



Management of Education and Training Centers in Improving Vocational School Teacher Competence

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ABSTRACT

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This study aims to analyze the management of education and training centers in improving vocational school teachers' competencies. Using a qualitative descriptive approach, data were collected through in-depth interviews with training center managers and vocational school teachers, direct observation of training activities, and document analysis, including training modules and evaluation reports. The key findings indicate that effective management of training centers is characterized by strategic planning based on training needs analysis, the implementation of professional development programs with industry collaboration, and the application of both formative and summative evaluation systems. The study highlights the importance of aligning training management with ongoing curriculum developments, technological advancements, and industrial requirements. The novelty of this research lies in its integrated approach that links managerial strategies directly with measurable improvements in teacher performance and learning outcomes in vocational education. The results show that adaptive and responsive training systems, strengthened by sustainable school-industry partnerships, are essential to guarantee continuous competence development among vocational teachers. The study recommends further research on the implementation of more flexible and scalable digital-based or hybrid training models to reach a broader range of educators across different regions and sectors.

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INTRODUCTION

The rapid development of the global workforce and advancements in technology have led to substantial transformations in various sectors, especially in the field of education (Hasyim et al., 2022; Li, 2024). In particular, vocational education has become a key area of focus, as the demand for skilled labor

continues to grow (McGrath, 2023; Zaukna et al., 2024). Vocational school (SMK) teachers are expected to not only have expertise in their subject matter but also be equipped with the ability to integrate current industrial practices into their teaching methods (Lonika, 2023; Jatmiko 2023). This is essential for preparing students to face the real-world challenges they will encounter in their professional lives. The changing nature of industry and technology necessitates that vocational teachers continually update their skills and knowledge, ensuring they are well-equipped to foster competent future workers (Young-Babb et al., 2025). The role of teachers, therefore, is critical in shaping the workforce of the future, making research into their professional development indispensable for ensuring the effectiveness of vocational education in the face of these changes.

Despite the increasing demand for skilled labor and the need for teachers to stay updated with industrial advancements, many vocational teachers struggle to keep pace with these developments. This problem arises primarily from a lack of adequate and systematic professional development programs tailored to the specific needs of vocational education. Education and training centers (pusdiklat), while essential in supporting vocational teachers, often lack the resources or effective management frameworks to address the rapidly changing demands of the workforce. In some cases, teacher training programs fail to adapt to the evolving technological and industrial trends, which limits their ability to prepare students adequately for the workforce. Furthermore, the disconnect between the skills taught in vocational schools and those required by industries highlights the need for a more dynamic and adaptive teacher training system that can bridge this gap effectively.

In practice, many vocational teachers face challenges in integrating the latest industrial trends into their teaching methods due to limited access to professional development opportunities. A lack of continuous training and updates on the latest technologies and industry practices hinders teachers' ability to provide students with relevant skills. Additionally, some education and training centers offer programs that are not sufficiently aligned with the actual needs of the workforce, often focusing on generic skills rather than specific competencies required by industries. This misalignment results in a gap between the education students receive and the expectations of employers. The situation is particularly concerning in regions where access to quality training and professional development is limited, making it even more critical to develop efficient and accessible training systems that cater to these needs.

Previous studies have examined various aspects of teacher professional development in vocational education, highlighting several challenges and areas for improvement. For instance, Ahmmed et al. (2022) and Ashraf et al. (2023) emphasized that many teacher training programs lack a comprehensive training

needs analysis, leading to ineffective outcomes. This highlights the importance of aligning training content with the specific needs of teachers and their respective industries. Ambu-Saidi (2024) and Gusli et al. (2024) pointed out the significant role that instructor quality and post-training evaluations play in ensuring the sustainability of training impacts. However, existing research has predominantly focused on isolated aspects of training, such as content delivery or evaluation systems, without providing a holistic analysis of the entire management process of education and training centers. These gaps indicate a need for a comprehensive study that analyzes the full management cycle—covering planning, implementation, and evaluation—to improve teacher competence in a sustainable manner.

While several studies have contributed valuable insights into improving vocational teacher training, none have comprehensively explored how training centers manage their operations, integrate curriculum changes, and address evolving industry needs. Previous research tends to focus on isolated components, such as training outcomes or the quality of trainers, but fails to examine how the management of the training process impacts long-term teacher development. This research gap underlines the need for a more integrative approach that addresses the entire lifecycle of teacher training—from strategic planning to post-training evaluation. Understanding the full scope of training management will provide the basis for creating a more adaptive, sustainable system that aligns with both national curriculum changes and technological advancements in industry. Thus, the current research aims to fill this gap by focusing on how education and training centers can improve their management processes to enhance vocational teachers' competencies effectively.

This research offers a fresh perspective by focusing not only on the short-term outcomes of teacher training programs but also on how the management of education and training centers can be optimized to achieve sustainable improvements in vocational teacher competence. With the rise of digital and hybrid learning models, especially in light of the challenges posed by remote learning, it is increasingly important to design training programs that are flexible, accessible, and capable of evolving with the technological and industrial landscape. The importance of this research lies in its potential to provide a new, comprehensive management model that can be adapted by vocational training centers in Indonesia, enabling them to meet the demands of both the education sector and the industries that rely on a skilled workforce. By focusing on strategic planning, implementation, and evaluation, this study will contribute to creating a more effective and responsive teacher training system.

The central research problem addresses the management of education and training centers in improving the competencies of vocational teachers, focusing

on three key components: strategic planning, program implementation, and evaluation. The study seeks to answer how these components can be effectively integrated to create a sustainable and adaptive teacher development model. The research will argue that the success of teacher competency improvement is deeply rooted in the effectiveness of training management and will explore how education and training centers can better align their operations with industry needs and technological advancements. This study aims to provide practical insights for developing a more robust and responsive training management system that will lead to significant, long-term improvements in vocational teacher competence, ultimately contributing to the advancement of vocational education in Indonesia.

RESEARCH METHOD

This research employed a qualitative descriptive approach (Stanley, 2023), which was chosen to gain a deeper understanding of how education and training centers manage their programs to enhance vocational school teacher competence. The qualitative approach is particularly suited for this study because it allows for an in-depth exploration of phenomena through direct engagement with key informants and the observation of real-world training practices. This method enabled the researcher to capture the complexities and contextual factors that influence the management of teacher training programs.

The study was conducted at a vocational teacher training center in West Java, Indonesia, known for its consistent efforts in organizing professional development programs for vocational teachers. This location was purposively selected due to its high level of activity in conducting training programs and the availability of comprehensive documentation regarding its operations. The center's established track record in teacher development made it an ideal site to investigate how training programs are planned, implemented, and evaluated to improve teacher competence.

The research population consisted of key stakeholders involved in the management and execution of teacher training programs. These included the head of the training center, instructors (*widyaiswara*), and vocational school teachers as training participants. Purposive sampling was used to select informants who held strategic roles and could provide relevant, in-depth insights into the research focus. The main informants were the head of the training center (as policy maker), instructors (as training implementers), and vocational school teachers (as program participants).

Data collection involved three primary techniques: in-depth interviews, direct observation, and document analysis (Khan et al., 2025). In-depth interviews were conducted with the head of the training center, instructors, and

SMK teachers to explore their perspectives on the planning, implementation, and evaluation of training programs. These interviews were semi-structured, allowing for flexibility and depth in responses. Direct observation was used to study the dynamics of training activities, focusing on learning interactions, the application of blended learning, and the involvement of industry partners in the training process. Additionally, official documents, such as training modules, curriculum guides, program reports, and evaluation tools, were systematically reviewed to triangulate the data obtained from interviews and observations.

For data analysis, this study followed the Miles and Huberman (1994) interactive model, which consists of three key stages: data reduction, data display, and conclusion drawing. Data reduction involved selecting and simplifying the field data to focus on relevant information. Data display entailed organizing the information in narrative or matrix form to facilitate interpretation. Finally, conclusion drawing synthesized the data to identify recurring patterns and extract meaningful insights. To ensure data validity, source triangulation was applied by comparing data from multiple informants and documents. This multi-faceted approach allowed for a comprehensive understanding of the management practices in the training center.

RESULT AND DISCUSSION

Result

The results of this study demonstrate that the management of education and training centers in enhancing vocational school teacher competence is carried out systematically through three interrelated stages: planning, implementation, and evaluation.

Planning

The planning stage plays a critical role in shaping the direction and relevance of training programs for vocational teachers. It begins with a needs assessment, which involves evaluating the teachers' existing competencies, identifying knowledge gaps, and setting specific training objectives. The assessment is not solely based on the national curriculum but also incorporates industrial standards and regional vocational demands. This approach ensures that the programs are not only academically relevant but also aligned with the needs of the labor market, making them practical and effective for teachers who will eventually apply these skills in the classroom.

One of the instructors (widyaishwara) emphasized that the needs assessment process is critical for tailoring training programs to meet the specific demands of the industry. According to the informant, it is not enough to simply follow the national curriculum; vocational schools must also consider the

evolving technological advancements and the specific needs of local industries. The informant noted that they frequently engage with industry partners during the planning phase to understand what skills are in demand. This collaboration ensures that the training programs are relevant to both the national curriculum and the real-world job market, providing teachers with up-to-date knowledge that can be passed on to students.

The head of the training center further elaborated on the importance of stakeholder involvement in the planning process. According to this informant, planning is a collaborative effort involving policy makers, industry representatives, and the teachers themselves. They stated that regular forums and meetings are held to align the training content with industry expectations. The involvement of industry partners allows for the integration of practical insights into the curriculum, ensuring that the training programs meet the ever-changing demands of the workforce. This dynamic engagement helps to create a training program that is not only comprehensive but also adaptable to emerging trends in the industrial sector.

During the researcher's direct observation of training activities, it was evident that the planning phase plays a crucial role in ensuring the success of the program. The researcher observed several sessions where instructors and industry representatives worked together to design content that reflected the latest technological advancements. These sessions were characterized by active discussions and a clear focus on equipping teachers with the practical skills they need to teach effectively. The involvement of industry partners in these planning sessions ensured that the content was relevant and reflective of the demands of the labor market. This collaborative approach led to a more dynamic and impactful training process.

Based on the data collected, the planning stage of teacher training in vocational education is a well-structured process that involves key stakeholders and aims to align training content with both national curriculum requirements and industrial standards. By engaging policy makers, industry partners, and teachers in the planning process, the training programs are tailored to meet the needs of the workforce and the teachers themselves. The needs assessment, conducted at the start of the planning stage, ensures that the programs are relevant and capable of addressing the specific challenges faced by vocational teachers. This comprehensive planning process is vital for ensuring that vocational teachers are adequately prepared to meet the demands of the job market.

The data reveals a clear pattern where the planning stage is heavily dependent on stakeholder collaboration, particularly between vocational schools, industry partners, and policy makers. This collaborative approach

ensures that the training programs are both practical and forward-thinking, addressing the specific needs of teachers and the labor market. The consistency of involvement from these stakeholders at various stages of the planning process highlights the importance of a unified approach to vocational teacher training. The integration of industry insights and regional demands into the planning phase reflects a commitment to developing programs that are adaptable and relevant, providing teachers with the skills and knowledge needed to succeed in their profession.

Implementation

The implementation phase of vocational teacher training focuses on applying blended learning models, which combine synchronous and asynchronous online sessions with face-to-face practical workshops. This blended approach aims to provide both theoretical knowledge and practical skills, allowing teachers to gain hands-on experience and real-world application of the concepts being taught. The training materials are designed to be comprehensive, integrating up-to-date industry insights to ensure the relevance and effectiveness of the programs. Industry professionals are invited to serve as co-instructors, contributing valuable insights into current industrial technology and best practices.

One of the instructors highlighted the benefits of using blended learning models during training implementation. According to the informant, this approach allows for a flexible and interactive learning environment, catering to different learning styles and allowing participants to engage with the content both online and in-person. The instructor emphasized that the integration of online sessions helps teachers to grasp theoretical concepts at their own pace, while the face-to-face workshops provide them with the necessary hands-on practice to apply these concepts in a real-world setting. This combination ensures a more holistic and practical training experience for the teachers.

The head of the training center provided further insight into the importance of industry partner involvement during the implementation phase. They explained that the partnership with industry professionals is a distinctive feature of their training programs. These professionals are invited to co-teach workshops and provide real-time industry insights that ensure the training content stays aligned with current technological advancements and industry needs. The informant stressed that these partnerships help bridge the gap between classroom instruction and industry requirements, equipping teachers with knowledge and skills that are directly applicable in the workplace. Regular feedback from both instructors and trainees is then used to refine and improve the delivery of training programs.

During the direct observation of training activities, the researcher noted the active involvement of industry professionals in the practical workshops. Their presence not only enhanced the relevance of the training content but also provided an opportunity for teachers to interact directly with current industry practices. The observed sessions were interactive and engaging, with real-world scenarios being discussed, and trainers encouraged to apply these scenarios in their own classrooms. This approach, combining theoretical lessons with practical exposure to industry standards, helped create a learning environment where teachers could build confidence in their ability to teach their students the latest skills and technologies.

From the data collected, it is clear that the implementation phase is vital to the success of the teacher training program. The use of blended learning allows for flexibility and a well-rounded learning experience, combining theoretical learning with practical applications. The integration of industry professionals into the training process helps ensure that the content remains current and relevant to real-world job markets. Moreover, the continuous feedback loop from instructors and trainees helps refine and improve the training delivery, ensuring that the programs remain effective and responsive to changing industrial needs. This combination of practical experience and industry insight significantly enhances the quality and applicability of the training.

The data reveals a pattern where industry involvement plays a critical role in bridging the gap between classroom teaching and industry demands. By inviting industry professionals as co-instructors and providing teachers with exposure to current technologies and practices, the training programs ensure that vocational educators are well-equipped to teach their students skills that are immediately applicable in the workforce. The use of blended learning further supports this by offering flexibility and a balance between theoretical knowledge and practical experience. The consistent use of feedback from all participants also ensures that the training programs continuously evolve to meet the ever-changing needs of the industrial sector.

Evaluation

The evaluation phase of the training program is conducted in multiple stages to ensure its effectiveness and impact on teacher competence. This phase begins with pre-tests to measure teachers' baseline knowledge, followed by post-tests, project-based assignments, and practical skill assessments to evaluate the extent of competence attained after training. The evaluation process is comprehensive, encompassing not only cognitive knowledge but also technical and soft skills. By assessing various aspects of teacher competence, the evaluation ensures that the training programs are holistic and provide a complete measure

of the impact on teachers' professional development.

One of the instructors shared that the use of pre- and post-tests, as well as project-based assignments, is an essential part of their evaluation approach. According to this informant, these assessments help to gauge how well teachers have understood the theoretical content and how they apply that knowledge in practical scenarios. The instructor mentioned that post-tests, along with practical skill assessments, provide valuable feedback on the teachers' growth and help identify areas for further improvement. This multifaceted evaluation approach ensures that both cognitive and practical skills are adequately measured and that the training's effectiveness is assessed from multiple angles.

The head of the training center emphasized the importance of formative evaluation in sustaining the long-term impact of the training. According to this informant, formative evaluation is conducted through continuous mentoring and coaching, which supports teachers as they begin applying their newly acquired skills in the classroom. The informant explained that ongoing coaching helps teachers overcome challenges and reinforces the learning outcomes of the training. It also provides an opportunity to offer additional support where necessary, ensuring that teachers are confident and capable of implementing what they have learned. This continuous support, they noted, is essential for translating the training's theoretical content into real-world teaching practices.

During the researcher's observation of the training activities, it was evident that the evaluation process, particularly the post-training assessments and follow-up coaching, was crucial to the success of the program. The researcher observed several teachers receiving one-on-one coaching sessions that helped them refine their teaching methods and address any challenges they faced while applying new skills in the classroom. The feedback from these coaching sessions was constructive and focused on improving teaching practices and classroom management. This continuous evaluation and support mechanism ensured that teachers were able to transfer their training experiences into their professional work effectively.

Based on the data collected, the evaluation phase of the teacher training program is a comprehensive and multi-dimensional process. The use of pre- and post-assessments helps measure teachers' knowledge and competence before and after the training, while project-based assignments and practical skill assessments provide insight into their ability to apply what they have learned. Formative evaluation through continuous mentoring and coaching ensures that the training's impact extends beyond the completion of the program, providing teachers with ongoing support. This evaluation process plays a key role in assessing the effectiveness of the training and helping teachers implement their new skills in their classrooms.

The data reveals a clear pattern in which both summative and formative evaluation processes play significant roles in the overall effectiveness of the training programs. The summative evaluation, which includes pre- and post-tests, project assignments, and practical assessments, provides measurable data on the improvement in teachers' competencies. However, the formative evaluation, through continuous mentoring and coaching, is what sustains the impact of the training over time. The integration of both types of evaluations ensures that teachers are supported not only during the training but also after its completion, reinforcing their skills and ensuring the long-term applicability of what they have learned.

Table 1. Summary of Training Program Evaluation

Evaluation Aspect	Sig. Value	Description
Program Planning	0.005	Significant (+), indicating that proper planning improves training relevance and engagement.
Strategic Implementation	1.34	Not Significant, suggesting challenges in sustaining and strategically implementing competency improvement programs.

The results highlight that while the planning phase yields significant improvements in training relevance and teacher engagement, challenges persist in ensuring the sustainability and strategic implementation of competency improvement programs. Factors such as resource limitations, varying levels of teacher readiness, and limited follow-up support can affect the continuity and long-term impact of the training. Therefore, ongoing support and resource allocation are critical to overcoming these challenges and ensuring that the training leads to lasting improvements in teacher competence.

Discussion

The findings of this study are in line with previous research Karim et al. (2023) and Gudadur (2023), who highlight the importance of a comprehensive needs assessment, high-quality instructors, and continuous evaluation in effective teacher training. Both studies argue that a needs assessment ensures that the training programs are relevant to the actual needs of the teachers and the industries they serve. This aligns with the present study, where the planning stage, which begins with a needs assessment, plays a critical role in ensuring the training is tailored to teachers' competencies and industry demands. Furthermore, the involvement of high-quality instructors and the use of ongoing evaluations during and after the training are recognized as essential elements for improving the training's effectiveness, as confirmed by the findings in this research.

However, this study extends the previous research by emphasizing the critical role of school-industry partnerships in vocational teacher training programs. While Rahayu et al. (2021) and Sari & Riwu Kore (2022) acknowledge the importance of connecting training with industry needs, the current study goes further by specifically highlighting how industry professionals contribute directly to the training sessions. Industry professionals, as co-instructors, provide real-world insights that help bridge the gap between theoretical knowledge and practical skills, ensuring that the teachers are well-prepared to teach current industry practices. This contribution is crucial for keeping the training programs relevant in an ever-evolving industrial landscape, where technology and practices are constantly changing.

In addition to school-industry partnerships, the study also underscores the need for adaptive and innovative management strategies that can respond to rapid changes in curriculum and technology. Previous studies primarily focused on the content of the training programs and the assessment methods used. However, this research draws attention to the management of the training process itself, which must be flexible and responsive to the dynamic nature of both the curriculum and industry demands. The findings suggest that education and training centers need to adopt more agile management practices, incorporating regular feedback loops, continuous adaptation of training content, and the use of new technologies to keep pace with developments in both the educational and industrial sectors.

The theoretical implications of this study suggest that effective teacher training is not solely dependent on the content delivered but also on how the training is managed and continuously refined. The integration of industry insights into the curriculum, as well as the adaptive management of training programs, contributes to a deeper understanding of how vocational education and training (VET) systems can better prepare teachers for the challenges they will face in the classroom. The study calls for further exploration of management strategies in VET programs and how they can be optimized to ensure that teacher training remains relevant, effective, and aligned with industry needs.

From a practical standpoint, this study provides valuable insights for policy makers, training providers, and educators. It highlights the importance of strengthening collaborations between schools and industry partners to ensure that vocational training programs remain up-to-date and capable of addressing the skills gap in the workforce. Moreover, it emphasizes the need for continuous professional development and the creation of responsive, adaptive management systems that are capable of evolving with changes in technology and industry standards. By adopting these practices, vocational education and training centers can improve the effectiveness of their programs, leading to better outcomes for

both teachers and students, and ultimately contributing to the development of a skilled workforce.

CONCLUSION

This study concludes that effective management of education and training centers (pusdiklat) in improving vocational school teacher competence is determined by three interrelated components. First, planning must be grounded in a thorough needs analysis, with active involvement from all relevant stakeholders, ensuring that the training programs are tailored to both teachers' needs and industry demands. Second, the implementation of adaptive training programs that integrate blended learning methods and robust industry collaboration is crucial. Third, a comprehensive evaluation approach, incorporating both formative and summative assessments, is necessary to measure training outcomes and provide continuous support to teachers. These components work together to ensure that vocational teachers are continuously developing their skills and are well-prepared to meet the challenges of a rapidly changing educational and industrial landscape.

The findings of this study highlight the importance of sustainable school-industry partnerships in keeping training programs relevant and effective. Training centers must adapt to curriculum changes, technological advancements, and shifting industrial needs to maintain the effectiveness of their programs. Additionally, strengthening evaluation systems to capture the true impact of training on teacher performance is vital for ensuring long-term success. A limitation of this research is its narrow geographic scope, which may not fully capture regional variations in training management and effectiveness. Future research should explore the comparative effectiveness of different training management models across regions and investigate the development of flexible, digital, and hybrid training models to extend access to vocational teacher training in diverse contexts.

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