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Transformational Leadership of School Principals in Encouraging Vocational Education Innovation and Industrial Partnerships

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Abstract

This study examines the implementation of transformational leadership of school principals in encouraging vocational education innovation and industrial partnerships at SMK Batik 1 Surakarta, focusing on the alignment between leadership strategies and learning practices in schools. The research methods used were qualitative, including semi-structured interviews, classroom observations, and document analysis, with data collected from principals, teachers, and administrative staff. The findings show that principals apply transformational leadership principles to encourage educational innovation and build industry partnerships, but there are challenges in their implementation, including resource limitations, resistance to change, and traditional academic culture pressures. These barriers reduce the effectiveness of leadership strategies in achieving innovative, industry-oriented learning. The results of the study emphasized the need for capacity building through continuous professional training, strengthening transformational leadership literacy, and developing practical strategies that are appropriate to the context of vocational schools. The use of technology and the digitalization of administration are also important steps to focus school principals on pedagogical development and partnerships. In line with the goals of vocational education in Indonesia, this effort is expected to increase learning innovation, students' work skills, and productive relationships with the industrial world. This research provides practical insights for policymakers, principals, and educators in improving the effectiveness of transformational leadership for adaptive and innovative vocational education.

Keywords: Transformational Leadership, Educational Innovation, Vocational Education, Industry Partnerships, Leadership Strategy

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INTRODUCTION | مقدمة

Vocational education plays a strategic role in preparing competent, adaptive, and innovative human resources capable of responding to the challenges of the Fourth Industrial Revolution. The rapid development of digital technology, automation, artificial intelligence, and global economic integration has significantly transformed labor market demands, requiring vocational education institutions to continuously improve the quality and relevance of their educational programs. Vocational High Schools (SMK) are expected not only to equip students with technical competencies but also to develop critical thinking, creativity, communication, collaboration, and problem solving skills that are essential in contemporary workplaces. Consequently, vocational schools must establish educational environments that support innovation, adaptability, and continuous improvement. In this regard, leadership becomes a crucial determinant of institutional effectiveness because the success of educational transformation depends not only on curriculum development and infrastructure but also on the

ability of school leaders to mobilize resources, inspire stakeholders, and create a vision for sustainable development (Yakob et al., 2025).

Transformational leadership has emerged as one of the most influential leadership approaches in educational institutions because of its capacity to inspire organizational members, promote innovation, and facilitate meaningful change. Transformational leaders are characterized by their ability to communicate a compelling vision, provide individualized consideration, stimulate intellectual growth, and motivate followers to exceed expected performance. Within educational settings, principals who demonstrate transformational leadership create organizational cultures that encourage collaboration, creativity, and professional development. Previous studies have consistently shown that transformational leadership contributes positively to organizational effectiveness, teacher performance, and institutional development by fostering commitment, motivation, and innovation among educational stakeholders (Ahsan, 2025; Yakob et al., 2025). As educational institutions face increasingly complex challenges, transformational leadership has become an essential strategy for strengthening institutional adaptability and sustainability.

In vocational education, transformational leadership is particularly important because vocational schools are required to respond quickly to technological advancement and industrial transformation. Research has demonstrated that transformational leadership significantly influences teacher creativity, instructional innovation, and the adoption of digital technologies in learning processes. Principals who empower teachers, encourage participation in decision making, and support experimentation with innovative teaching practices are more likely to create dynamic learning environments that facilitate educational improvement. Studies conducted by Ahsan (2025), Azmaniar et al. (2025), and Yulianto et al. (2024) indicate that transformational leadership plays a substantial role in promoting educational innovation and strengthening organizational learning cultures. Furthermore, transformational leadership contributes to knowledge management practices and collaborative learning environments that enable vocational institutions to address the challenges of technological disruption and educational transformation effectively (Nurjanah et al., 2024; Qayyimah et al., 2024).

Innovation has become a fundamental requirement for vocational education institutions seeking to maintain their relevance in an increasingly competitive and technology driven environment. Educational innovation encompasses various dimensions, including curriculum reform, project based learning, technology integration, competency based education, teaching factory implementation, and the development of students' practical skills. Such innovations are necessary to ensure that graduates possess competencies aligned with industrial expectations and labor market requirements. Previous research suggests that transformational leadership facilitates educational innovation by supporting teacher professional development, encouraging creativity, and creating organizational conditions that foster experimentation and continuous improvement. Lasrin et al. (2025) found that transformational leadership significantly influences teacher innovation and technological literacy, while Ruwaida and Sudira (2024) emphasized the importance of leadership support in implementing innovative learning practices within vocational education institutions. Similarly, Wahjusaputri et al. (2024) highlighted the effectiveness of transformational leadership in supporting teaching factory models that enhance students' practical competencies and workplace readiness.

Another critical aspect of vocational education is the establishment of strong partnerships between schools and industry. Industry collaboration represents the practical implementation of

the link and match policy promoted by the Indonesian government to ensure alignment between educational outcomes and labor market demands. Through partnerships with industry, vocational schools can provide students with internships, workplace based learning experiences, industrial training, and curricula that reflect current industrial needs. Effective collaboration also enables schools to gain access to technological developments and professional expertise that support educational quality improvement. Research conducted by Hidayatullah (2023) and Suryanto et al. (2025) demonstrates that successful industry partnerships require strategic planning, continuous communication, and collaborative decision making between educational institutions and industrial stakeholders. Therefore, leadership plays a central role in initiating, maintaining, and strengthening these collaborative relationships.

The relationship between transformational leadership, educational innovation, and industry partnerships has become increasingly important in vocational education. Schools that successfully integrate these three dimensions are better positioned to create adaptive learning environments and produce graduates capable of meeting contemporary workforce requirements. Transformational leaders facilitate this integration by developing a shared vision, promoting innovation, empowering teachers, and fostering collaboration with external stakeholders. Research by Setiawan et al. (2024), Fitrian et al. (2025), and Farhan et al. (2025) suggests that leadership practices significantly influence the sustainability of educational innovation and the effectiveness of industry collaboration. As a result, transformational leadership may serve as a strategic mechanism for strengthening vocational education quality while simultaneously enhancing graduate employability and institutional competitiveness.

SMK Batik 1 Surakarta provides a relevant context for examining these issues because the school has actively implemented various educational innovations and established collaborative partnerships with industry. Through innovative learning programs, entrepreneurship development initiatives, and extensive cooperation with industrial partners, the school has sought to improve educational quality and graduate competitiveness. These initiatives reflect the institution's commitment to creating an adaptive educational ecosystem that responds to technological advancement and labor market needs. Furthermore, the principal's leadership has played a significant role in supporting organizational development and sustaining collaborative relationships with external stakeholders. Consequently, SMK Batik 1 Surakarta represents an appropriate setting for investigating the relationship between transformational leadership, educational innovation, and industry partnerships in vocational education.

Despite the growing body of literature on transformational leadership in education, most previous studies have focused on teacher performance, organizational culture, student engagement, and educational innovation as separate areas of investigation. Similarly, research concerning vocational education innovation and industry partnerships has largely examined curriculum development, teaching factory implementation, technological adaptation, and graduate employability without adequately exploring the leadership factors that drive these initiatives. Although previous studies have confirmed the importance of transformational leadership, innovation, and industry collaboration individually, limited empirical evidence exists regarding how these dimensions interact simultaneously within vocational schools, particularly in the Indonesian context. Consequently, there remains a need for research that provides a more comprehensive understanding of the interconnected relationship between transformational leadership, vocational education innovation, and industry partnerships.

This study seeks to address this gap by examining how transformational leadership contributes to vocational education innovation and strengthens industry partnerships at SMK

Batik 1 Surakarta. The novelty of this research lies in its integrated analysis of transformational leadership, vocational education innovation, and industry partnerships within a single conceptual framework. Unlike previous studies that have tended to examine these dimensions separately, this research investigates their interrelationship and explores how leadership practices influence both internal innovation processes and external collaborative relationships. Therefore, this study aims to analyze how the principal's transformational leadership fosters vocational education innovation and strengthens industry partnerships at SMK Batik 1 Surakarta. The findings are expected to contribute to the advancement of educational leadership theory and provide practical recommendations for vocational schools seeking to improve educational quality, institutional adaptability, and responsiveness to contemporary industrial challenges.

METHOD | منهج

This study employed a qualitative approach using an intrinsic case study design to explore the principal's transformational leadership in fostering vocational education innovation and strengthening industry partnerships at SMK Batik 1 Surakarta. An intrinsic case study was selected because the study sought to gain an in depth understanding of a specific phenomenon within its natural context rather than to generate broad generalizations. The research focused on naturally occurring leadership practices, organizational interactions, and collaborative activities within the school environment. Participants were observed rather than manipulated, and the study examined how transformational leadership was enacted through vision development, decision making, teacher empowerment, innovation management, and industry collaboration (Septiana & Khoiriyah, 2024).

The study was conducted at SMK Batik 1 Surakarta, a vocational school recognized for its teaching factory implementation, industry based curriculum, and extensive partnerships with industry. Participants were selected through purposive and snowball sampling techniques based on their direct involvement in vocational education innovation and industry partnership activities. Eligible participants included individuals who possessed relevant knowledge and experience regarding leadership practices, educational innovation, and school industry collaboration. The participants consisted of the principal, vice principals responsible for curriculum and industry relations, heads of vocational programs, productive subject teachers, industry instructors, and students involved in vocational education programs. Individuals who were not directly engaged in leadership activities, innovation programs, or industry partnerships were excluded from participation. The inclusion of multiple stakeholder groups enabled the collection of diverse perspectives and facilitated a comprehensive understanding of transformational leadership practices within the vocational education context.

Data were collected through semi structured interviews, participant observation, and document analysis. Semi structured interviews were conducted with participants to explore leadership practices, educational innovation initiatives, teacher empowerment strategies, and industry partnership development. Participant observation was carried out during curriculum meetings, teaching and learning activities, teaching factory implementation, and school industry collaboration programs to capture leadership interactions and organizational dynamics in their natural setting. Document analysis involved the examination of strategic plans, curriculum documents, industry partnership agreements, teaching factory reports, and other relevant institutional records.

Data were analyzed using the interactive model of (Miles et al., 2014), consisting of data condensation, data display, and conclusion drawing. Interview transcripts, observation notes,

and documentary evidence were coded and categorized into themes related to transformational leadership, vocational education innovation, organizational culture, teacher empowerment, and industry partnerships. To enhance the trustworthiness of the findings, source triangulation, method triangulation, time triangulation, and member checking were employed throughout the research process.

RESULT | نتائج

Transformational Leadership

Transformational leadership is one of the important factors in encouraging change and development of the quality of education in schools. Based on the results of interviews, observations, and documentation, the principal of SMKS Batik 1 Surakarta shows the characteristics of transformational leadership which are reflected in several main dimensions, namely idealized influence, inspirational motivation, intellectual stimulation, charisma, and individualized consideration. A summary of the findings of the research on transformational leadership of school principals is presented in Table 1.

Table 1. Principal Transformational Leadership

Dimensions of Transformational Leadership	Research Findings	Empirical Evidence
Idealized Influence	The principal established a school vision oriented toward creativity, student independence, and the integration of batik culture into vocational education.	The school vision served as a reference in academic meetings and decision-making processes and became the foundation for implementing various school programs.
Inspirational Motivation	The principal motivated teachers and fostered a sense of purpose through consistent communication.	During coordination meetings, the principal linked industrial developments and educational policies to teachers' roles in preparing students for future careers.
Intellectual Stimulation	The principal encouraged teachers to develop instructional innovations and school programs.	Teachers were provided opportunities to design project-based learning, develop digital learning materials, and implement mini teaching factory programs with continuous mentoring.
Charisma and Personal Influence	The principal demonstrated credibility and the ability to build networks with various stakeholders.	Partnerships were successfully established with industry partners and the Education Office, supported by stakeholders' trust in the principal's integrity and leadership.
Individualized Consideration	The principal paid attention to the professional needs and development of individual teachers.	Teachers were given opportunities for personal consultation and received individualized support in addressing instructional challenges and curriculum adaptation.
Impact of Transformational Leadership	An innovative, collaborative, and adaptive work culture was established within the school.	Various learning innovations developed by teachers were subsequently adopted and implemented more broadly across the school environment.

Source: Results of interviews, observations, and research documentation (2026)

Based on Table 1, the transformational leadership of the principal at SMKS Batik 1 Surakarta is seen as strong through his ability to build a vision that is easy to understand by all school residents. The school's vision that emphasizes creativity, student independence, and the integration of batik culture in vocational education is not only listed in official documents, but also serves as a reference in every academic meeting and program discussion. The principal is of the view that transformation is only possible when teachers not only teach, but also dare to come up with new ideas. In an interview, he stated, "Vocational schools cannot be stagnant. If the industry changes, we must change too. Teachers must be the first to bring about that change." The statement shows a strong awareness that organizational change must be supported by a sustainable change in work culture.

The principal's commitment to inspirational and motivational values is also reflected in the communication strategy that is applied consistently. Based on the results of observations at the weekly coordination meeting, school principals always start the agenda by discussing the development of industry needs and changes in national education policies, then connecting them with the role of each teacher in the learning process. This approach makes teachers feel a moral responsibility to continue to improve the quality of learning. One of the productive subject teachers revealed, "He always said that we don't just teach basic skills, but prepare for the future of children. That sentence makes us feel that this work has value." The motivation built through the formation of a shared meaning shows the characteristics of transformational leadership that relies not only on formal instruction, but also on shared inspiration and commitment.

In the aspect of intellectual stimulation, the principal provides a wide space for teachers to carry out pedagogical innovations and experiments. This can be seen from the policy that allows teachers to develop a learning model based on modern batik projects, utilize digital learning media, and develop a mini teaching factory in the practice room. The freedom given is not directionless, but is accompanied by regular coaching and a reflection forum to evaluate the results of its implementation. One prolific teacher stated: "He was never pushy, but always supportive. If we had an idea, he always said, 'Try it first, we'll see how it goes.'" The statement shows that there are efforts to encourage creativity and innovation through a supportive approach. The results of the observations also show that some innovations that were initially developed individually by teachers later became practices that are applied more widely in schools, such as the integration of contemporary batik motifs in pattern design learning.

The element of charisma and personal influence of the principal also plays an important role in supporting the process of change in the school. School principals are known to have good relationships with various parties, including the Education Office, the business world, and the industrial world. The network provides opportunities for schools to develop various forms of cooperation that support vocational learning. In an interview, one of the public relations staff said that "Many industries want to work together not just because of the school's name, but because they believe in its integrity and commitment." These findings show that the charisma of a principal comes not only from the formal position he holds, but also from his professional track record and ability to build trust with a wide range of stakeholders.

In addition, the application of individual considerations can be seen from the way the principal pays attention to the needs of each teacher. Some new teachers revealed that the principal often invited them to discuss informally to understand the various difficulties they faced, especially in the process of adapting to the vocational curriculum and school work culture. One teacher stated: "When I felt overwhelmed, he was always open to listening. There is no distance. That's what makes us feel safe to try new things." This humanist approach creates a positive psychological climate so that teachers feel valued, supported, and have the courage to innovate. Thus, the transformational leadership of school principals is not only reflected in the policies and programs implemented, but also through the quality of interpersonal relationships that are able to encourage the creation of an innovative and adaptive work culture at SMK Batik 1 Surakarta.

Strengthening Industrial Partnerships as a Strategy for Developing the Quality of Vocational Education

Strengthening industrial partnerships is one of the main strategies implemented by SMK Batik 1 Surakarta in improving the quality of vocational education. Based on the results of

interviews, observations, and documentation, the partnership built not only focuses on the implementation of industrial work practices (Prakerin), but also includes curriculum alignment, teacher competency improvement, and distribution of graduates toThe element of charisma and personal influence of the principal also plays an important role in supporting the process of change in the school. School principals are known to have good relationships with various parties, including the Education Office, the business world, and the industrial world. The network provides opportunities for schools to develop various forms of cooperation that support vocational learning. In an interview, one of the public relations staff said that "Many industries want to work together not just because of the school's name, but because they believe in its integrity and commitment." These findings show that the charisma of a principal comes not only from the formal position he holds, but also from his professional track record and ability to build trust with a wide range of stakeholders.

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The partnership is designed to ensure that the learning process in schools remains relevant to technological developments and the needs of the business and industrial world (DUDI). A summary of the findings of the research on strengthening industrial partnerships is in Table 2.

Table 2. Strengthening Industry Partnerships

Aspects of Industry Partnership	Research Findings	Empirical Evidence
Industry Network Development	The school established sustainable partnerships with various industrial sectors to support vocational education development.	SMK Batik 1 Surakarta maintained active partnerships with 18 companies in the textile, light manufacturing, creative design, and information technology sectors.
Curriculum Alignment	The curriculum was developed and periodically evaluated in collaboration with industry partners to ensure alignment with workforce competency requirements.	Curriculum evaluation meetings were conducted at least twice annually with the participation of industry representatives.
Teacher Competency Development	Teachers were provided opportunities to participate in industrial training and internship programs to enhance professional competencies.	Over the last two years, the number of teachers participating in industrial upskilling and internship programs increased by approximately 40%.
Industrial Work Practice (Prakerin)	Students were directly involved in authentic workplace activities during industrial internships.	Students gained practical experience in operating production machinery, digital motif design, quality control processes, and other production-related activities.
Graduate Placement and Recruitment	Industry partnerships expanded employment opportunities for graduates through direct recruitment mechanisms.	Approximately 32% of graduates in 2024 were recruited directly by partner companies through school-facilitated recruitment programs.
Impact of Industry Partnerships	Industry partnerships enhanced the relevance of learning and improved graduates' work readiness.	Graduates' competencies were considered aligned with industry needs, enabling smoother adaptation to workplace environments.

Source: Results of interviews, observations, and documentation of researchers (2026)

Based on Table 2, industrial partnerships at SMK Batik 1 Surakarta are an important component in efforts to improve the quality of vocational education and adapt graduates to the needs of the world of work. The school understands that the development of production technology, industrial digitalization, and changing labor needs demand a closer relationship between educational institutions and the industrial sector. Therefore, the school not only builds cooperation in the form of memorandums of understanding (MoU), but also develops various ongoing collaborative programs. Based on academic data for 2023–2024, the school has established active partnerships with 18 companies engaged in textiles, light manufacturing, creative design, and information technology. The collaboration includes curriculum alignment, industrial work practices, teacher internships, and the distribution of graduates to the world of work.

The synergy between schools and industry is evident in the process of preparing a competency-based curriculum. Partner industries actively provide input on the technical skills that students must have, including mastery of the latest technology, industry quality standards, and professional work culture. The head of the expertise program explained that schools and industry routinely evaluate the curriculum at least twice a year to ensure the suitability of learning materials with employment needs. In an interview, the Head of Textile Production Engineering Expertise Competency stated that the industry is now more open in providing access to information about technological developments used in the production process. According to him, "We no longer only accept students for Prakerin, but also provide teachers with access to understand the latest technology in our workshops. Thus, classroom learning is not lagging behind industry developments." These findings show that industry partnerships play an important role in maintaining the relevance of vocational education curricula.

Another form of cooperation can be seen through teacher competency improvement programs carried out through internships and industrial training. A number of teachers have the opportunity to learn directly in an industrial work environment to understand the production process, the use of the latest technology, and the applicable professional work standards. School data shows that in the last two years there has been an increase of around 40% in the number of teachers participating in the program. The impact can be seen in improving the quality of learning that is more contextual and applicative. One of the prolific teachers in the field of creative design revealed that after participating in the industrial internship program, he gained a better understanding of the digital printing process according to industry standards. This experience is then applied in learning so that students are better prepared to face the demands of the real world of work.

The implementation of industrial work practices (Prakerin) is also an important part of strengthening partnerships carried out by schools. Students undergo internships for three to six months according to the needs of partner industries. During the implementation of Prakerin, students do not only serve as observers or helpers of simple work, but are directly involved in real production activities. The results of observations show that several companies provide opportunities for students to operate production machines, make digital batik motif designs, control product quality, and participate in discussions related to the production process. One of the students of class XII revealed that at first he only helped with the packaging process, but after showing good skills, he was given the trust to operate the printing machine. This experience made her better understand the industrial work process as a whole and increase her confidence to enter the world of work.

In addition to supporting the learning process, industrial partnerships also contribute to the distribution of graduates. Data from the school's Special Job Exchange (BKK) in 2024 shows that around 32% of graduates are recruited directly by partner companies. Others continue their education or work in other sectors that suit their competence. Some companies even place SMK Batik 1 Surakarta as one of the main sources of labor recruitment because they consider school graduates to have competencies that are in accordance with industry needs. One of the human resources managers from a partner textile company stated that graduates of SMK Batik 1 Surakarta have good readiness both in terms of technical skills and work attitude. The findings show that strengthening industrial partnerships not only improves the quality of learning in schools, but also contributes directly to increasing the competitiveness and job readiness of graduates in the industrial world.

The Impact of Transformational Leadership on the Culture of Innovation and the Dynamics of Industrial Partnerships Revolutionary leadership at SMK Batik 1 Surakarta greatly shaped human collaboration and radically changed the educational atmosphere. Leadership focused on inspiring, supporting, and empowering teachers transforms the work environment into a haven for innovation and risk-taking. Over the past two years, the school has experienced a tremendous proliferation of innovations in project-based learning and in the adoption of practical tools that are aligned with the latest technologies in related industries. Educators feel more confident in designing educational approaches that are not limited to covering content but also addressing the real challenges facing the industry. This state of affairs weaves a new culture in which teachers and students have become accustomed to venturing out, trying out innovative methods, and conducting periodic evaluations to optimize educational tactics.

The transformational leadership applied at SMK Batik 1 Surakarta has a significant impact on the formation of a culture of innovation and the strengthening of industrial partnerships. Based on the results of interviews, observations, and documentation, leadership oriented towards inspiration, empowerment, and human resource capacity development has encouraged the creation of a work environment that is open to change and innovation. This impact is not only seen in increasing teachers' creativity in learning, but also in the strengthening of collaborative relationships between schools and the business world and the industrial world (DUDI). A summary of the findings of the research on the impact of transformational leadership on innovation culture and industry partnership dynamics is presented in Table 3.

Tabel 3. The Impact of Transformational Leadership

Impact Aspects	Research Findings	Empirical Evidence
Teacher Innovation Culture	Teachers demonstrated greater confidence in developing instructional innovations and experimenting with pedagogical approaches.	Various innovations emerged, including project-based learning, digital technology integration, and the development of learning media aligned with industry needs.
Cross Department Collaboration	Stronger collaboration was established among vocational programs and school units.	Teachers participated in joint program development initiatives aimed at addressing industry needs and improving learning quality.
Data Driven Decision Making	Teachers increasingly utilized data to evaluate and improve learning practices.	Competency test results, industrial internship reports, and feedback from industry partners were used as the basis for instructional improvement.
Strengthened Industry Relationships	School industry relationships evolved from administrative cooperation into strategic partnerships.	Industry partners became actively involved in educational policy development, competency enhancement programs, and school program evaluation.
Increased Industry Trust	Industry stakeholders demonstrated greater confidence in the quality of school graduates.	Demand for graduates from partner companies increased, accompanied by higher industry participation in school programs and collaborative activities.

Vocational Education Quality Enhancement	A more adaptive, innovative, and industry responsive educational ecosystem was established.	Teachers became more responsive to industrial developments, students gained contextual learning experiences, and graduates were better prepared to enter the workforce.

Source: Results of interviews, observations, and research documentation (2026)

Based on Table 3, transformational leadership at SMK Batik 1 Surakarta has a strong influence on the formation of a culture of innovation in the school environment. Leadership that focuses on inspiring, supporting, and empowering teachers has created a work environment that encourages creativity and courage to make changes. In the last two years, the school has shown an increase in various learning innovations, especially through the application of project-based learning and the use of technologies relevant to industry developments. Teachers are no longer only oriented to the delivery of learning materials, but also strive to provide learning experiences that are able to answer the real needs of the world of work. These conditions form an organizational culture that is more open to continuous renewal, reflection, and improvement.

The role of school principals as agents of change is also seen in efforts to strengthen collaboration between school units and build closer relationships with the industrial world. Based on the documentation of the 2024 school coordination meeting, the principal has consistently encouraged each expertise program to have an active industry partner and contribute to the development of learning. The industry is not only positioned as a place of work practice, but also as a source of knowledge and a strategic partner in improving the quality of education. The vice principal for curriculum explained that the principal always emphasizes the importance of placing industry as an integral part of the educational process. According to him, "He emphasized that the industry is not just a school guest, but an equal partner with the world of education. Therefore, every program must consider the needs of the industry as the basis for its development." This approach encourages a change in teachers' perspectives in designing more contextual and relevant learning activities.

The transformation of the culture of innovation can also be seen from the increasing practice of reflection and data-based development among teachers. The results of the study show that teachers are increasingly accustomed to evaluating learning outcomes through analysis of student competency achievements, Prakerin implementation reports, and input from the industry. The information is used as a basis for improving learning strategies and developing various educational innovations. One of the productive teachers revealed that the principal often asked about the development of innovations that teachers were developing in an atmosphere of informal discussion. According to him, the question is not intended to supervise, but to help find solutions to the various obstacles faced. In fact, on several occasions, schools involve industry partners to provide input on learning innovations that are being developed.

This practice shows that the culture of innovation in schools has evolved into an organizational learning culture oriented towards continuous improvement. Another impact that arises from transformational leadership is the increasing trust of the industrial world in the quality of education provided by schools. The relationship that was previously administrative in nature developed into a mutually beneficial strategic partnership. The industry considers that the school has a strong commitment to producing graduates who are in accordance with the needs of the world of work and technological developments. In the past two years, the school has recorded an increase in the need for labor from partner companies, which shows the industry's growing confidence in the quality of graduates. One of the leaders of modern batik companies said that students who carry out industrial work practices today show better

readiness than a few years ago. According to him, students have a better understanding of work procedures, production technology, and adaptability in the industrial environment.

Overall, transformational leadership and strong industry partnerships have shaped a vocational education ecosystem that is more adaptive, innovative, and responsive to change. Teachers no longer work separately from the development of the industrial world, but rather become part of a learning network that is connected to the needs of the job market. Students gain a more contextual and meaningful learning experience, while the industrial world gets human resources who are more ready to work. These findings show that transformational leadership not only impacts individuals, but also drives sustainable organizational change through strengthening a culture of innovation and strategic partnerships with the industrialized world. Thus, SMK Batik 1 Surakarta has succeeded in building a strong foundation in facing the challenges and developments of vocational education in the future.

DISCUSSION | مناقشة

Transformational Leadership in Driving School Organizational Change

The results of the study show that the principal of SMK Batik 1 Surakarta implements transformational leadership through the ability to build a shared vision, motivate teachers, encourage learning innovation, and pay attention to individual teacher needs. These findings are in line with the transformational leadership theory put forward by Bernard M. Bass and Bruce J. Avolio which states that transformational leaders are able to influence followers through four main dimensions, namely idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Bass & Avolio, 1994). These four dimensions are seen in the principal's leadership practice which is not only oriented towards achieving organizational goals, but also on developing the capacity of teachers as agents of change.

The ability of the principal to build a vision that is understood together shows the existence of a strong idealized influence practice. According to Kareem et al. (2023) transformational leaders function as role models who are able to build trust and commitment of organizational members to the vision to be achieved. In this study, the school's vision is oriented towards creativity, student independence, and batik cultural integration is the foundation of various educational programs. These findings reinforce the results of a study conducted by Ali et al. (2025) which concluded that the transformational leadership of school principals has a positive influence on teacher commitment and school organizational effectiveness.

In addition, the principal consistently motivates teachers through inspirational and meaningful communication. This practice reflects the dimension of inspirational motivation which, according to Na et al. (2025) functions to build optimism, work spirit, and a sense of belonging to organizational goals. Teachers at SMK Batik 1 Surakarta not only understand their duties as teachers, but also realize their role in preparing graduates who are ready to face the challenges of the world of work. This finding is in line with the research of Supriatna and Hariyasasti (2025) which found that the transformational leadership of school principals has a significant effect on teachers' work motivation and improvement of learning quality.

The dimension of intellectual stimulation is also seen through the support of school principals for learning innovations and the development of teaching factories. According to Nasir et al. (2022) transformational leaders encourage followers to think creatively, solve problems in new ways, and are not afraid to face the risks of change. This condition is reflected in the courage of teachers to develop project-based learning, digital media, and learning innovations that are

relevant to industry needs. The results of this study support the findings of research by Tafsir et al. (2022) which show that transformational leadership has a positive relationship with innovative behavior in organizations.

In addition, the individual attention given by the principal to the teacher reflects the dimension of individualized consideration. Leaders not only play the role of decision-makers, but also as mentors and facilitators of teachers' professional development. According to Judge et al. (2023) attention to individual needs can increase confidence, job satisfaction, and involvement of organizational members in the change process. Therefore, the success of transformational leadership at SMK Batik 1 Surakarta is not only determined by the policies implemented, but also by the quality of the interpersonal relationship between leaders and teachers.

Strengthening Industrial Partnerships as a Strategy to Improve the Quality of Vocational Education

The findings of the study show that strengthening industrial partnerships is the main strategy in improving the quality of vocational education at SMK Batik 1 Surakarta. The partnership includes curriculum alignment, teacher competency improvement, industrial work practices, and graduate distribution. This finding is in line with the concept of link and match introduced by Wardiman Djojonegoro in the research of Bello et al. (2024) which emphasizes the importance of harmony between the world of education and the needs of the world of work. In the context of vocational education, industry partnerships are an important instrument to ensure that the competencies taught in schools are appropriate to the needs of the labour market.

The involvement of industry in the curriculum development process shows the application of a demand-driven education approach, which is education that is prepared based on the needs of graduate users. According to Billet in research by Kayyali (2025) effective vocational education must be built through active collaboration between educational institutions and industry so that students acquire competencies that are relevant to the development of the world of work. In this study, the industry not only accepts students for work practice, but also participates in curriculum evaluation and development. This shows the existence of a strategic and sustainable partnership relationship.

The teacher internship program implemented by the school also strengthens the relevance of learning. According to Triyono et al. (2023) one of the main challenges of vocational education is the competency gap between teachers and the development of industrial technology that is taking place very quickly. Therefore, the involvement of teachers in industrial upskilling and reskilling programs is an important step to maintain the quality of learning. The findings of this study support the research results of Wahyuningsih et al. (2025) which show that teachers' industrial experience has a positive effect on the quality of vocational learning and work readiness of students.

The implementation of Prakerin, which provides real work experience to students, also strengthens the experiential learning theory developed by research (Putra et al., 2025). The theory explains that learning will be more effective when students gain hands-on experience and reflect on those experiences. In this study, students not only observe the work process, but are directly involved in production activities so as to gain authentic experiences that support the formation of work competencies.

Strong industry partnerships also have an impact on increasing the absorption of graduates. The high rate of graduate recruitment by partner companies shows that the school is

able to produce human resources that suit the needs of the industry. These findings are in line with the research of Huang (2025) which states that the success of vocational education can be measured from the level of relevance of graduate competencies and their ability to adapt to changes in the world of work.

The Impact of Transformational Leadership on Innovation Culture and Industry Partnership Dynamics

The results of the study show that transformational leadership has a significant impact on the formation of an innovation culture at SMK Batik 1 Surakarta. The culture of innovation can be seen from the increasing courage of teachers to develop new learning methods, conduct data-based reflections, and collaborate with the industrial world. According to Şahin dan Bilir (2024) organizational culture is a pattern of values, beliefs, and practices that develops through the process of shared learning in an organization. In the context of this research, transformational leadership is a factor that shapes the values of innovation and continuous learning in the school environment.

These findings are in line with the theory of transformational leadership and innovation which explains that transformational leaders are able to create a work environment that supports creativity and innovative behaviors (Rehmani et al., 2023). The principal's support for learning experimentation and cross-field collaboration shows that innovation has become part of the school's organizational culture. This condition also supports the research of Jameel et al. (2025) who found that transformational leadership has a positive effect on innovative behavior through increasing intrinsic motivation and empowering organizational members.

In addition to influencing the culture of innovation, transformational leadership also strengthens the dynamics of industry partnerships. The principal succeeded in transforming the relationship that was previously administrative into a strategic partnership oriented towards improving the quality of education. According to Magee and Plotner (2022) effective interagency collaboration requires leadership that is able to build trust, shared vision, and collective commitment. The findings of the study show that school principals are successfully playing this role so that the industry is increasingly actively involved in various school programs.

The industry's increasing trust in the quality of graduates suggests that transformational leadership has an indirect impact on the institution's reputation. These findings are in line with the research of Murugi and Mugwe (2023) which states that effective school leadership contributes to improving organizational performance and strengthening relationships with external stakeholders. Thus, the success of SMK Batik 1 Surakarta in building a culture of innovation and strengthening industrial partnerships cannot be separated from the role of transformational leadership that is able to integrate the school's vision with the needs of the world of work.

Overall, the results of this study confirm that transformational leadership and industry partnerships are two factors that strengthen each other in improving the quality of vocational education. Transformational leadership creates a culture of innovation that fosters change and continuous learning, while industry partnerships provide the resources, experience, and information needed to maintain educational relevance. The synergy of these two factors results in a vocational education ecosystem that is adaptive, innovative, and responsive to the development of the world of work, so as to be able to increase the competitiveness of graduates in the ever-changing industrial era.

CONCLUSSION | خاتمة

In summary, this study has meticulously unraveled the revolutionary leadership of the principals of SMK Batik 1 Surakarta and their influence in promoting educational innovation and synergy with the industrial sector. The analysis reveals that educational leaders can motivate teachers and the educational team to develop educational projects, learning factories, and life skills programs that align with industry demands. Students and teachers are immersed in activities that enhance both technical and communication skills. These include manufacturing lessons, experiments, and workshops that employ digital technology. This reveals that innovative leadership is crucial for forging an adaptable, ingenious, and fresh educational environment, essential for the Fourth Industrial Revolution.

The findings although innovations have been implemented, aligning educational techniques with industry standards is a monumental challenge. Some customs are still woven into an educational culture that values academic achievement, which means that students' character and work skills are not flourishing as they should. This gap reveals that the applied transformational leadership tactic has not fully overcome structural obstacles, such as scarce resources, limited time, and the support of stakeholders. This does not reveal the director's or the teacher's inability, but rather a situational challenge that requires a meticulous solution.

This study argues that transformational leadership should not be limited to inspiring and projecting, but should also articulate revolutionary learning techniques that meet the sector's demands. These findings corroborate the literature, which holds that transformational leadership in vocational education can foster teacher engagement and student dedication to dynamic learning, although its effectiveness hinges on the leader's ability to overcome environmental barriers. This analysis incorporates concrete evidence of how revolutionary leadership, pedagogical innovation, and the robustness of industry connections intertwine within the realm of vocational schools in Indonesia.

From a practical standpoint, this analysis reveals the urgent need to adopt a comprehensive strategy that unifies leadership tactics, learning techniques, and industry demands. Educational institutions must develop training programs for teachers, collaborate more closely with companies, and employ digital technology to enhance learning and school administration. Educational strategies that foster students' imagination, autonomy, and creativity must be strengthened so that graduates are ready for workplace challenges and can compete globally.

Likewise, the implementation of the educational factory model, project-based learning, and life skills must be strengthened and expanded to equip students with relevant, assessable skills. Creating an industry-oriented curriculum and incorporating information technology are crucial steps in bridging the gap between theory and practice, enabling graduates to be more flexible in meeting the demands of the digital-age workforce. These findings demonstrate that the revolution in vocational education demands revolutionary leadership that harmonizes students' academic goals, personal growth, and practical skills.

In summary, the principal's revolutionary leadership at SMK Batik 1 Surakarta has been crucial in transforming the school into a vibrant learning environment, fostering innovations in vocational training, and strengthening ties with companies. This research highlights the importance of flexible and collaborative leadership tactics capable of fostering project-based, technology-driven educational innovations focused on the industrial sector. These steps not only elevate vocational training but also shape students into innovative and competitive professionals, both nationally and internationally.

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