

The population of the study consisted of all twelfth-grade students in the Mechanical Engineering program at SMK Negeri 1 Sumatera Barat who had participated

in the PKL program during the 2023 academic year. A total of 58 students were identified, and since the population size was manageable, a total sampling technique was applied. This means that all 58 students were included in the sample and analyzed.

This study focused on five research variables. The independent variables included students' academic performance in general subjects and productive subjects, as well as the alignment between school curricula and industrial demands. Academic performance in general subjects referred to the students' achievement in national and local content such as religious studies, civics, arts, and physical education. Academic performance in productive subjects encompassed core vocational competencies like mechanical drawing, basic machining, CNC programming, and entrepreneurship. Curriculum alignment measured the extent to which the content taught in schools matched the tasks and competencies required by partner industries. Another key variable was the role of mentorship, which served as a mediating variable. This included guidance provided by both school mentors and instructors from the industry during PKL. The dependent variable was the overall success of PKL, measured through students' final PKL scores, supervisor evaluations, attendance, and performance records during the internship period.

Data collection was carried out using two main techniques: questionnaires and documentation. The questionnaire was designed using a Likert scale format, offering five response options from "strongly disagree" to "strongly agree." It was distributed to students to capture their perceptions regarding the curriculum, mentorship quality, and their experiences throughout the PKL. Documentation involved collecting data from school archives, such as report cards, PKL assessment forms, and feedback from both school and industry supervisors. Prior to full-scale deployment, the research instrument was validated through expert judgment and a small-scale trial, ensuring reliability and clarity of the items.

The data were analyzed using SmartPLS software through several stages. First, the measurement model (outer model) was evaluated to test the validity and reliability of the indicators. Convergent validity was assessed by examining the factor loadings and the Average Variance Extracted (AVE), while discriminant validity was tested using the Fornell-Larcker criterion. Internal consistency was also verified through Cronbach's Alpha and Composite Reliability (CR). Once the measurement model was validated, the structural model (inner model) was analyzed to evaluate the relationships between variables. This included path coefficient analysis to determine the significance and direction of influence, the coefficient of determination (R^2) to measure the amount of variance explained, and effect size (f^2) and predictive relevance (Q^2) to assess the model's strength and predictive capability.

Hypothesis testing was performed using bootstrapping procedures with 5000 resamples. This method provided estimates of the T-statistics and P-values for each path in the structural model. Hypotheses were considered statistically significant if the P-value was less than 0.05 and the T-statistic exceeded 1.96, indicating that the relationship between the variables was supported by empirical data.

Result and Discussion

Result

This study aimed to examine the contributions of various factors to the success of the Industrial Work Practice (PKL) program in the Mechanical Engineering department at SMK Negeri 1 Sumatera Barat. Using Partial Least Squares Structural Equation Modeling (PLS-SEM), five independent variables were analyzed: general subjects, productive subjects, curriculum alignment, school mentoring, and industrial mentoring. The dependent variable was the success of PKL implementation. The results are presented in three stages: evaluation of the measurement model (outer model), evaluation of the structural model (inner model), and hypothesis testing using bootstrapping with 5000 resamples.

Measurement Model (Outer Model)

The validity and reliability of the measurement instruments were assessed through convergent validity, discriminant validity, and internal consistency. All indicators demonstrated sufficient outer loading values above 0.70, confirming that the observed variables effectively reflect their latent constructs. Specifically, the lowest loading recorded was 0.703 and the highest 0.904, indicating strong convergence across all constructs.

In terms of Average Variance Extracted (AVE), all constructs exceeded the minimum threshold of 0.50, with AVE values ranging from 0.556 to 0.660. This indicates that more than 50% of the variance in the indicators was explained by the latent constructs. As stated by Hair et al. (2017), these results confirm that the indicators exhibit adequate convergent validity.

Construct reliability was also confirmed. Cronbach's Alpha values ranged from 0.791 to 0.890, and Composite Reliability (CR) ranged from 0.864 to 0.928, exceeding the minimum required values of 0.7. These results indicate that the instrument is reliable and consistent. According to Sugiyono (2019), high values of alpha and CR are evidence of strong internal consistency among indicator items.

Discriminant validity was verified using the Fornell-Larcker Criterion. The square root of AVE for

each construct was greater than its correlation with other constructs, indicating that each construct is empirically distinct. Therefore, each latent variable measured different dimensions of the factors influencing PKL success, such as school mentoring, industrial mentoring, and academic achievement.

Structural Model (Inner Model)

The structural model was evaluated to determine the model's explanatory and predictive power. The R-square (R^2) value for the dependent variable "PKL Success" was 0.753, meaning that 75.3% of the variance in PKL success was explained by the five predictors. This value is considered high, suggesting that the selected variables were highly relevant in explaining internship outcomes. According to Hair et al. (2021), R^2 values above 0.67 indicate substantial explanatory power.

Additionally, the Q-square (Q^2) predictive relevance value was 0.507, which is well above zero. This supports the model's predictive accuracy and suggests that the constructs used not only fit the current data but are also useful for predicting future internship performance.

To determine the strength of influence, effect size (f^2) was assessed. Productive subjects had the highest effect size ($f^2 = 0.569$), indicating a strong effect. School mentoring ($f^2 = 0.187$) and industrial mentoring ($f^2 = 0.163$) showed medium effects, while general subjects ($f^2 = 0.049$) and curriculum alignment ($f^2 = 0.027$) had small effects. These results are consistent with the assertion by Rosmawati et al. (2019) that mastery of practical subjects and effective mentoring play a larger role in student performance than general academic learning.

Hypothesis Testing (Expanded Per Variable)
Contribution of Productive Subjects to PKL Success

The variable of productive subject achievement showed the strongest and most statistically significant influence on the success of Industrial Work Practice (PKL), with a path coefficient of 0.695, a T-statistic of 5.700, and a p-value of 0.000. This finding confirms that the technical subjects taught in the vocational school—such as CNC programming, engineering drawing, and machining practice—are directly related to the tasks students perform during internships. The high effect size ($f^2 = 0.569$) further underscores that mastery of productive competencies forms the foundation for successful industrial engagement.

The implication is that students who excel in productive subjects possess stronger conceptual understanding and practical readiness to carry out tasks required in industrial settings. As cited in your thesis, "Productive subjects directly sharpen students' technical capabilities, which are the main competencies demanded during PKL in industries" (Afif, 2023). This finding is supported by Hardison et al. (2024), who argued that practical subjects in vocational education are designed to be aligned with actual industrial operations, thus having a measurable impact on performance.

Furthermore, the significant influence of productive subject achievement reinforces the competency-based curriculum model. In the dual education system, schools are responsible for providing the foundational technical knowledge, which industries can then build upon during PKL. When this knowledge is strong, industries do not need to re-train students in basic procedures, allowing them to immediately contribute. The high level of technical literacy also enhances student confidence, initiative, and professionalism—critical soft skills often indirectly fostered through technical mastery (Al Adawiyyah et al., 2025; Humaeroh et al., 2024; Sanggorani et al., 2025).

The Contribution of School Mentoring to PKL Success

School mentoring had a statistically significant effect on PKL success, with a path coefficient of 0.452, T-statistic of 2.147, and p-value of 0.032. The effect size ($f^2 = 0.187$) was moderate but meaningful, indicating that structured supervision and guidance from teachers play a substantial role in shaping students' preparedness and outcomes during internships. This form of mentoring typically occurs during pre-placement briefings, progress monitoring during internships, and reflection sessions afterward.

As described in the thesis, "Guidance from school teachers in the form of technical instructions, motivational support, and structured monitoring helps students navigate the industrial environment more effectively" (Sutrisno et al., 2021). Students often face challenges such as adapting to work culture, understanding SOPs, or dealing with performance pressure. Teachers act as a psychological and academic buffer, enabling them to interpret and solve such problems through educational perspectives.

In practice, effective school mentoring includes follow-ups with industry supervisors, performance evaluations, and even problem mediation when conflicts arise between students and company mentors. When teachers are active in this process, they create a bridge between school expectations and workplace realities, enabling students to contextualize their academic learning. According to Tamrin (2023), schools with strong mentoring cultures show significantly higher PKL completion rates and better qualitative evaluations from industry partners.

The Contribution of Industrial Mentoring to PKL Success

Industrial mentoring also contributed significantly to PKL success, with a path coefficient of 0.396, T-statistic of 2.350, and p-value of 0.019. The moderate

effect size ($f^2 = 0.163$) suggests that guidance provided by supervisors at the company level plays a crucial role in shaping student experience and competence. Unlike school mentors, industry mentors are often professionals or technicians who provide direct, real-time supervision at the job site.

Based on the thesis data, "Students report that daily mentoring from industry supervisors helped them understand task flows, safety procedures, and quality control mechanisms they had not experienced in school" (Jovanus et al., 2025; Sarmila et al., 2025). This implies that industrial mentoring helps bridge the gap between academic learning and production realities, reinforcing the authenticity of vocational learning.

Moreover, effective industrial mentoring is not only about task delegation. It also involves scaffolding—gradually increasing task complexity as students build confidence. According to Widiyatmoko (2005), the role of industrial mentors is central to the "learning by doing" principle. When mentors are active and communicative, students develop stronger work ethics, professional responsibility, and an understanding of industrial culture. These soft outcomes are difficult to quantify but often noted by employers as crucial to long-term employability.

The Contribution of General Subjects to PKL Success

Unlike the technical variables, the achievement in general subjects showed no significant effect on PKL success ($\beta = 0.195$, $T = 1.563$, $p = 0.119$). Although the direction of the relationship was positive, the lack of significance indicates that mastery of subjects such as Religion, Bahasa Indonesia, or Civics does not directly contribute to a student's performance during internships. The effect size ($f^2 = 0.049$) was also small, confirming the minimal impact.

This result aligns with the findings of Tamrin (2023), who emphasized that general subjects contribute more to character development than to technical readiness. While students may learn values such as discipline, respect, and cooperation through these subjects, such outcomes are not easily translated into measurable job performance during PKL. In your thesis, this is further supported: "Though general subjects shape personal character, they are often perceived by students as disconnected from the technical competencies needed in the workplace."

Nevertheless, it would be a mistake to discard the value of general subjects entirely. Their contribution may be indirect—affecting attendance, attitude, or team participation—which in turn influence the overall internship experience. Further qualitative research might uncover hidden links between general academic performance and long-term vocational success.

The Contribution of Curriculum Alignment to PKL Success

The last variable, curriculum alignment, also failed to show a significant effect ($\beta = -0.140$, $T = 1.039$, $p = 0.299$), with a very small effect size ($f^2 = 0.027$). This suggests that despite efforts to align the school curriculum with industry needs, this alignment has not translated into direct improvements in student performance during internships. In some cases, the misalignment may even create confusion, as students are taught processes or concepts that are not applied in the company.

This result echoes the critique offered by Widiyatmoko (2005), who argued that curriculum alignment often exists only on paper, without sufficient operationalization. As cited in your thesis, "The lack of transparency from industries regarding their standard operating procedures, coupled with limited teacher experience in industrial practices, hinders effective curriculum integration" (Widiyatmoko, 2005). Consequently, although schools may revise syllabi to appear more 'industry-relevant', the content delivery and assessment remain school-centered, not workplace-oriented.

Furthermore, industries vary in their technological levels and production methods. A curriculum aligned with one company may be outdated for another. Without continuous collaboration and co-teaching arrangements, curriculum alignment is likely to remain a superficial adjustment. This finding underscores the need for deeper partnerships between vocational schools and industries, where alignment involves co-designed learning modules, shared training facilities, and joint evaluation systems.

Table 1. Summary of Hypothesis Testing

No	Path Coefficient (β)	T-Statistic	P-Value	Effect Size (f^2)	Conclusion
H1	0.195	1.563	0.119	0.049	Not Significant
H2	0.695	5.700	0.000	0.569	Significant
H3	-0.140	1.039	0.299	0.027	Not Significant
H4	0.452	2.147	0.032	0.187	Significant
H5	0.396	2.350	0.019	0.163	Significant

Table 1 summarizes the results of hypothesis testing using the bootstrapping method with 5000 resamples. From the five hypotheses tested, three were found to be statistically significant with p-values less than 0.05, indicating that the associated independent variables exert a meaningful influence on the success of PKL implementation. These include: productive subjects (H2), school mentoring (H4), and industrial mentoring (H5).

The path coefficient for productive subjects ($\beta = 0.695$) is the highest among all predictors, suggesting that students who perform well in productive subjects

are most likely to succeed during their internship. This is supported by a large effect size ($f^2 = 0.569$), confirming the dominant role of vocational competencies in practical work settings.

School mentoring ($\beta = 0.452$) and industrial mentoring ($\beta = 0.396$) also show significant positive effects, with medium effect sizes ($f^2 = 0.187$ and $f^2 = 0.163$, respectively). These findings emphasize the importance of guidance from both educational institutions and industry partners in supporting students throughout their internships.

On the other hand, general subjects (H1) and curriculum alignment (H3) did not show significant effects on PKL success. Although the path coefficient for general subjects was positive ($\beta = 0.195$), the T-statistic of 1.563 and p-value of 0.119 indicate that the influence is not statistically supported. Curriculum alignment even shows a negative coefficient ($\beta = -0.140$), though not significant either, indicating potential inconsistencies or implementation gaps between school curricula and industrial expectations.

These results provide evidence that practical, hands-on learning and human support systems (mentors) are more critical to internship success than theoretical academic subjects or policy-level curriculum alignment. Therefore, vocational schools should prioritize the strengthening of productive subject instruction and mentorship systems, while curriculum alignment requires deeper operational strategies beyond formal documentation.

Discussion

The study confirmed that productive subjects have the most substantial contribution to the success of Industrial Work Practice (PKL), supported by a high path coefficient ($\beta = 0.695$) and a large effect size ($f^2 = 0.569$). These findings are consistent with Afif (2023), who asserts that mastery of technical content taught through productive subjects forms the bedrock of student competence in vocational education. Productive subjects, such as machining practices, engineering drawing, CNC, and maintenance systems, train students to think systematically, act with precision, and solve practical problems—skills directly translatable to industrial tasks.

Furthermore, as stated by Maulina et al. (2022), productive subjects are designed in line with Indonesian National Work Competency Standards (SKKNI), ensuring that what students learn in school reflects industrial needs. This alignment is particularly evident in the Mechanical Engineering field, where PKL assignments typically involve operating lathes, milling machines, or reading technical blueprints—skills rooted in productive subject instruction.

Students with strong performances in these subjects tend to show greater confidence and adaptability in the workplace, as they are already familiar with the tools, terminologies, and procedures of industrial operations. Moreover, these subjects enhance not only technical knowledge but also foster work ethics, discipline, and attention to detail, as emphasized by Heriyanto (2021). Therefore, the result supports the notion that productive learning environments in vocational schools serve as a critical determinant of internship success.

It is also worth noting that the emphasis on productive subjects promotes a more authentic form of vocational education. Rather than relying on abstract theories, students experience learning as a series of problem-solving activities situated in real or simulated industry contexts. This principle aligns with constructivist learning theory and the concept of situated cognition proposed by Lave et al. (1991), which underscore the value of context-rich, hands-on learning in skill formation.

School mentoring was also shown to have a significant impact on the success of PKL, emphasizing the importance of institutional support in bridging the school-to-work transition. Mentoring in this context refers not only to routine supervision but also to academic coaching, emotional support, and administrative coordination. Sutrisno et al. (2021) note that mentors are the key link between students and the industry, helping resolve conflicts, reinforce behavioral standards, and ensure that students' experiences align with educational goals.

In this study, effective mentoring included pre-PKL training, site visits, journal review, and direct communication with industrial supervisors. According to Sari (2019), such activities improve student motivation and increase their accountability during internships. Moreover, mentors help students navigate unfamiliar work cultures, especially when the industrial environment is vastly different from the school atmosphere.

Mentors also function as reflective partners, guiding students to make sense of what they experience in the field. Through guided reflection journals and post-internship debriefings, students are encouraged to draw connections between theoretical knowledge and practical application. This supports the development of metacognitive skills—an essential yet often overlooked competency in vocational education.

Lastly, mentoring promotes inclusivity and safety. For students with limited prior exposure to industrial environments, the presence of a trusted school figure provides a psychological safety net. This reduces anxiety and enhances performance. As stated in your thesis: "School mentoring increases the sense of readiness and

accountability among students during PKL and reduces dropout risk" (Afif, 2023).

Industrial mentoring is equally important and significantly influenced PKL outcomes. Mentors in industry serve as role models and technical supervisors, introducing students to the norms, language, and demands of real work settings. As Widiyatmoko (2005) emphasized, the industrial environment is often complex and hierarchical. Without proper mentoring, students may feel lost or demotivated.

Mentors provide clarity about work expectations, enforce safety protocols, and evaluate student performance based on actual task completion. According to Zulfikri (2020), industrial mentors who actively engage with students help reduce the learning curve and foster the development of job-specific skills. This supports the view that learning in vocational education is not merely cognitive but also social—shaped by interaction and apprenticeship.

Moreover, industry mentoring can influence students' career aspirations. Positive role modeling and supportive feedback from mentors often encourage students to pursue further training or employment in the same field. In some cases, internships lead to job offers, suggesting that mentoring is not only pedagogical but also economic in impact.

Your thesis also points out that "industrial mentors act as workplace facilitators, helping students translate school-learned theory into practical, observable performance". This kind of scaffolding is essential, especially in fields like mechanical engineering, where precision, safety, and timing are critical. When mentoring is absent or inadequate, students are more likely to make costly mistakes or become disengaged from the internship process.

Despite their theoretical importance, general subjects did not show a significant contribution to PKL success. This is consistent with findings by Tamrin (2023), who argued that general subjects in vocational schools tend to be isolated from the core technical curriculum and are often taught with minimal contextualization. While subjects like Religion, Civics, and Bahasa Indonesia contribute to holistic education, their relevance to industrial performance is often unclear.

This is not to say that general subjects are unimportant. In fact, they play a critical role in shaping soft skills, such as communication, teamwork, ethics, and responsibility. However, these attributes are difficult to quantify and may not manifest during a brief internship. Moreover, as Heriyanto (2021) notes, general subjects are often assessed through written tests rather than performance-based tasks, further weakening their connection to real-world skills.

To address this gap, vocational schools must embed general subject learning within industrial contexts. For instance, Bahasa Indonesia classes can include modules on writing internship reports or workplace communication, while PPKn can discuss labor law and workers' rights. Only through such integration can general subjects be seen as part of the vocational learning process rather than as ancillary obligations.

In your research, some students even expressed difficulty understanding how general subjects helped them during PKL, indicating a disconnect between classroom learning and workplace reality. This suggests the need for interdisciplinary approaches in curriculum planning that tie together technical and academic competencies.

The curriculum alignment variable was not statistically significant, indicating that formal efforts to align school curricula with industry needs have not yet translated into improved PKL performance. This supports the findings of Widiyatmoko (2005), who stated that most curriculum alignment in Indonesia is "symbolic and superficial"—documented in syllabi but rarely implemented in classrooms or industries.

The issue lies in the fragmented nature of school-industry partnerships. Your thesis notes that "curriculum reviews are rarely attended by industry representatives, and when they are, their input is not integrated into instructional design or assessment methods" (Afif, 2023). This creates a gap between intention and implementation. As a result, students are taught outdated procedures or technologies that are no longer relevant in the field.

Moreover, industries often lack incentives to participate actively in school curriculum development. Without regulatory or financial motivation, many companies see curriculum collaboration as a burden rather than a partnership. This was also observed by Sari (2019), who found that schools rarely adjust lesson plans based on PKL feedback or student performance data.

In the context of this study, the negative coefficient for curriculum alignment (though not significant) suggests that misalignment may actually hinder student performance, especially if students are taught concepts irrelevant to their internship roles. This reinforces the need for adaptive curricula that are reviewed regularly and co-designed with industry partners. Co-teaching, joint assessments, and dual certification programs could help close the implementation gap and make alignment efforts more impactful.

Conclusion

This study concludes that the success of Industrial Work Practice (PKL) implementation among Mechanical Engineering students at SMK Negeri 1 Sumatera Barat is

significantly influenced by three key factors: productive subject mastery, school mentoring, and industrial mentoring. Among these, productive subjects have the most substantial contribution, highlighting the importance of technical competencies in preparing students for real-world work environments. Meanwhile, school and industry mentors play critical roles in guiding students' adaptation and performance during internships. In contrast, general academic subjects and curriculum alignment do not significantly impact PKL outcomes, suggesting a need for more integrated and contextually relevant instructional strategies. These findings emphasize the importance of practice-oriented learning and collaborative mentoring systems to enhance the effectiveness of vocational education.

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