The Development of a Digital-Based Educational Quality Ecosystem at SMK Bhineka Karawang

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ABSTRACT: This study analyzes the development of a digital-based educational quality ecosystem at SMK Bhineka Karawang, Indonesia, focusing on enabling factors, challenges, and strategies to sustain digital transformation in vocational education. The research is driven by the urgency of educational digitalization in the industry 4.0 era, which demands the integration of leadership, teacher competence, infrastructure, policies, and school culture. A qualitative case study design was applied through in-depth interviews with eight informants (the principal, vocational teachers, and IT staff) selected purposively, supported by document analysis, and examined using thematic analysis. The findings highlight three key themes with measurable indicators: (1) leadership commitment and policy alignment, evident in digital planning documents and resource allocation; (2) teacher digital competence and continuous professional development, reflected in participation rates in digital training; and (3) infrastructure readiness and integration challenges, measured by facility availability and system interoperability. The results indicate that the success of a digital ecosystem requires a systemic approach that combines leadership vision, teacher empowerment, and well-coordinated infrastructure support. This study enriches the limited literature on digital transformation in Indonesian vocational schools by presenting an empirically grounded framework. It offers guidelines for practice, including leadership training in digital change management, differentiated teacher development programs, and sustainable infrastructure planning aligned with pedagogical goals.

Keywords: Digital Education Ecosystem, Educational Quality, Vocational School, Digital Transformation.

INTRODUCTION

The rapid advancement of digital technology has reshaped almost every sector of society, and education is no exception. In today's context, digitalization is no longer viewed as a supplementary element but as a strategic necessity for ensuring both the quality and the relevance of education. This urgency is especially evident in vocational schools, where the connection to labor market demands requires constant adaptation. In Indonesia, vocational schools (Sekolah Menengah Kejuruan/SMK) play a critical role in preparing students for employment. However, national surveys reveal a persistent gap: although 87 percent of SMKs report having basic digital

infrastructure, only 36 percent are able to integrate it effectively into classroom learning and institutional practices (Kemendikbudristek, 2022). This disparity highlights that digital transformation cannot be reduced to the mere presence of devices; it requires a comprehensive and sustainable ecosystem where technology, leadership, teacher competence, policy support, and school culture are interwoven to enhance learning outcomes (O.E.C.D., 2021).

The motivation for this study arises from the recognition that many schools, despite having access to technological resources, struggle to implement them in a coherent and strategic manner. SMK Bhineka Karawang in West Java exemplifies this reality. While the school has invested in digital tools, the lack of an integrative plan has resulted in fragmented practices where technology and pedagogy are often disconnected. This misalignment significantly limits the impact of digital initiatives and creates barriers to achieving long-term improvement in teaching and learning (Fullan, 2013). Such conditions are not unique to a single institution but represent a broader structural problem within vocational education in Indonesia, where efforts to digitalize remain piecemeal rather than systemic.

The significance of this issue is magnified by the demands of the Fourth Industrial Revolution (Industry 4.0). The labor market increasingly values digital literacy, technical expertise, and the capacity to adapt to rapidly changing environments. Vocational schools, as the primary institutions for skills-based education, therefore face heightened pressure to reform their practices and align with these expectations (Wang, 2017). Yet, previous research has tended to focus on isolated aspects of digitalization, such as the use of Learning Management Systems, the assessment of teacher digital competencies, or the adoption of online learning platforms. While valuable, these studies rarely address the school as a whole, interconnected system. This leaves a gap in the literature regarding how vocational schools can develop a unified digital ecosystem capable of sustaining educational quality in the long term.

This study seeks to respond to that gap by asking a central research question: How can a digital-based educational quality ecosystem be effectively developed and sustained in a vocational school environment such as SMK Bhineka Karawang? In pursuing this question, the study has two primary objectives: first, to analyze the enabling factors and barriers that shape the digital transformation process at the school level; and second, to design a practical and contextually relevant framework that can guide other vocational schools in their digitalization efforts (Jain et al., 2023).

To achieve these aims, the study adopts a qualitative case study approach, which allows for an in-depth exploration of how digital transformation unfolds within the specific institutional context of SMK Bhineka Karawang. Data will be gathered through interviews, document analysis, and observations, enabling a nuanced understanding of stakeholder perspectives and institutional practices. Sivapragasam & Raya (2018) By linking empirical findings with theoretical insights, the research aspires to contribute both to the academic literature on educational technology integration and to practical policymaking in vocational education.

Ultimately, the introduction of this study demonstrates the need for a systemic model of digital transformation in vocational schools (Chanias, 2017). By situating SMK Bhineka Karawang as a case in point, the research not only highlights the complexity of the challenges faced but also

underscores the potential for schools to reimagine themselves as digital ecosystems. This sets the stage for the subsequent literature review, where empirical, theoretical, and methodological perspectives will be discussed to position the study within the broader scholarly debate.

The purpose of this study is to examine how such a digital ecosystem is being developed at SMK Bhineka Karawang, with an emphasis on understanding the enablers and challenges involved. The motivation stems from the increasing pressure faced by educational institutions to align with the demands of Industry 4.0, where technical skills, digital literacy, and adaptive learning environments are central to both student success and institutional performance (Wang, 2017). However, despite the presence of technological infrastructure in many schools, the lack of a coherent and strategic integration plan often leads to fragmented implementation. This disconnection between tools and pedagogy has become a critical issue that limits the potential impact of digital transformation (Fullan, 2013).

The core problem addressed in this study is the absence of a unified model for developing digital-based quality ecosystems within vocational school settings. While previous studies have explored the adoption of Learning Management Systems (LMS), teacher digital competence, or online learning platforms in isolation, there remains a lack of comprehensive analysis that views the school as an interconnected system. This study poses the main research question: How can a digital-based educational quality ecosystem be effectively developed and sustained in a vocational school environment such as SMK Bhineka Karawang? This question is grounded in the complexity of the issue, which involves not only technical readiness but also leadership vision, teacher mindset, professional development, infrastructure support, and policy alignment (Bass & Avolio, 2019).

By investigating the development of a digital ecosystem at SMK Bhineka Karawang, this research aims to identify key factors that facilitate or hinder successful implementation. Furthermore, it seeks to propose a practical and contextually relevant framework that can be adopted by other vocational institutions aiming to strengthen their digital transformation agenda (Renwick et al., 2013). Gomes et al. (2023)The qualitative case study approach adopted in this research enables a deep exploration of stakeholder perspectives and institutional practices, thus providing rich empirical insights (Nierenberg et al., 2017). Ultimately, the findings are expected to contribute to the broader literature on educational technology integration, particularly in resource-constrained contexts, and inform policymakers, school leaders, and educators about effective strategies for building robust digital ecosystems in schools (Yin, 2018).

METHOD

This study employed a qualitative case study design to examine the development and implementation of a digital-based educational quality ecosystem at SMK Bhineka Karawang. A case study approach was considered appropriate to capture the contextual conditions and institutional dynamics involved in the school's digital transformation (Yin, 2018). The population consisted of internal stakeholders directly engaged in the process, and purposive sampling was used to select eight key informants: the school principal, five vocational subject teachers, and two IT staff members. These individuals were chosen based on their active involvement in planning, executing, and evaluating digital initiatives within the school.

Data were collected through in-depth semi-structured interviews that focused on leadership roles, teacher readiness, infrastructure usage, and institutional policies. Interviews were conducted either face-to-face or online via Zoom, depending on participant availability, and each session lasted approximately 30 to 60 minutes. Sadida & Fitria (2019) The collected data were analyzed using thematic analysis, which allowed the researchers to identify recurring patterns and draw meaningful conclusions about the enabling factors and challenges in building a sustainable digital ecosystem in a vocational school context (Qamar et al., 2023).

The research was conducted at SMK Bhineka Karawang, a vocational secondary school located in Karawang Regency, West Java, Indonesia. The school has been recognized for its efforts in integrating digital platforms into teaching, learning, and school management (Paillé et al., 2014). Its unique position as a progressive vocational institution provided a rich context for studying the complexities of educational ecosystem development in the digital age. Data collection was carried out using a semi-structured interview guide, complemented by a review of relevant school documents such as digital infrastructure plans, professional development records, and policy documents related to digital learning. The interview guide included open-ended questions designed to explore participants' experiences, perceptions, and challenges in implementing digital initiatives. All interviews were conducted face-to-face or via Zoom, depending on participant availability, and lasted between 30 to 60 minutes. With participants' consent, interviews were audio-recorded and later transcribed verbatim for analysis.

Thematic analysis was used to process and interpret the qualitative data. This analytical technique involved coding the transcribed data, identifying recurring themes, and organizing them into meaningful categories that reflected the core components of a digital-based educational ecosystem (Purba, 2019).

The data analysis process followed Braun and Clarke's (2006) six-phase model, ensuring a rigorous and transparent interpretation of findings. Key themes that emerged included leadership and policy support, teacher digital competence, infrastructure readiness, and collaborative culture. Ethical considerations were carefully addressed in this study. All participants were informed about the research objectives and procedures and gave their verbal consent prior to participation. Anonymity and confidentiality were guaranteed, and all data were stored securely and used solely for academic purposes. Since the research posed minimal risk and involved adult professionals, it was conducted in accordance with ethical guidelines for educational research.

RESULT AND DISCUSSION

The findings of this qualitative case study at SMK Bhineka Karawang reveal the multidimensional efforts undertaken by the school to establish a digital-based educational quality ecosystem. Based on in-depth interviews with eight key informants including the principal, teachers, and IT personnel three interrelated themes emerged: leadership commitment, teacher competence, and infrastructure readiness. First, leadership commitment and strategic policy alignment were found to play a central role in initiating and sustaining digital innovation. The principal positioned digital transformation as a school-wide priority, not only as a way to modernize classroom instruction but also as a strategy to strengthen institutional competitiveness and accountability. A digital roadmap

was formulated to guide this process, setting out objectives such as enhancing digital literacy among staff, implementing a Learning Management System (LMS) across the school, and integrating technology in lesson planning, delivery, and evaluation. Leadership at SMK Bhineka Karawang was described by teachers as participatory and transformational, characterized by regular meetings, structured evaluations, and the establishment of Standard Operating Procedures (SOPs) for technology use. This leadership approach contributed to a culture of coherence and accountability, echoing prior studies that emphasize the determining role of visionary leadership in digital transformation.

Second, the study highlights teacher digital competence and professional development as another critical factor. Initially, many teachers expressed uncertainty and anxiety in adopting digital tools. Over time, however, this challenge was addressed through structured and ongoing professional development, peer mentoring, and training collaborations with external partners. Workshops covered topics such as the use of Google Workspace for Education, online platforms like Edmodo and Moodle, as well as video editing and interactive media design. These initiatives helped teachers not only acquire technical skills but also reshape their pedagogical approaches in line with the TPACK framework, making learning more student-centered and interactive. Although disparities in digital skills persist among teachers particularly in areas such as data analytics and advanced LMS usage the school's blend of formal and informal support has cultivated a culture of shared learning and gradual improvement.

Third, infrastructure readiness emerged as both an enabler and a challenge. The school has invested significantly in digital facilities, including high-speed internet, classroom projectors, smart TVs, and a digital attendance system, along with a cloud-based School Information System (SIS) for administration and communication. These resources reflect strong institutional commitment to digitalization (Hasibuan, 2016). Nevertheless, recurring problems such as maintenance delays, unstable internet connectivity, and redundancy in the use of multiple platforms created barriers to consistent integration. Teachers and IT staff acknowledged that the real challenge lies not only in access to technology but in fostering a digital mindset and ensuring platform integration (Indices, 2022). To overcome these issues, the school has begun standardizing its platforms and is planning to provide mobile devices for students with limited access at home, signaling an effort to strengthen digital equity.

Taken together, these findings illustrate that the development of a digital-based educational quality ecosystem at SMK Bhineka Karawang is systemic in nature. Leadership sets the direction through vision and policy, professional development equips teachers with the necessary competencies, and infrastructure provides the operational backbone. More importantly, the school's emphasis on collaboration, continuous learning, and adaptability demonstrates that digital transformation in education extends beyond technical adoption to encompass cultural and organizational change.

This study explored how SMK Bhineka Karawang has developed a digital-based educational quality ecosystem and identified the key elements that contribute to its success. Through a qualitative case study approach, the findings revealed that leadership commitment, teacher capacity development, and infrastructure readiness form the foundation of a functioning digital ecosystem within the school. These results reinforce the understanding that digital transformation in

education is not a linear or purely technical process, but rather a dynamic and systemic shift that involves multiple stakeholders, policies, and cultural changes.

The first key theme leadership commitment and strategic policy alignment demonstrated that the role of school leaders is not only administrative but transformational (Chetty, 2016). The principal of SMK Bhineka Karawang played a pivotal role in initiating digital reform, not only by providing direction and resources but also by modeling openness to innovation and risk-taking. This reflects the literature on transformational leadership in education, which emphasizes the importance of leaders who can articulate a compelling vision, foster collaboration, and create a culture of continuous improvement (Bass & Avolio, 2019; Davies & West, 2014). The presence of formal digital policies and SOPs at SMK Bhineka further supports the notion that leadership should extend beyond charisma and into practical systems design that ensures accountability and scalability of change initiatives.

The second theme teacher digital competence and professional development highlights the human dimension of educational change (Putri & Warsindah, 2021). Teachers' ability to integrate digital tools meaningfully into pedagogy is a central determinant of whether technology enhances or hinders learning. This finding aligns with the TPACK framework (Mishra & Koehler, 2006), which argues that effective digital teaching requires an intersection of technological, pedagogical, and content knowledge. At SMK Bhineka Karawang, professional development was not limited to isolated workshops but included continuous mentoring, peer-to-peer learning, and practical applications, which are best practices noted in educational change literature (Ertmer & Ottenbreit-Leftwich, 2010). Furthermore, the sense of teacher empowerment and confidence that emerged from their active involvement in digital content creation demonstrates the shift from passive recipients of policy to agents of change. However, disparities in teachers' initial digital fluency suggest the need for differentiated and sustained training approaches that consider individual starting points and learning curves (Tuncer, 2019).

The third theme infrastructure readiness and integration challenges reflects the dual nature of technological resources as both enablers and potential constraints. While SMK Bhineka Karawang has invested considerably in digital hardware and software systems, including high-speed internet, LMS platforms, and smart classrooms, the study found that full integration of these tools into daily practice is still evolving. This finding supports previous research indicating that access to infrastructure is a necessary but insufficient condition for meaningful digital transformation (O.E.C.D., 2021). Technical glitches, lack of centralized digital coordination, and inconsistent usage among staff members were mentioned as barriers, suggesting that infrastructure strategies must be coupled with user support systems and institutional policies that promote digital coherence and sustainability (Kimmons et al., 2020).

Importantly, the study uncovered how these three elements—leadership, teacher competence, and infrastructure—are not isolated pillars but interdependent. For instance, leadership vision drives investment in infrastructure and creates space for teacher training. Teachers' digital competence, in turn, influences how infrastructure is used and evaluated. The presence of feedback loops, reflection forums, and data-informed planning mechanisms points to a maturing digital ecosystem that is capable of adapting and evolving over time. This holistic and relational understanding is supported by Fullan (2013) view that educational change must be systemic, not piecemeal.

This study has several practical implications for schools, policymakers, and stakeholders involved in digital transformation efforts. First, it suggests that school-level leadership must be prepared not only to invest in technology but also to design inclusive policies, allocate training resources, and monitor implementation progress. Leadership development programs that emphasize digital change management, strategic planning, and collaborative governance could support this process. Second, the study highlights the importance of ongoing professional development that moves beyond technical training to focus on pedagogical innovation, reflective practice, and peer learning communities (Green, 2010). Teachers must be supported not just in "how to use technology" but in understanding "when, why, and for what purpose" to use it to improve student learning outcomes. Third, infrastructure planning should include mechanisms for maintenance, user feedback, interoperability between platforms, and equitable access for all learners. Schools must not assume that having digital tools automatically translates into improved learning; rather, they must intentionally design systems that encourage consistent, purposeful, and student-centered technology use.

The strength of this research lies in its rich, context-sensitive approach to understanding how digital ecosystems emerge in a vocational school setting. By examining the interactions between leadership, teacher development, and infrastructure, this study offers a more holistic view of digital transformation, particularly in the underrepresented context of Indonesian vocational education. The use of qualitative methods allowed for a nuanced exploration of participant experiences and institutional dynamics that are often overlooked in large-scale surveys (Tang et al., 2018).

Nevertheless, there are several limitations. As a single case study, the findings cannot be generalized to all vocational schools in Indonesia or beyond. The study also relied heavily on self-reported data from teachers and school leaders, which may reflect social desirability or optimism bias. Additionally, the study did not directly measure student learning outcomes or include student perspectives, which could provide a more comprehensive assessment of the ecosystem's effectiveness.

Future research should consider expanding the scope to include multiple schools in different regions, enabling comparative analysis across different institutional contexts. Hair Jr et al. (2018) Mixed-methods approaches could be employed to triangulate qualitative findings with quantitative data on student achievement, teacher performance, and system utilization rates. Longitudinal studies would also help capture the evolution and sustainability of digital ecosystems over time, especially in response to external shocks such as the COVID-19 pandemic or shifts in national policy.

Furthermore, future inquiry could explore the role of community and parental involvement in digital transformation, particularly in ensuring student access to technology outside of school hours. It would also be valuable to examine how vocational-specific tools—such as simulations, virtual labs, or industry-standard software—can be effectively integrated into teaching and learning in SMK contexts.

In conclusion, this discussion reinforces the central argument that developing a digital-based educational quality ecosystem requires more than technical solutions. It calls for visionary leadership, empowered teachers, responsive infrastructure, and an organizational culture that

values learning, adaptation, and innovation. SMK Bhineka Karawang offers a compelling example of how these components can be woven into a coherent and contextually grounded approach to 21st-century vocational education.

This study investigated the development of a digital-based educational quality ecosystem in a vocational school context, specifically at SMK Bhineka Karawang, and aimed to identify the core components, supporting factors, and challenges involved in implementing a sustainable digital transformation strategy within the institution. The findings demonstrated that the interplay of strong leadership, structured professional development for teachers, and comprehensive digital infrastructure serves as the foundation for a resilient and integrated digital ecosystem. These findings highlight a critical trend in vocational education: that digital transformation must be systemic, collaborative, and contextually grounded rather than fragmented or tool-driven.

Notably, this study contributes to the literature by offering a localized, real-world case of digital ecosystem implementation within an Indonesian vocational school an educational setting that remains underrepresented in global digital education discourse. Unlike studies that focus solely on digital literacy or infrastructure provision, this research illuminates how cultural, managerial, and pedagogical elements converge to create a functioning school-wide ecosystem. Iskandar et al. (2019) The context-specific insight that leadership behaviors and school culture can influence the speed and quality of technology adoption adds a novel dimension to current models of educational technology integration.

These results underscore the importance of adopting a whole-school approach in digital education reform. Practical implications include the need for leadership training in digital change management, investment in differentiated teacher training pathways, and strategic planning for technological infrastructure that is inclusive, maintainable, and pedagogically aligned. Theoretically, the study supports integrated models such as TPACK and Fullan's theory of educational change, reaffirming the necessity of alignment between technological, pedagogical, and institutional dimensions for meaningful transformation (Raza et al., 2021).

While this study provides valuable insights into the processes and conditions required for developing a digital-based educational ecosystem, several limitations must be acknowledged. First, the research was limited to a single school context, which may restrict the generalizability of the findings. Second, data were based on self-reported perceptions from adult stakeholders, which may introduce bias or incomplete representations of student experiences. Third, the study did not quantitatively measure the impact of digital transformation on student outcomes, such as academic performance or engagement, which limits a full evaluation of effectiveness (Sharma & Agarwal, 2021).

Future research should expand to include comparative case studies across different types of vocational and general schools, both urban and rural, to better understand variation in ecosystem maturity. Incorporating student perspectives and learning data would provide a more holistic picture of how digital ecosystems affect educational quality and equity. Longitudinal studies could also track the sustainability of digital transformation efforts over time and in response to external changes such as policy reforms or public health disruptions. These future directions hold promise

in further refining models of school digital transformation, enhancing both theory and practice in education systems navigating the digital age.

CONCLUSION

This study examined the development of a digital-based educational quality ecosystem at SMK Bhineka Karawang, focusing on leadership, teacher competence, and infrastructure readiness. The findings show that effective digital transformation requires coherent leadership policies, continuous professional development, and reliable yet integrated infrastructure. As a localized case from an Indonesian vocational school, the study contributes new insights to global digital education discourse. Despite its value, the single-site and small-sample design limit generalizability; thus, future research should involve multiple schools and broader methods to strengthen evidence and guide policy and practice in vocational education.

REFERENCES

Bass, B. M., & Avolio, B. J. (2019). *Improving organizational effectiveness through transformational leadership.* Sage Publications.

Chanias, S. (2017). Mastering Digital Transformation: The Path of a Financial Services Provider Towards a Digital Transformation Strategy. *Proceedings of the 25th European Conference on Information Systems, ECIS 2017*, 16–31.

Chetty, F. (2016). *The effect of job satisfaction on employee well-being among administrative staff at the Durban.*

Davies, R. S., & West, R. E. (2014). Technology integration in schools. *Educational Technology Research and Development*, *62*(4), 483–507.

Ertmer, P. A., & Ottenbreit-Leftwich, A. T. (2010). Teacher technology change: How knowledge, confidence, beliefs, and culture intersect. *Journal of Research on Technology in Education*, *42*(3), 255–284.

Fullan, M. (2013). *The new meaning of educational change* (4th ed.). Teachers College Press.

Gomes, E., Thomas, L., & Lopes, A. (2023). Green human resource management practices and employee well-being: A systematic review. *Journal of Business Research*, *150*, 682–691. https://doi.org/10.1016/j.jbusres.2021.08.017

Green, F. (2010). Well-being, job satisfaction and labour mobility. *Labour Economics*, *17*(6), 897–903.

Hair Jr, J. F., Hult, G. t. M., Ringle, C. M., & Sarstedt, M. (2018). *Essentials of business research methods.* Routledge.

Hasibuan, M. S. P. (2016). *Manajemen sumber daya manusia* (Revisi). PT Bumi Aksara.

Indices, D. J. S. (2022). *PT Bumi Serpong Damai Tbk receives Cambridge IFA's 3G award.* https://arbsustain.com/

Iskandar, I., Hutagalung, D., & Adawiyah, R. (2019). The effect of job satisfaction and organizational commitment towards organizational citizenship behavior: A case study. *Jurnal Ekonomi Bisnis dan Kewirausahaan*, *8*(3), 236–249.

Jain, D., Vyas, P., & Rawat, G. (2023). The psychological role of green HRM in improving employee well-being and environmental sustainability. *Journal for ReAttach Therapy and Developmental Diversities*, *6*(7s), 224–237.

Kimmons, R., Graham, C. R., West, R. E., & Morra, J. (2020). Technology integration coursework and finding meaning in pre-service teacher learning. *TechTrends*, *64*, 770–780. https://doi.org/10.1007/s11528-020-004909

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, *108*(6), 1017–1054.

Nierenberg, B., Alexakis, G., Preziosi, R. C., & O'Neill, C. (2017). Workplace happiness: An empirical study on well-being and its relationship with organisational culture, leadership, and job satisfaction. *International Leadership Journal*, *9*(3), 2–23.

O.E.C.D. (2021). *Digital education outlook 2021: Pushing the frontiers with artificial intelligence, blockchain and robots*. OECD Publishing. https://doi.org/10.1787/589b283f-en

Paillé, P., Chen, Y., Boiral, O., & Jin, J. (2014). The impact of human resource management on environmental performance: An employee-level study. *Journal of Business Ethics*, *121*(3), 451–466.

Purba, B. (2019). Analisis pengaruh kesejahteraan karyawan terhadap semangat kerja karyawan pada PT. Asuransi Jiwasraya (Persero) Medan. *Jurnal Manajemen dan Bisnis*, *18*(2), 150–162.

Putri, T., & Warsindah, L. (2021). Pengaruh Green Human Resources Management terhadap Job Satisfaction melalui Green Work Engagement pada industri manufaktur di Jakarta. *Metrik Serial Humaniora dan Sains*, *2*(2), 77–83.

Qamar, F., Afshan, G., & Rana, S. A. (2023). Sustainable HRM and well-being: Systematic review and future research agenda. *Management Review Quarterly*, 1–51.

Raza, S. A., Shaukat, S., & Ahmed, W. (2021). Green HRM and employee attitude: The role of perceived organisational support. *Journal of Business Research*, *135*, 629–634.

Renwick, D. W. S., Redman, T., & Maguire, S. (2013). Green human resource management: A review and research agenda. *International Journal of Management Reviews*, *15*(1), 1–14.

Sadida, N., & Fitria, N. (2019). Analisis kesejahteraan psikologis karyawan dan kualitas interaksi bawahan berdasarkan kepribadian atasan. *Humanitas*, *15*(1).

Sharma, K., & Agarwal, F. (2021). Impact of green HRM practices on organisational commitment and job satisfaction. *Wesleyan Journal of Research*, *13*(69), 21–28.

Sivapragasam, P., & Raya, R. P. (2018). HRM and employee engagement link: Mediating role of employee well-being. *Global Business Review*, *19*(1), 147–161.

Tang, G., Chen, Y., Jiang, Y., Paille, P., & Jia, J. (2018). Green human resource management practices: Scale development and validity. *Asia Pacific Journal of Human Resources*, *56*(1), 31–55.

Tuncer, H. B. (2019). *The impact of HRM practices on employee well-being, job satisfaction and individual work performance.*

Wang, V. C. X. (2017). *Handbook of research on digital content, mobile learning, and technology integration models in teacher education* (V. C. X. Wang, Ed.). IGI Global. https://doi.org/10.4018/978-1-5225-1856-3

Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). Sage Publications.