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Transformational Leadership, School Autonomy, and Deep Learning in Vocational Education: A Qualitative Case Study

Nurahmad Fauzi^{1✉}, Bambang Sumardjoko², Sri Lahir³, Suni Tuti⁴, Adi Jufriansah⁵,
Bayu Wardhana⁶, Iwan Junaedi⁷, Ita Nuryana⁸

¹⁻³Faculty of Teacher Training and Education, Universitas Muhammadiyah Surakarta, Indonesia

⁴Faculty of Law dan Policital Science, Universitas Muhammadiyah Surakarta, Indonesia

^{5,6}Faculty of Applied Science and Tecknology, Universitas Bali International Muhammadiyah, Indonesia

⁷Faculty of Mathematics and Natural Sciences, Universitas Negeri Semarang, Indonesia

⁸Faculty of Economics and Business, Universitas Negeri Semarang, Indonesia

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Abstract

School autonomy is essential for enabling Vocational High Schools (SMKs) to respond to changing educational and labor-market demands. However, formal autonomy does not always translate into institutional flexibility and pedagogical innovation. This study analyzes principals' transformational leadership strategies for strengthening school autonomy and creating conditions that support Deep Learning through meaningful, mindful, and joyful learning. A qualitative intrinsic case study design was employed, using semi-structured interviews, non-participant observations, and document analysis involving principals, vice principals, teachers, vocational program coordinators, and other relevant personnel. Data were analyzed using the interactive model of Miles, Huberman, and Saldaña. The findings reveal three interconnected strategies: (1) articulating an autonomy-oriented vision and reconstructing bureaucratic culture; (2) empowering teachers through participation, delegation, trust, and professional autonomy; and (3) expanding school autonomy through policy negotiation and external networking, particularly with education authorities and DUDI. These strategies created organizational conditions conducive to Deep Learning by supporting contextual and authentic learning, reflective engagement, and engaging and collaborative learning experiences. The study contributes to educational leadership scholarship by demonstrating how transformational leadership can translate formal school autonomy into organizational capacity that supports pedagogical transformation. Practically, the findings highlight distributed leadership, teacher empowerment, accountability, pedagogical flexibility, and strategic industry partnerships as important mechanisms for strengthening autonomous and responsive vocational education.

Keywords: transformational leadership, meaningful learning, mindful learning, joyful learning, deep learning, vocational education, teacher empowerment, transformational leadership, pedagogical transformation.

✉Corresponding Author:

Nurahmad Fauzi, Faculty of Teacher Training and Education, Universitas Muhammadiyah Surakarta, Indonesia

Email: nurfauzy669@gmail.com

1. Introduction

Vocational education systems worldwide face pressure to adapt curricula, educator competencies, and institutional governance to the demands of Industry 4.0, with school

autonomy and principal leadership identified as critical levers for responsiveness and innovation (Riyanto et al., 2025; Spöttl & Windelband, 2021). Evidence from 20 studies across Indonesia, Thailand, Bahrain, and broader

international contexts converges on the finding that principals who exercise transformational, entrepreneurial, and instructional leadership are better positioned to align vocational programs with rapidly evolving industrial needs (Mu'imamah et al., 2026; Jendro, 2026; Putra et al., 2022). Within decentralized education systems, greater school autonomy provides opportunities for educational institutions to adapt programs and resources to local needs; however, the extent to which such autonomy can be effectively exercised depends substantially on the leadership capacity of school principals and the organizational conditions within schools.

The transformation of vocational education is also increasingly associated with a shift from conventional instructional practices toward Deep Learning, which emphasizes learning experiences that are meaningful, mindful, and joyful. Deep Learning is consistently described as a shift from transmission teaching toward learning that builds understanding, reflection, motivation, and application (Kurnianingsih et al., 2026; Andayanie et al., 2025; Azzahra & Jaya, 2025). Across the literature, meaningful learning links new knowledge to prior knowledge and real-life contexts, mindful learning strengthens reflective and metacognitive engagement, and joyful learning increases motivation and participation (Feriyanto et al., 2024).

In Indonesia, educational decentralization and school-based management have provided schools with greater opportunities to manage educational programs, human resources, learning processes, and external partnerships according to their respective contexts. This policy framework positions principals as central actors in translating institutional autonomy into meaningful improvements in educational quality. Principals are expected to formulate programs that respond to local

conditions, encourage instructional innovation, strengthen teacher capacity, and establish strategic collaboration with multiple stakeholders. This responsibility becomes increasingly important when schools are expected to facilitate Deep Learning, because meaningful, mindful, and joyful learning cannot be effectively implemented through rigid and predominantly administrative management (Zahro et al., 2026). Principals need to create organizational conditions that enable teachers to design contextual learning, employ innovative pedagogical approaches, integrate authentic problems and industry experiences, and foster learning environments that are engaging and reflective. These responsibilities are particularly significant in Vocational High Schools (Sekolah Menengah Kejuruan/SMK), where educational outcomes are closely associated with the relevance of graduates' competencies to labor-market requirements and industrial development.

SMKs need more than standard school management because vocational principals must align schooling with labor market demands through industry-specific expertise, stakeholder collaboration, and flexible curriculum design (Suharsoyo et al., 2026). Consequently, SMKs require flexible curriculum management, industry-oriented learning, workplace learning opportunities, and sustained partnerships with business and industry stakeholders (Dunia Usaha dan Dunia Industri/DUDI). That need is operational, not symbolic: SMKs are expected to build curriculum, learning processes, and competency development around DUDI expectations, workplace exposure, and employability outcomes (Hindarto et al., 2026). However, some SMKs continue to operate predominantly through administrative and procedural approaches, limiting opportunities for innovation and reducing the strategic use of school autonomy. This condition suggests

that the formal delegation of authority alone is insufficient; autonomy must also be supported by leadership practices capable of generating collective commitment and organizational change.

Transformational leadership aligns closely with the implementation of deeper learning, as leaders who adopt this style address systemic factors like teacher collaboration, assessment regulations, and the effective use of time and space, rather than focusing narrowly on individual classroom changes (Sliwka et al., 2023). Principals who act as cultural facilitators use visionary and transformational leadership to encourage reflection, dialogue, and collaboration, building a deep learning culture through dialogic education and contextualized project-based learning (Asbari et al., 2025). District leaders must be fully committed to deeper learning for school cultures to transform, as leadership academy participants recast change leadership, deeper learning, and equity into practices like transforming culture, teaching the whole child, and restructuring for collaboration (Umpstead et al., 2023). In educational organizations, these dimensions enable principals to encourage teachers and staff to move beyond routine practices, develop innovative solutions, and participate actively in institutional improvement. Transformational principals can foster trust, shared commitment, professional collaboration, and a culture of continuous learning.

In relation to school autonomy, these leadership practices are particularly important because autonomy should not be understood solely as the formal authority granted to principals. Rather, it can be conceptualized as an organizational capacity in which members of the school community collectively participate in decision-making, resource management, problem solving, and the implementation of institutional change. Such

organizational capacity is essential for sustaining Deep Learning because the implementation of meaningful, mindful, and joyful learning requires teachers to have sufficient professional space to adapt curricula, select appropriate learning strategies, develop authentic learning experiences, and respond to students' diverse needs. Consequently, school autonomy and transformational leadership can be viewed as complementary mechanisms for creating an institutional environment conducive to pedagogical transformation.

Despite the growing body of research on transformational leadership, school-based management, and educational quality, an important gap remains. Existing studies have frequently examined the relationship between principal leadership and general educational outcomes, including teacher performance, organizational commitment, instructional quality, and curriculum implementation. Meanwhile, school autonomy is often positioned primarily as a policy or structural context rather than examined as a substantive organizational phenomenon. Furthermore, discussions of Deep Learning have increasingly emphasized the pedagogical dimensions of meaningful, mindful, and joyful learning, while comparatively less attention has been given to the organizational and leadership conditions required to enable such pedagogical transformation, particularly in vocational education. Consequently, there is limited understanding of how principals actually interpret, negotiate, and enact school autonomy through transformational leadership practices while simultaneously creating conditions that support innovative and student-centered learning. This limitation is particularly evident in vocational education, where school autonomy is closely connected to curriculum responsiveness, industry partnerships, resource mobilization,

and the development of learning environments that reflect the principles of Deep Learning.

A qualitative approach is appropriate for addressing this gap because the exercise of school autonomy and the implementation of transformational leadership are embedded in organizational relationships, institutional culture, power dynamics, and contextual conditions that cannot be fully captured through quantitative measures alone. Qualitative inquiry allows researchers to examine principals' experiences, leadership practices, decision-making processes, and interactions with teachers and external stakeholders. It also provides an opportunity to explore how principals respond to resistance, negotiate competing interests, mobilize human resources, and transform formal authority into collective organizational capacity. This approach is particularly relevant for understanding how the organizational conditions created by principals may facilitate the implementation of meaningful, mindful, and joyful learning within the distinctive context of SMKs. Such an approach shifts the analytical focus from determining whether transformational leadership is merely "effective" toward understanding how and under what conditions transformational leadership contributes to the strengthening of school autonomy and pedagogical innovation.

Accordingly, this study aims to describe and analyze principals' transformational leadership strategies for strengthening school autonomy in Vocational High Schools (SMKs) through a qualitative approach. The study specifically examines how principals develop and communicate a shared vision, create opportunities for participation and collaboration, manage institutional resources, respond to organizational challenges, and establish relationships with relevant

stakeholders to strengthen school autonomy. Within this broader focus, the study also considers the organizational relevance of Deep Learning, particularly the extent to which school autonomy and transformational leadership create conditions that support meaningful, mindful, and joyful learning. Theoretically, the study contributes to educational leadership scholarship by connecting transformational leadership, school autonomy, and the organizational foundations of Deep Learning within the distinctive context of vocational education. Practically, the findings are expected to provide insights for SMK principals, educational supervisors, teachers, and policymakers in developing leadership strategies that promote contextual, participatory, adaptive, and learning-oriented forms of school autonomy, ultimately supporting the improvement of vocational education quality and the relevance of graduates' competencies to evolving labor-market demands.

2. Method

This study employed a qualitative approach with an intrinsic case study design to examine principals' transformational leadership strategies in strengthening school autonomy in Vocational High Schools (Sekolah Menengah Kejuruan/SMK). A qualitative case study was considered appropriate because the study sought to obtain an in-depth understanding of leadership processes, organizational interactions, and the contextual conditions underlying the implementation of school autonomy. Rather than measuring the effectiveness of transformational leadership through predetermined variables, the study explored how principals constructed, enacted, and interpreted leadership strategies within the

everyday context of SMK governance and management.

The intrinsic case study design enabled the researchers to investigate the complexity of transformational leadership and school autonomy within their natural setting. Particular attention was given to how principals developed a shared vision, encouraged participation and collaboration, mobilized school resources, managed organizational challenges, and developed relationships with external stakeholders, particularly business and industry. The design also enabled the researchers to examine the interactions between leadership practices and the institutional, cultural, and structural conditions that influenced the implementation of school autonomy.

a. Research Setting and Participants

The study was conducted in selected public and private SMKs within the selected district/municipality. The research sites were selected based on several considerations: (1) the schools had implemented school autonomy and school-based management practices; (2) the schools demonstrated ongoing collaboration with business and industry (*Dunia Usaha dan Dunia Industri/DUDI*); and (3) the principals were actively involved in school development and institutional improvement initiatives. These criteria were intended to ensure that the selected cases provided relevant empirical contexts for examining transformational leadership strategies in strengthening school autonomy.

The participants consisted primarily of school principals as the principal informants, supported by vice principals, teachers, heads of vocational competency programs, quality management coordinators, and other relevant school personnel. The inclusion of participants from different organizational

positions was intended to obtain diverse perspectives on principals' leadership practices and the implementation of school autonomy. Participants were eligible for inclusion when they had worked at the school for at least two years, had been involved in the planning and/or implementation of school programs, and were willing to provide information based on their experiences and participate in follow-up interviews when necessary.

Participants were selected using purposive sampling based on their relevance to the research objectives. The selection considered factors such as the principal's length of service, involvement in school autonomy initiatives, and the participants' direct experience with or knowledge of the principal's leadership practices. Snowball sampling was employed when necessary to identify additional informants who possessed specific knowledge of particular aspects of school autonomy or school-DUDI collaboration. Data collection continued until sufficient information had been obtained to explain the emerging themes and additional data no longer generated substantial new insights.

b. Data Collection

Data were collected using three complementary techniques: semi-structured in-depth interviews, non-participant observation, and document analysis. The combination of these techniques allowed the researchers to examine the phenomenon from multiple sources and strengthened the credibility of the findings through methodological triangulation.

Semi-structured interviews constituted the primary data collection technique. Interviews were conducted with principals and other selected participants to explore their experiences, perceptions, decision-making

processes, and strategies related to transformational leadership and school autonomy. The interview protocol addressed several areas, including the development and communication of the school's vision, teacher and staff participation, innovation and change initiatives, resource management, decision-making processes, responses to resistance, and relationships with DUDI and other stakeholders. The semi-structured format provided sufficient consistency across participants while allowing the researchers to pursue emerging issues and obtain detailed explanations of participants' experiences.

Non-participant observations were conducted to examine leadership and school management practices in their natural setting. The observations focused on management meetings, school development activities, routine interactions, decision-making processes, and patterns of communication between principals, teachers, administrative personnel, and other stakeholders. Field notes were systematically recorded to document relevant behaviors, interactions, contextual conditions, and events that could complement or clarify information obtained through interviews.

Document analysis was used as a complementary source of evidence. Relevant documents included school work plans, school policies, meeting minutes, organizational development documents, program implementation reports, and documents relating to collaboration with DUDI. These documents were examined to identify evidence of school autonomy, leadership decision-making, program development, resource management, and stakeholder engagement. Documentary evidence was also used to verify and contextualize information obtained from interviews and observations.

c. Data Trustworthiness

The trustworthiness of the findings was established through source triangulation, methodological triangulation, member checking, peer debriefing, and the maintenance of an audit trail. Source triangulation was achieved by comparing information obtained from principals, vice principals, teachers, program coordinators, and other relevant informants. Methodological triangulation involved comparing evidence from interviews, observations, and documents to identify convergence, complementarity, or discrepancies among data sources.

Member checking was conducted by presenting synthesized interpretations or relevant findings to selected informants to confirm whether the interpretations accurately reflected their experiences and perspectives. Peer debriefing was also undertaken to critically examine the coding process, emerging themes, and interpretations. In addition, an audit trail was maintained through structured field notes, interview transcripts, coding records, data matrices, and analytical memos. These procedures were implemented to enhance the credibility, dependability, confirmability, and transparency of the research process.

d. Data Analysis

Data analysis followed the interactive model proposed by Miles, Huberman, and Saldaña, which consists of data condensation, data display, and conclusion drawing and verification. Data analysis was conducted iteratively throughout the research process rather than being postponed until all data had been collected.

The first stage involved data condensation. Interview transcripts, observation notes, and relevant documents were reviewed repeatedly to identify

meaningful statements and information relevant to the research questions. The data were subsequently coded and grouped into initial categories, including dimensions of transformational leadership, strategies for strengthening school autonomy, participation and collaboration, resource management, stakeholder engagement, organizational constraints, resistance to change, and policy negotiation. Coding was refined continuously as new patterns and relationships emerged from the data.

The second stage involved data display. Coded data were organized into matrices, thematic tables, concept maps, and narrative descriptions to facilitate the identification of patterns, relationships, similarities, and differences across informants and research settings. Data displays were used to connect leadership practices with the contextual factors influencing the enactment of school autonomy and to support the development of broader themes.

The final stage involved conclusion drawing and verification. Preliminary interpretations were developed throughout the data collection and analysis processes and were continuously compared with subsequent evidence. Emerging conclusions were tested against interview data, observation findings, and documentary evidence to assess their consistency and explanatory adequacy. The researchers also revisited the coding structure and analytical memos to ensure that interpretations remained grounded in the empirical data. Triangulation, member checking, and peer debriefing were used throughout this process to strengthen the credibility and defensibility of the conclusions.

Through this systematic and iterative analytical process, the study sought to generate a contextualized explanation of how principals employ transformational

leadership strategies to strengthen school autonomy in SMKs, including the processes through which leadership practices are enacted, the organizational challenges encountered, and the ways in which principals mobilize school resources and stakeholder participation to support institutional improvement.

3. Result and Discussion

The findings of this study indicate that principals' transformational leadership plays a significant role in translating formal school autonomy into practical organizational capacity within Vocational High Schools (SMKs). Rather than treating autonomy solely as a matter of delegated administrative authority, principals actively shaped the conditions through which autonomy could be exercised, sustained, and expanded. This process involved transforming organizational culture, empowering teachers to participate in decision-making and innovation, and negotiating with external stakeholders to create greater institutional flexibility. Accordingly, the discussion of the findings is organized into three interrelated themes: (1) transformational vision and the reconstruction of bureaucratic culture, (2) teacher empowerment through participation, trust, and professional autonomy, and (3) policy negotiation and external networking to expand school autonomy.

a. Transformational Vision and the Reconstruction of Bureaucratic Culture

The first major finding concerns the principals' efforts to articulate a transformational vision that repositioned school autonomy from a formal administrative entitlement to a collective organizational capacity. The findings indicate that principals played a central role in redefining the meaning of autonomy among teachers and other school members. Rather

than interpreting autonomy as the freedom to act independently from external authorities, principals framed it as the capacity of the school community to identify local needs, formulate relevant programs, make context-sensitive decisions, and take responsibility for the consequences of those decisions. This reframing was particularly important in SMKs, where educational programs need to remain responsive to changes in occupational requirements, technological developments, and industry expectations.

These findings are highly relevant to a recent systematic review on school leader autonomy. Nordholm et al. (2025) analyzed 113 articles and demonstrated that school leader autonomy is a relational phenomenon, rather than merely an individual characteristic of the school principal. Autonomy emerges through the relationships among principals, teachers, administrators, and other educational actors.

The principals communicated this autonomy-oriented vision through formal meetings, informal discussions, internal communication channels, and routine school activities. The consistency of this communication was important because organizational change requires more than the introduction of new policies; it requires changes in how organizational members understand their roles and responsibilities. One teacher explained, “*The principal always says, ‘we shouldn’t just wait for instructions; our school must be brave enough to design its own programs that fit the industries around us.’*” This statement illustrates how the principal sought to challenge a passive organizational mindset and encourage teachers to perceive themselves as active contributors to institutional development.

Importantly, the reconstruction of bureaucratic culture also created organizational conditions that were more conducive to the implementation of Deep Learning, particularly through *meaningful learning*, *mindful learning*, and *joyful learning*. When principals encouraged teachers to develop programs according to students’ needs and local industry contexts, teachers gained greater opportunities to design learning experiences that were connected to authentic situations. This orientation is consistent with meaningful learning, in which students are encouraged to connect knowledge and skills with prior experiences and real-world contexts. In vocational education, such contextualization is particularly relevant because students are expected to apply their competencies in authentic workplace environments rather than merely reproduce theoretical knowledge.

Wulandari et al. (2026), studying culinary vocational programs, found that curricula integrating technical competencies with soft skills, digital technology, and project-based tasks into a single interconnected structure produced more holistic and meaningful learning than curricula in which these components were developed separately. This supports the present finding that principal-led contextualization of programs linking classroom content to local industry needs creates the organizational precondition for meaningful learning in SMKs, rather than meaningful learning emerging from any single isolated program element.

The leadership practices identified from the findings are summarized in Table 1.

Table 1. Principals' Leadership Practices in Developing an Autonomy-Oriented Vision

Leadership Practice	Implementation in the School	Intended Change	Relevance to Deep Learning
Development of an autonomy-oriented vision	Principals emphasized programs based on student and industry needs	Shift toward proactive and contextual decision-making	Supports meaningful learning through contextualized programs
Consistent communication of the vision	Vision communicated through formal meetings, informal forums, and internal communication	Establish shared understanding of autonomy	Creates shared commitment to improving learning experiences
Challenge to bureaucratic routines	Teachers encouraged not to wait for external instructions	Reduce dependency on hierarchical directives	Provides space for innovative and reflective learning practices
Contextual decision-making	Programs developed according to local educational and industry conditions	Increase institutional responsiveness	Strengthens authentic and meaningful learning experiences
Accountability for autonomous decisions	Greater autonomy linked to measurable outcomes	Establish trust and legitimacy	Encourages reflective evaluation of learning practices

Table 1 demonstrates that the reconstruction of bureaucratic culture was not achieved through a single intervention but through a combination of vision-setting, communication, behavioral expectations, and accountability. Importantly, these practices provided teachers with greater organizational space to adapt educational programs to students' learning needs and vocational contexts. This flexibility is relevant to Deep Learning because meaningful learning requires connections between learning content, students' prior knowledge, real-world situations, and future professional roles. Meanwhile, the emphasis on reflection and accountability creates conditions that can support mindful learning, as teachers and school leaders are encouraged to examine whether their educational practices genuinely address students' needs rather than simply comply with established procedures. Thus,

autonomy-oriented leadership may contribute indirectly to pedagogical transformation by enabling teachers to make more context-sensitive instructional decisions.

The reconstruction of bureaucratic culture was also reflected in changes in communication and decision-making patterns. The findings indicate a movement from predominantly vertical communication toward more dialogic interactions between principals and teachers. Formal meetings remained important, but principals also created informal spaces in which teachers could express ideas, identify problems, and propose alternative programs. Such practices helped reduce the psychological distance between principals and teachers and created opportunities for organizational members to participate in interpreting and implementing the school's vision.

Table 2. Transformation of Organizational Culture and Its Implications for Deep Learning

Dimension of Organizational Culture	Conventional Bureaucratic Pattern	Emerging Transformational Pattern	Implication for Learning
Decision-making	Predominantly centralized	More participatory and distributed	Enables teachers to adapt learning to students' needs
Communication	Top-down and instruction-oriented	Dialogic and idea-oriented	Encourages reflective and mindful engagement
Teacher role	Policy implementer	Program developer and change agent	Supports pedagogical innovation
Response to change	Waiting for external direction	Proactive identification of opportunities	Encourages adaptive and authentic learning
Learning environment	Procedure-oriented	More flexible and learner-oriented	Creates conditions for joyful learning
Organizational accountability	Compliance with procedures	Responsibility for outcomes	Encourages reflection and continuous improvement

The comparison presented in Table 2 indicates that the transformation involved a fundamental change in the organizational logic of the school. In a conventional bureaucratic model, compliance with procedures tends to become the dominant measure of organizational performance. The emerging pattern identified in this study places greater emphasis on initiative, participation, and outcomes. This shift has implications for the implementation of Deep Learning. Meaningful learning can be supported when teachers have the flexibility to connect learning activities with authentic vocational problems and industry contexts. Mindful learning can be encouraged when organizational communication and evaluation emphasize reflection, awareness, and critical consideration of learning processes. Meanwhile, joyful learning becomes more feasible when teachers have sufficient freedom to employ engaging, collaborative, practice-oriented, and student-centered

learning activities. Therefore, the transformation of organizational culture does not directly demonstrate the achievement of Deep Learning, but it establishes organizational conditions that can facilitate its implementation.

The findings further indicate that the principal's transformational vision was reinforced through symbolic and behavioral leadership. Principals did not merely communicate the importance of autonomy but demonstrated support for initiatives that reflected the desired organizational culture. When teachers proposed new programs or alternative approaches, principals provided opportunities for discussion and experimentation rather than immediately directing them toward established procedures. This behavior strengthened the credibility of the autonomy-oriented vision because teachers could observe that the principal's messages were consistent with actual managerial practices.

Table 3. Transformational Leadership Dimensions Supporting Organizational and Pedagogical Transformation

Transformational Leadership Dimension	Leadership Manifestation	Cultural Mechanism	Contribution to School Autonomy and Deep Learning
Idealized influence	Principal modeled initiative and responsibility	Established leadership credibility	Encourages teachers to take ownership of educational decisions
Inspirational motivation	Principal communicated a compelling vision of a responsive school	Created shared purpose	Supports commitment to meaningful and relevant learning
Intellectual stimulation	Teachers encouraged to question routine practices	Promoted critical reflection and innovation	Creates opportunities for mindful and innovative learning
Individualized consideration	Teachers received support according to their roles and capabilities	Strengthened professional confidence	Enables teachers to develop engaging and student-responsive learning
Distributed responsibility	Teachers given authority to develop programs	Expanded professional participation	Creates conditions for meaningful, mindful, and joyful learning

Table 3 illustrates how the four dimensions of transformational leadership can provide organizational conditions for both greater autonomy and pedagogical transformation. *Idealized influence* enables principals to model initiative and responsibility, encouraging teachers to take ownership of educational decisions. *Inspirational motivation* creates a shared commitment to developing a responsive school in which learning is connected to students' needs and future professional contexts. *Intellectual stimulation* is particularly relevant to mindful learning, as teachers are encouraged to question routine practices, reflect on existing approaches, and consider alternative solutions. Meanwhile, *individualized consideration* enables principals to provide differentiated support according to teachers' competencies, potentially strengthening their ability to develop engaging learning experiences. These practices collectively create an environment that is more conducive to meaningful, mindful, and joyful learning, although the present study does not directly measure students' experiences or outcomes associated with these three dimensions.

Taken together, the findings suggest that strengthening school autonomy begins with a transformation in organizational meaning and culture. Formal authority alone does not automatically generate autonomous organizational behavior or pedagogical innovation. Principals must first establish a shared interpretation of autonomy, challenge passive and compliance-oriented routines, and create organizational conditions that legitimize initiative and responsible decision-making. Within the framework of Deep Learning, this cultural transformation provides an important organizational foundation for teachers to develop learning experiences that are meaningful, mindful, and joyful. Meaningful learning can be supported through stronger connections between vocational learning and authentic industry contexts; mindful learning can be facilitated through reflection, critical engagement, and conscious participation in learning; while joyful learning can be encouraged through flexible, collaborative, and engaging learning experiences.

In the context of SMKs, this cultural transformation is particularly important because vocational schools operate at the

intersection of educational policy, student development, and rapidly changing industry demands. The principal's transformational vision therefore functions as a bridge between formal decentralization, organizational change, and pedagogical innovation. The evidence indicates that when autonomy is communicated as a collective responsibility, supported through participatory practices, and accompanied by accountability, bureaucratic culture can gradually shift toward a more adaptive, collaborative, and innovation-oriented organizational culture. Such a culture does not automatically guarantee the implementation of Deep Learning, but it creates the institutional space necessary for teachers to pursue meaningful, mindful, and joyful learning in ways that are responsive to students and the evolving demands of vocational education.

b. Teacher Empowerment through Participation, Trust, and Professional Autonomy

The second major finding concerns the principals' efforts to strengthen teacher capacity through active participation, delegation of responsibility, and trust-building. The findings indicate that transformational leadership was enacted not only through the articulation of a shared vision but also through the redistribution of opportunities and responsibilities within the school organization. Rather than positioning themselves as the sole authority responsible for planning and implementing school programs, principals created spaces in which teachers could participate in decision-making, formulate initiatives, and assume responsibility for specific areas of school development. This approach was particularly important for strengthening school autonomy because institutional autonomy cannot be

sustained when decision-making remains highly centralized at the principal level.

Through a qualitative study, [Keddie et al. \(2024\)](#) demonstrate a potential gap between leaders' and teachers' perceptions of autonomy. Even when leadership restructuring is claimed to provide autonomy, teachers may experience that autonomy differently. In other words, autonomy granted by leaders does not necessarily become autonomy experienced by teachers.

One vice principal described this leadership approach as follows: *"He often says, 'I only open the way; the ideas and programs must come from you teachers, because you know best what students and industry need.'"* This statement demonstrates the principal's attempt to position teachers as professional actors rather than merely policy implementers. The principal provided direction and institutional support while allowing teachers to contribute their expertise to the formulation and implementation of school programs. Such practices reflect the transformational leadership dimensions of *intellectual stimulation* and *individualized consideration*, as teachers were encouraged to generate new ideas while receiving opportunities and support according to their competencies and responsibilities.

Teacher empowerment also has important implications for the implementation of Deep Learning, particularly *meaningful learning*, *mindful learning*, and *joyful learning*. When teachers are given professional autonomy, they have greater opportunities to adapt learning strategies to students' characteristics, vocational contexts, and industry requirements. Such flexibility can support meaningful learning by enabling teachers to connect theoretical concepts with authentic vocational practices and students' future professional experiences. At the same time,

teacher participation in planning and evaluating learning programs can encourage mindful learning through reflection and critical examination of instructional practices. Greater professional freedom may also facilitate joyful learning because teachers can develop more engaging, collaborative, creative, and practice-oriented learning experiences.

Zahro et al. (2026), evaluating a joyful learning approach in an elementary school, reported that participatory, game-based, and collaborative activities produced a significant gain in students' higher-order thinking skills, with the largest gain occurring in the creativity indicator; this indicates that the discretion teachers exercise over instructional format precisely the kind of discretion empowerment strategies in Table 4 provide is

what allows joyful learning to be enacted rather than merely intended. At the same time, Waloyo et al. (2026), in a systematic review of teacher readiness for Deep Learning implementation, found that Indonesian teachers generally possess adequate pedagogical knowledge but are constrained by uneven institutional support, particularly limited training and infrastructure. This suggests that the organizational mechanisms identified in the present study delegation, trust, and formal empowerment structures address exactly the institutional-support gap that Waloyo et al. (2026) identify as the main barrier to translating teachers' pedagogical knowledge into practical Deep Learning implementation.

The principal's teacher empowerment strategies are summarized in Table 4.

Table 4. Forms of Teacher Empowerment and Their Relevance to Deep Learning

Empowerment Strategy	Implementation	Teacher Role	Contribution to Deep Learning
Participation in decision-making	Teachers involved in planning and evaluating school programs	Decision-maker and contributor	Enables learning programs to reflect students' needs and experiences
Delegation of responsibility	Responsibilities distributed through specialized working teams	Program leader and implementer	Provides professional space for pedagogical innovation
Vocational curriculum teams	Teachers collaboratively develop and evaluate vocational programs	Curriculum developer	Supports meaningful learning through contextualized content
Industry partnership teams	Teachers participate in managing relationships with industry	Partnership coordinator	Connects learning with authentic workplace contexts
Quality assurance teams	Teachers participate in monitoring and evaluating programs	Internal evaluator	Encourages mindful reflection and continuous improvement
Support for instructional innovation	Teachers encouraged to propose and implement new approaches	Instructional innovator	Creates opportunities for engaging and joyful learning

Table 4 demonstrates that teacher empowerment was institutionalized through formal organizational structures rather than relying solely on informal encouragement from the principal. The creation of curriculum, industry partnership, and quality assurance teams enabled teachers to exercise

authority within clearly defined areas of responsibility. From the perspective of Deep Learning, this distributed structure provides an important organizational foundation for pedagogical transformation. Teachers involved in curriculum development can integrate authentic vocational contexts,

thereby strengthening meaningful learning. Their involvement in evaluation encourages reflection on whether learning activities effectively address students' needs, which is consistent with mindful learning. Meanwhile, the opportunity to design innovative instructional approaches can support joyful learning by allowing teachers to employ more engaging and collaborative activities. Nevertheless, these findings should be interpreted as organizational conditions that facilitate Deep Learning rather than as direct evidence of its impact on student learning outcomes.

The empowerment process was further supported by the development of trust between principals and teachers. Principals allowed teachers sufficient discretion to develop programs, experiment with instructional practices, and adapt initiatives to emerging needs. Trust, however, did not imply the absence of accountability. Teachers remained responsible for evaluating their initiatives and reporting outcomes, thereby creating a balance between professional autonomy and institutional responsibility.

The relationship between trust and professional autonomy is presented in Table 5.

Table 5. Relationship between Trust, Teacher Autonomy, and Deep Learning

Leadership Practice	Form of Trust	Teacher Response	Implication for Deep Learning
Delegation of authority	Principal demonstrates confidence in teacher competence	Teachers become more willing to make decisions	Supports contextual and meaningful learning design
Open discussion	Teachers' opinions are acknowledged	Greater willingness to express ideas	Encourages mindful participation and reflection
Support for experimentation	Principal allows reasonable risks and learning from implementation	Teachers become more confident in innovation	Facilitates engaging and joyful learning activities
Shared responsibility	Teachers receive authority together with accountability	Stronger ownership of programs	Promotes reflective and responsible learning practices
Recognition of teacher expertise	Principal values teachers' vocational knowledge	Teachers feel professionally respected	Enables authentic, relevant, and student-responsive learning

Table 5 indicates that trust functioned as an important psychological and organizational mechanism linking transformational leadership with teacher autonomy and the potential implementation of Deep Learning. When principals demonstrated confidence in teachers' professional competence, teachers were more willing to experiment with instructional strategies and make decisions based on contextual needs. This is particularly important for vocational education, where meaningful learning depends on teachers' ability to connect classroom activities with

authentic occupational contexts. Trust also provides a supportive environment for mindful learning because teachers are encouraged to critically reflect on their practices rather than simply reproduce established procedures. In addition, teachers who experience professional confidence may be more willing to develop creative and collaborative activities that contribute to a joyful learning environment. Thus, trust can be understood as an enabling condition for pedagogical experimentation and continuous improvement.

The increased participation of teachers gradually transformed their sense of ownership of school programs. Teachers were no longer positioned merely as implementers of initiatives designed by school leaders but

became involved throughout the program development cycle, from identifying problems to evaluating outcomes. This transformation is summarized in Table 6.

Table 6. Teacher Participation, Organizational Ownership, and the Three Dimensions of Deep Learning

Stage of Program Development	Traditional Pattern	Participatory Pattern	Potential Contribution to Deep Learning
Problem identification	Determined primarily by school leadership	Jointly identified by principals and teachers	Greater relevance to students' needs and experiences
Program planning	Centralized planning	Collaborative planning through working teams	More meaningful and contextual learning design
Program implementation	Teachers primarily execute decisions	Teachers assume leadership responsibilities	Greater teacher creativity and student engagement
Program evaluation	Mainly administrative evaluation	Participatory reflection and evaluation	Supports mindful and reflective practice
Program improvement	Based mainly on external directives	Based on internal reflection and local needs	Encourages continuous and adaptive learning
Learning activity development	Often follows established routines	Teachers develop varied and innovative approaches	Creates conditions for joyful learning

Table 6 highlights the transformation from an implementation-oriented teacher role toward a more autonomous and reflective professional role. The participatory pattern provides teachers with greater control over how educational programs are designed, implemented, evaluated, and improved. This has direct conceptual relevance to the three dimensions of Deep Learning. Meaningful learning is supported when teachers can design learning activities based on students' experiences, vocational needs, and authentic workplace contexts. Mindful learning is supported through participatory evaluation and reflection, which encourage teachers to examine the effectiveness and relevance of their practices. Joyful learning becomes more feasible when teachers have sufficient freedom to vary instructional strategies and develop engaging learning experiences. Again, the evidence demonstrates an enabling relationship rather than a direct causal effect on student learning outcomes.

The empowerment process also demonstrates that transformational leadership

operates through the development of distributed leadership capacity. Although the principal remained responsible for establishing strategic direction and ensuring organizational accountability, leadership functions were increasingly distributed among teachers and other school personnel. This distribution enabled the school to mobilize a wider range of expertise and reduced dependence on the principal as the sole source of initiative. In this regard, teacher empowerment strengthened not only individual professional autonomy but also the school's collective capacity to respond to emerging educational and industry demands.

From a Deep Learning perspective, distributed leadership is significant because the implementation of meaningful, mindful, and joyful learning requires more than individual teacher motivation. It requires organizational support, opportunities for collaboration, access to resources, and professional discretion. Teachers who participate in curriculum development can incorporate authentic industry problems into

learning activities, strengthening meaningful learning. Teachers who are involved in evaluation and reflection can develop more mindful approaches to teaching and learning. Meanwhile, teachers who have the freedom to experiment with collaborative, creative, and practice-based strategies can contribute to more joyful learning environments. Thus, teacher empowerment creates an organizational bridge between school autonomy and pedagogical innovation.

The findings further suggest that empowerment generated changes in teachers' attitudes toward innovation. Teachers who previously tended to follow established routines became more willing to initiate new instructional practices and develop programs based on students' needs and industry expectations. This development reflects the role of *intellectual stimulation* in transformational leadership, whereby leaders encourage organizational members to critically examine existing practices and consider alternative approaches. At the same time, *individualized consideration* was evident in the principal's recognition of differences in teacher expertise and the provision of opportunities appropriate to individual competencies.

Overall, the findings demonstrate that teacher empowerment represents a central mechanism through which transformational leadership strengthens school autonomy while creating favorable organizational conditions for Deep Learning. Participation provides teachers with access to decision-making, delegation gives them legitimate authority, trust creates the psychological conditions for initiative, and accountability ensures alignment with institutional goals. Together, these elements transform teachers from passive implementers into active organizational actors capable of contributing

to school development and pedagogical innovation.

In the context of SMKs, this empowerment is particularly important because teachers' professional knowledge of vocational competencies and industry needs directly influences the school's ability to provide relevant learning experiences. Meaningful learning can be strengthened when teachers connect learning with authentic vocational contexts; mindful learning can be supported through reflective, critical, and conscious engagement with learning processes; and joyful learning can be facilitated through engaging, collaborative, and practice-oriented activities. Therefore, strengthening school autonomy requires not only formal authority at the school level but also the development of teacher capacity, professional trust, distributed responsibility, and organizational support that enable teachers to translate autonomy into innovative learning practices. In this sense, transformational leadership does not directly constitute Deep Learning itself; rather, it creates the organizational and professional conditions through which *meaningful*, *mindful*, and *joyful learning* can be more effectively pursued in vocational education.

c. Policy Negotiation and External Networking to Expand School Autonomy

The third major finding concerns the principals' strategic efforts to negotiate educational policies and expand external networks as mechanisms for widening the practical space of school autonomy. The findings indicate that autonomy in SMKs was not exercised solely through internal decision-making but was also shaped by principals' ability to negotiate with external authorities and establish productive relationships with industry partners. In this context, principals

functioned not only as internal organizational leaders but also as institutional representatives who mediated between school-level needs, government regulations, and labor-market expectations. Such a role was particularly important because the autonomy available to SMKs remained embedded within broader regulatory and institutional structures.

The findings show that principals employed both formal and informal strategies when interacting with education authorities. Formal strategies included participation in coordination meetings, submission of program proposals, presentation of school performance data, and communication through institutional channels. Informal strategies involved direct discussions,

consultations, and relationship-building with relevant officials and stakeholders. These approaches enabled principals to communicate the specific needs of their schools while simultaneously demonstrating that greater flexibility could be exercised responsibly. One principal explained, *“When we can show results, the education office and industry trust us more and give us space; my job is to convince them that decisions at the school level can be accounted for.”* This statement demonstrates that autonomy was understood as a negotiated organizational space that had to be supported by evidence of institutional competence and accountability.

The principal’s strategies for negotiating policy and external relationships are summarized in Table 7.

Table 7. Principals’ Strategies for Expanding the Practical Space of School Autonomy

Strategy	Main Actors	Form of Engagement	Objective	Contribution to Autonomy and Deep Learning
Policy negotiation	Principal and education authorities	Formal meetings and informal consultations	Obtain greater flexibility in school-level decisions	Enables contextual educational planning
Evidence-based advocacy	Principal and school management	Presentation of achievements and program outcomes	Demonstrate institutional accountability	Supports continuous improvement of learning
Curriculum negotiation	Principal, teachers, and authorities	Discussion of curriculum adaptation	Align programs with local and industry needs	Strengthens meaningful learning
Resource negotiation	Principal and relevant authorities	Proposal and coordination	Obtain flexibility in resource utilization	Supports innovative learning environments
Industry networking	Principal and DUDI partners	Meetings, visits, and partnership forums	Develop sustainable collaboration	Provides authentic learning contexts
Partnership development	School and industry stakeholders	MoUs and collaborative programs	Strengthen vocational relevance	Supports meaningful and engaging learning

Table 7 demonstrates that principals adopted a multidimensional approach to expanding school autonomy. Policy negotiation was not limited to requesting greater authority but was accompanied by evidence-based advocacy and institutional accountability. From the perspective of Deep Learning, the resulting flexibility is

particularly relevant because schools require sufficient organizational space to adapt educational programs to students’ needs and authentic vocational contexts. Negotiated curriculum flexibility can support meaningful learning by enabling teachers to connect classroom knowledge with actual industry practices. Similarly, access to appropriate

resources and external expertise can create opportunities for mindful learning, particularly when students are encouraged to critically examine real-world vocational problems and reflect on their experiences. Industry collaboration can also contribute to joyful learning by providing students with authentic, practical, and engaging learning experiences. Nevertheless, the findings should be understood as evidence of organizational conditions that facilitate Deep Learning rather than direct evidence of student learning outcomes.

This reading aligns with [Astono et al. \(2026\)](#), within vocational education specifically, the integration of simulation and industry-linked technologies under Deep Learning and Joyful Learning frameworks substantially improves students' practical competencies and overall learning quality. Read alongside the present findings, this suggests that policy negotiation and DUDI networking function as more than a resourcing strategy: they are the mechanism through which schools gain access to the

authentic technological and occupational contexts that [Astono et al. \(2026\)](#) identify as necessary for Deep Learning to take hold in vocational settings.

External networking, particularly with DUDI, constituted another important dimension of the principals' strategy. The findings indicate that principals actively developed and maintained relationships with industry partners to ensure that school programs remained relevant to changing occupational requirements. These relationships extended beyond conventional internship arrangements and included collaboration in curriculum development, industry placements, learning facilities, competency development, and other vocational programs. Through these networks, schools were able to access information, expertise, resources, and opportunities that were not fully available within the school itself.

The principal's external networking activities and their organizational implications are presented in Table 8.

Table 8. External Networking Practices and Their Contribution to Vocational School Autonomy and Deep Learning

Networking Activity	External Stakeholder	Main Purpose	School Benefit	Relevance to Deep Learning
Industry consultation	DUDI representatives	Identify current competency requirements	More relevant vocational programs	Strengthens meaningful learning
Industry placement coordination	DUDI partners	Facilitate student workplace learning	Improved practical learning opportunities	Supports meaningful and joyful learning
Development of MoUs	Industry and institutional partners	Formalize long-term collaboration	More sustainable partnerships	Provides continuity for authentic learning
Joint program development	DUDI and school teams	Design industry-oriented activities	Stronger alignment with labor-market needs	Supports contextual and meaningful learning
Facility development	Industry and school management	Support vocational learning infrastructure	Improved learning resources	Enables engaging and joyful learning
Stakeholder communication	Government and industry	Maintain institutional relationships	Greater access to information and opportunities	Supports reflective and adaptive learning

Table 8 indicates that external networking expanded the meaning of school autonomy beyond internal administrative decision-making. Partnerships with DUDI provided SMKs with access to external knowledge and resources that could strengthen the school's capacity to respond to labor-market changes (Deng et al., 2023). Importantly, these partnerships also created opportunities to bring authentic vocational experiences into the learning process. Such experiences are highly relevant to meaningful learning, as students can connect theoretical knowledge with actual occupational practices and problems. Industry-based learning can also encourage mindful learning when

students are required to observe, analyze, reflect on, and evaluate authentic workplace situations. At the same time, direct engagement with practical activities, industry environments, and collaborative projects can make learning more engaging and enjoyable, supporting the principle of joyful learning (Ytterstad & Olaisen., 2023). Thus, external networking can serve not only institutional autonomy but also the pedagogical transformation of vocational education.

The interaction between policy negotiation, external networking, accountability, and the conditions supporting Deep Learning is further illustrated in Table 9.

Table 9. Mechanisms Linking Policy Negotiation, External Networking, and Deep Learning

Initial Condition	Principal's Strategy	Intermediate Mechanism	Resulting Change	Implication for Deep Learning
Regulatory constraints	Policy negotiation with education authorities	Mutual understanding and trust	Greater flexibility in selected decisions	Enables contextual and meaningful learning
Limited alignment with industry	Strategic networking with DUDI	Exchange of information and expertise	More responsive programs	Strengthens authentic learning experiences
Need for institutional legitimacy	Presentation of school achievements	Evidence-based trust building	Greater stakeholder confidence	Supports reflective and accountable learning practices
Limited external resources	Partnership development	Resource and knowledge sharing	Expanded institutional capacity	Creates opportunities for engaging learning
Changing labor-market requirements	Continuous stakeholder engagement	Access to current industry information	Faster program adaptation	Supports adaptive and meaningful learning
Need for student engagement	Industry-oriented program development	Authentic and collaborative activities	More relevant learning experiences	Creates conditions for joyful learning

Table 9 demonstrates that the expansion of school autonomy occurred through a gradual and relational process rather than through a single administrative decision. Regulatory constraints were addressed through negotiation, while industry-related challenges were addressed through external networking. These processes increased the school's ability to adapt educational programs to changing conditions. From the perspective

of Deep Learning, this adaptability is particularly important because meaningful, mindful, and joyful learning requires learning environments that are responsive to students, contexts, and authentic problems. When principals successfully negotiate greater flexibility, teachers can potentially adapt curricula and learning activities to local circumstances. When principals establish strong industry networks, students can access

authentic contexts in which knowledge and skills can be applied and reflected upon. Thus, external relations become an important organizational resource for supporting pedagogical innovation.

The findings further reveal that successful negotiation was strongly associated with the principal's capacity to demonstrate tangible institutional achievements. School performance, successful industry partnerships, program implementation, and evidence of student development were used to strengthen the school's position when communicating with external stakeholders. This indicates that autonomy was not simply obtained through formal policy provisions but was progressively legitimized through demonstrated organizational competence. In this regard, transformational leadership contributed to autonomy by combining vision and mobilization with strategic external engagement. The principal's leadership extended beyond motivating internal members to include the construction of institutional legitimacy among stakeholders who controlled or influenced the resources and regulatory conditions surrounding the school.

The findings also highlight the importance of sustained networking rather than transactional partnerships. Relationships with DUDI were more meaningful when they involved continuous communication, joint planning, and mutual benefit. Such relationships enabled schools to anticipate changes in industry requirements rather than merely responding to them after they occurred. This proactive orientation has implications for all three dimensions of Deep Learning. Continuous industry engagement can provide students with meaningful connections between learning and future professional contexts. Exposure to authentic

workplace problems can encourage mindful learning by requiring students to analyze situations, make decisions, and reflect on consequences. Meanwhile, practical projects, collaborative activities, workplace visits, and industry-based experiences can contribute to joyful learning by making learning more experiential and relevant.

The findings therefore suggest that policy negotiation and external networking function as enabling mechanisms rather than direct determinants of Deep Learning. The principal's role is to create the organizational and institutional conditions in which teachers and students can experience more contextual, reflective, and engaging learning. This distinction is important because the present study focuses primarily on principals' transformational leadership strategies and school autonomy rather than directly measuring students' Deep Learning outcomes. Nevertheless, the findings indicate that the flexibility generated through policy negotiation and the resources obtained through external networks can strengthen the institutional capacity required to support Deep Learning.

Overall, the findings demonstrate that policy negotiation and external networking constitute critical strategies for transforming formal school autonomy into practical institutional capacity. Principals expanded the school's room for maneuver by negotiating flexibility with education authorities, demonstrating accountability through institutional achievements, and developing sustained partnerships with DUDI. These strategies indicate that school autonomy should not be understood as an isolated internal privilege but as a relational capacity constructed through interactions among schools, government authorities, industry, and other stakeholders.

In the context of Deep Learning, this relational capacity has important pedagogical implications. Meaningful learning can be strengthened when schools connect educational programs with authentic industry contexts and students' future professional needs. Mindful learning can be facilitated through reflective engagement with real-world problems, industry practices, and decision-making situations. Joyful learning can be encouraged through practical, collaborative, and experiential activities that make learning more engaging and relevant to students. Therefore, transformational leadership operates across organizational boundaries: principals mobilize internal actors while simultaneously negotiating external conditions that enable schools to provide more meaningful, mindful, and joyful learning experiences. The combination of strategic negotiation, evidence-based accountability, and external networking ultimately strengthens the capacity of SMKs to become more adaptive, responsive, and pedagogically innovative in preparing graduates for evolving labor-market demands.

4. Conclusion

This study concludes that principals' transformational leadership plays a critical role in translating formal school autonomy into practical organizational capacity in Vocational High Schools (SMKs). The findings demonstrate that strengthening school autonomy is not achieved solely through the delegation of administrative authority but through an integrated leadership process that transforms organizational culture, empowers teachers, and expands strategic relationships with external stakeholders. These three dimensions also create organizational conditions that support the implementation of Deep Learning,

particularly through *meaningful learning*, *mindful learning*, and *joyful learning*.

First, principals strengthened school autonomy by articulating a shared, autonomy-oriented vision and reconstructing bureaucratic culture. Autonomy was reframed from formal administrative authority into a collective responsibility to develop programs responsive to students' needs, local contexts, and industry demands. This cultural transformation provided teachers with greater flexibility to develop contextual and innovative learning experiences, thereby creating conditions conducive to meaningful, mindful, and joyful learning.

Second, principals strengthened autonomy through teacher empowerment, participation, trust, delegation, and professional autonomy. The distribution of responsibilities through curriculum, industry partnership, and quality assurance teams increased teachers' involvement in decision-making and program development. This empowerment strengthened teachers' ownership and capacity to innovate. Greater professional autonomy also created opportunities for teachers to connect learning with authentic contexts (*meaningful learning*), encourage reflection and critical engagement (*mindful learning*), and develop engaging, collaborative, and practice-oriented learning activities (*joyful learning*).

Third, principals expanded the practical space of school autonomy through policy negotiation and external networking, particularly with education authorities and DUDI. Evidence-based advocacy, institutional accountability, and sustained industry partnerships enabled schools to obtain greater flexibility and access to external knowledge, resources, and authentic vocational contexts. These conditions supported the development of learning experiences that were more relevant to

students' future professional environments and therefore potentially strengthened the implementation of Deep Learning.

Overall, the study contributes to educational leadership scholarship by demonstrating that transformational leadership, school autonomy, and Deep Learning are interconnected at the organizational level. Transformational leadership does not directly constitute Deep Learning; rather, it creates the organizational, professional, and relational conditions through which meaningful, mindful, and joyful learning can be pursued. Practically, SMK principals and policymakers should therefore move beyond compliance-oriented approaches to autonomy and strengthen distributed leadership, teacher empowerment, evidence-based accountability, pedagogical flexibility, and strategic industry partnerships. Such an integrated approach can enhance the capacity of vocational schools to become more adaptive, innovative, and responsive to students' learning needs and evolving labor-market demands.

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