

The Role of Agile Leadership: Enhancing School Innovation and Adaptability the Role of Agile Leadership: Improving School Innovation and Adaptation

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ABSTRACT

In the era of rapid educational transformation, school leadership plays a crucial role in fostering innovation and adaptability. This research explores the role of Agile Leadership in driving learning innovation at SMAN 1 Kelumpang Hilir. Using a qualitative descriptive approach, data were collected through interviews, observations, and document analysis. Data analysis followed the Miles and Huberman model, consisting of data condensation, data display, and conclusion drawing to ensure comprehensive findings. The results indicate that implementing adaptive, collaborative, and flexible Agile Leadership fosters an innovative learning environment. School leaders who adopt these principles enhance teacher and student engagement in project-based learning and digital technology integration. Key aspects of Agile Leadership include decision-making flexibility, stakeholder collaboration, and curriculum innovation. Additionally, Agile Leadership promotes continuous feedback and data-driven decision-making, enabling schools to swiftly adapt to policy changes and student needs. This research provides practical insights for school leaders to integrate Agile Leadership into educational management, ensuring adaptability and sustainability in a dynamic learning environment.

KEYWORDS adaptive school, agile leadership, educational innovation



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INTRODUCTION

According to the OECD's Programme for International Student Assessment (PISA) 2022, Indonesian students ranked 64th out of 81 countries in mathematics and 71st in reading, indicating a significant competency gap that requires urgent educational transformation. The World Economic Forum's Future of Jobs Report 2023 emphasizes that 21st-century competencies such as critical thinking, creativity, collaboration, and communication are essential for students to compete globally, yet many developing countries, including Indonesia, struggle to integrate these skills into their educational systems. *21st-century education* is characterized by rapid and complex changes, which

demand educational institutions to be more adaptive and innovative in providing relevant learning experiences for students. 21st-century competencies such as critical thinking, creativity, collaboration, and communication are becoming increasingly important to prepare students for global challenges [A1] (Mulyono & Ampo, 2021).

In Indonesia, the implementation of the *Independent Curriculum*, which emphasizes project-based learning, technology integration, and character development, is an effort to answer these demands (Mardiana & Emmiyati, 2024). However, the transition to this new learning paradigm often faces various obstacles at the school level, especially related to leadership approaches that are less responsive to change. Changes in education policies, technological developments, and increasingly complex student needs require flexible and innovative leadership (Bohari et al., 2024). One of the approaches gaining attention in education management is Agile Leadership, which focuses on flexibility, collaboration, and the ability to adapt quickly to change (Breakspear et al., 2017; López-Alcarria et al., 2019). By applying this approach, principals can be more effective in responding to emerging challenges and making timely decisions to ensure sustainability and improve the quality of education (Gren & Ralph, 2022; Laval et al., 2021) [A2].

In the digital era, technology has become an integral part of daily life, including in the world of education (Singh, 2021). However, many schools in Indonesia, especially in the regions, still face challenges in integrating technology into the learning process (Baydar, 2023). Despite efforts to use digital tools such as projectors, laptops, and online learning platforms, their use is often limited and not optimal. This is due to several factors, such as lack of training for teachers, inadequate infrastructure, and resistance to change from teachers and school staff (Darling-Hammond, 2015). In addition, traditional teaching methods such as lectures and practice questions still dominate the learning process in many schools.

However, previous studies examining Agile Leadership in educational contexts have shown mixed results and significant gaps. While Breakspear et al. (2017) demonstrated positive outcomes in Australian schools, López-Alcarria et al. (2019) found implementation challenges in European contexts. These studies primarily focused on policy-level analysis without examining ground-level implementation processes. Furthermore, most research has been conducted in developed countries with adequate technological infrastructure, leaving a significant gap in understanding how Agile Leadership functions in resource-constrained environments typical of developing nations.

SMAN 1 Kelumpang Hilir, as one of the educational institutions in the region, also experienced similar challenges. Based on initial observations and informal interviews with several teachers, traditional teaching methods such as lectures and practice questions still dominate the classroom learning process. A preliminary survey conducted with 25 teachers at *SMAN 1 Kelumpang Hilir* revealed that only 32% regularly used digital technology in their teaching, and merely 18% felt confident in implementing project-based learning approaches. Additionally, 78% of teachers reported having minimal involvement in curriculum-related decision-making processes, indicating a predominantly top-down leadership structure. Although there are efforts to integrate

technology in learning, its use has not been optimal and tends to be limited to the use of presentation media.

Learning innovations that are relevant to the needs of students in the digital era are still very minimal. In addition, communication between principals and teachers is still top-down, so it does not provide space for teachers to actively participate in learning-related decision-making (Northouse, 2016) [A3]. In this context, Agile Leadership offers a relevant leadership approach to addressing these challenges. Agile Leadership is a leadership style that focuses on flexibility, team collaboration, dynamic change management, and data-driven decision-making. This approach allows leaders to create a work environment that supports the exploration of new ideas, encourages innovation, and increases the involvement of all members of the organization in achieving common goals (Francis, 2022; Nissim & Simon, 2023). Agile Leadership is particularly effective in dealing with the complexity of modern organizations because it facilitates rapid adaptation to change and promotes cross-functional collaboration (Uhl-Bien & Arena, 2018) [A4]. If schools do not immediately adopt adaptive leadership approaches such as Agile Leadership, the transformation required by the *Independent Curriculum* will potentially be hampered, student engagement in learning will remain low, and the development of essential 21st-century competencies will not be achieved, ultimately perpetuating Indonesia's educational competency gap in global assessments.

This research aims to explore the role of Agile Leadership in driving learning innovation at *SMAN 1 Kelumpang Hilir*. The results of this research are expected to contribute to school principals and stakeholders in improving the responsiveness and adaptability of schools to the dynamics of policies and educational needs that continue to develop. In addition to contributing to the strengthening of leadership theory in the context of education, this research also presents strategic recommendations for educational institutions in managing managerial challenges in an era of rapid change [A5].

METHOD

This research applies a descriptive qualitative approach with a case research design to gain an in-depth understanding of the implementation of Agile Leadership at *SMAN 1 Kelumpang Hilir*, a school in Kotabaru Regency, South Kalimantan Province that has adopted Agile principles in management and decision-making. The selection of case research methods aims to allow for a more comprehensive exploration (Heale & Twycross, 2018) of the dynamics of leadership in the school environment as well as its impact on learning innovation. The qualitative approach is used because it provides an opportunity for researchers to explore the experiences, perceptions, and meanings that participants have toward the phenomenon being studied. The design of the case research allows the study to be conducted intensively and in-depth in a real context. Data collection was carried out through in-depth interviews with 10 informants, including school principals, vice principals, teachers, and education staff, as well as through direct observation of leadership practices and document analysis related to school policies. To ensure the validity of the research results, the data source triangulation technique was applied. Semi-structured interviews were used to explore the informants' experiences and

views on the implementation of Agile Leadership. The data obtained were analyzed using Miles and Huberman's qualitative data analysis model, which includes data condensation, data display, verification, and conclusion drawing (Miles et al., 2014).

RESULTS AND DISCUSSION

This research reveals that the implementation of Agile Leadership in the school environment includes three key elements: the ability to make decisions flexibly, increased cooperation between various parties involved, and the application of innovation in curriculum settings and learning methods. In terms of leadership, the principal acts as a facilitator who promotes a culture of innovation and experimentation, giving teachers and staff more opportunities to develop creative learning strategies. This can be seen in Figure 1.

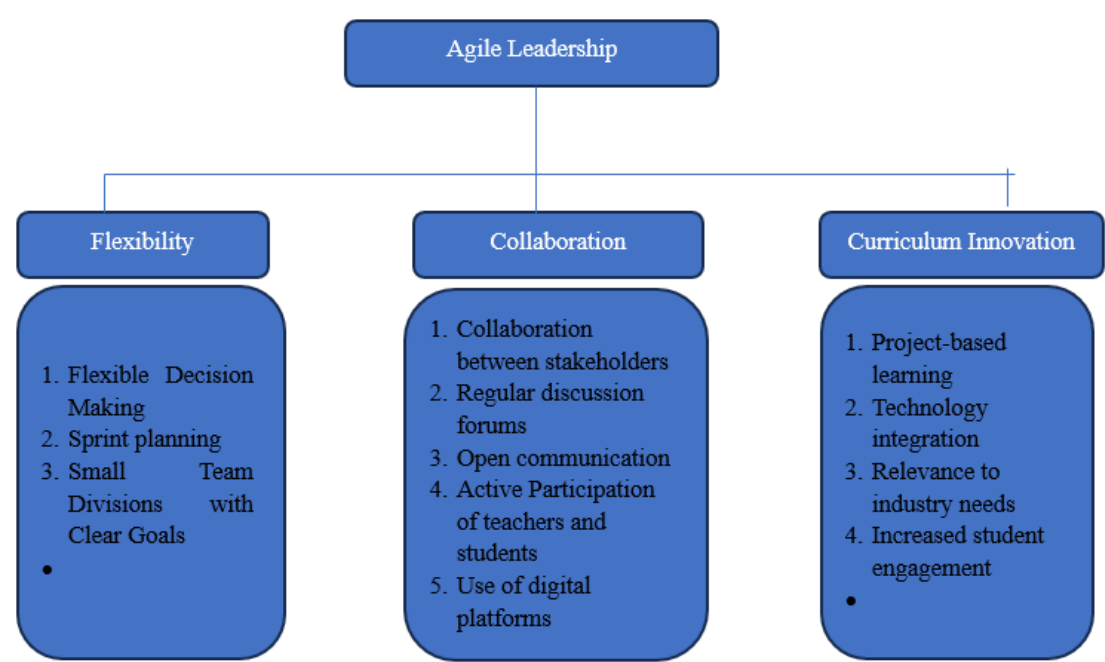


Figure 1. Principal’s Strategies in Implementing Agile Leadership in School (Source: Author’s creation)

Agile Leadership has a critical role in driving learning innovation because it allows leaders to create a work environment that supports experimentation, collaboration, and continuous learning (Özdemir, 2023). By applying agile principles such as continuous feedback and iteration, principals can encourage teachers to try new teaching methods without fear of failure. In addition, Agile Leadership also drives data-driven decision-making, which allows principals and teachers to evaluate the effectiveness of various learning innovations and make the necessary adjustments to achieve optimal outcomes (Aydın & Mutlu, 2023).

Agile leadership improves the adaptability and responsiveness of schools through flexibility, collaboration, and the ability to quickly adapt strategies to changing occurs.

This approach encourages teamwork, member empowerment, and continuous learning (Ng et al., 2023). To implement Agile-based strategic management, schools need to focus efforts on strengthening leadership, policy planning, and ensuring effective communication between schools and the community. School leaders have a crucial role in school-based development by building trust, encouraging collaboration, and balancing internal and external accountability (Postholm, 2019).

Agile leadership has an important role in minimizing bias in communication as well as facilitating rapid decision-making, especially in uncertain or dynamic situations (Varga-Atkins et al., 2021). A leader who applies Agile principles must be able to promote close collaboration and open communication, provide space for the team to take initiative in decision-making, and emphasize the value of continuous learning. The success of this approach is reflected in the improvement of organizational performance, especially in the operational field, where the impact can be seen on increasing trust, performance efficiency, and the ability to manage innovation (Anggadwita et al., 2021).

Leadership that adopts Agile principles, with diverse abilities and open communication patterns, is able to maintain the effectiveness of the learning process and ensure the operational sustainability of educational institutions (Nissim & Simon, 2024). The Agile approach in education also plays an important role in building core skills that support sustainable development, creating a learning atmosphere that encourages social responsibility, and improving performance, satisfaction, and enthusiasm for both educators and learners (Poza-Vilches et al., 2019).

The Principal of SMAN 1 Kelumpang Hilir has implemented Agile Management as the main approach to improve efficiency and responsiveness in managing schools. One of the strategic steps taken is to implement flexibility in the decision-making process, where the leadership pattern applied is dynamic and encourages teachers to make decisions based on the needs of the class and students. Studies show that the integration between flexibility and effective management can drive performance improvement through adaptability to change as well as involving various stakeholders (Spiegler et al., 2021).

This approach focuses on three key elements: flexibility, team collaboration, and the ability to respond quickly to change, which are essential factors in today's world. Cognitive flexibility, which is the ability to adapt to thinking in the face of various challenges, allows decision-makers to achieve better performance in adapting to change and overcoming stagnation in a dynamic organizational environment (Marlina & Suriansyah, 2019; Putra et al., 2023). In addition, the principal implements sprint planning techniques in management meetings, which allows problems to be identified and solutions to be found quickly and iteratively (Todd, 2022). This practice has been proven to increase the efficiency of school management, especially in the face of sudden policy changes (Todd, 2022).

Next, the principal divides the management team into small groups that focus on specific tasks with measurable and clear targets. Research shows that this strategy can increase the effectiveness of teamwork, strengthen collaboration, and support the

achievement of educational institutions' goals (Chen-Levi et al., 2021) (Benoliel, 2021). Each group also ensures effective communication so that all members can actively participate in the decision-making process (Pirzadeh et al., 2020).

Stronger collaboration is one of the key elements in the successful implementation of Agile Leadership. At SMAN 1 Kelumpang Hilir, the principal actively involves teachers and staff in the process of discussion and decision-making, creating a dynamic and inclusive work atmosphere. Collaboration between teachers, staff, and students is strengthened through regular meetings and discussion forums, which allow all parties to be involved in decision-making and provide useful input (Bond-Barnard et al., 2018). Studies show that cooperation between teachers can significantly improve students' academic achievement (García-Martínez et al., 2021). In addition, the use of digital technology in school management, such as online communication platforms and cloud-based learning systems, has also accelerated the ability to adapt to various changes (Munsamy et al., 2023).

The application of Agile principles at SMAN 1 Kelumpang Hilir also includes an iterative cycle consisting of three stages: planning, implementation, and evaluation (Carlson et al., n.d.). Each cycle is implemented within a specific period of time, allowing the team to assess progress and make necessary adjustments (Wang et al., 2015). This approach allows schools to respond to the needs of students and society more quickly and effectively.

The results of the research also revealed that innovations in curriculum management and learning methods are one of the positive impacts of the implementation of Agile Leadership (Galloway et al., 2013). Schools are able to respond to changes in curriculum policies more quickly through a project-based learning approach and the use of technology (Gebregergis et al., 2023). This not only increases student participation in the learning process, but also makes learning materials more relevant to the demands of the industry and the professional world (Khurniawan et al., 2021).

The implementation of Agile Management at SMAN 1 Kelumpang Hilir has produced a significant and profitable impact. The decision-making process has become more efficient and responsive, while the quality of education services has seen a noticeable improvement. Students feel more motivated and actively involved in the learning process, while teachers feel more prepared and confident in facing various educational challenges ahead. By adopting Agile Management, SMAN 1 Kelumpang Hilir shows that the education system can be run more flexibly and responsive to the demands of the community. Thanks to solid team collaboration and high adaptability, the school is ready to answer various educational challenges in an ever-evolving era.

Agile leadership improves the adaptability and responsiveness of schools through flexibility, collaboration, and the ability to quickly adapt strategies to changing occurs. This approach encourages teamwork, member empowerment, and continuous learning (Ng et al., 2023) (Stoddard et al., 2019). To implement Agile-based strategic management, schools need to focus efforts on strengthening leadership, policy planning, and ensuring effective communication between schools and the community. School

leaders have a crucial role in school-based development by building trust, encouraging collaboration, and balancing internal and external accountability (Campbell et al., 2020; Postholm, 2019).

Agile leadership also plays a role in reducing communication bias and allowing schools to make quick decisions in situations full of uncertainty (Varga-Atkins et al., 2021). An Agile leader needs to encourage collaboration and transparent communication, give the team confidence to make decisions, and emphasize the importance of continuous learning. The positive impact of this approach can be seen in improving organizational results, especially in operational aspects, with a significant influence on trust, performance, and innovation management (Anggadwita et al., 2021; Rakhmadiningrum et al., 2021).

In addition, Agile leadership with diverse competencies and direct communication is able to maintain the effectiveness of the teaching process and ensure the continuity of the functioning of educational institutions (Nissim & Simon, 2023) (Nissim & Simon, 2024). Agile education has also succeeded in developing core competencies in sustainable development, creating a learning environment that supports responsible citizenship, and increasing performance, satisfaction, and motivation for both teachers and students (Basir et al., 2017; Poza-Vilches et al., 2019; Prajogo & McDermott, 2005)

At SMAN 1 Kelumpang Hilir, the implementation of Agile Management has become the main strategy in increasing the efficiency and responsiveness of school management. One of the key strategies is flexibility in decision-making, which is realized through a leadership model that is not rigid and empowers teachers to make decisions according to the conditions of the classroom and students. Research shows that combining flexibility with management can improve performance by adapting to change and involving stakeholders (Spiegler et al., 2021).

This method emphasizes flexibility, teamwork, and responsiveness to change, which is especially relevant in the modern era. Cognitive flexibility, which is the ability to adapt thinking to various problems, allows decision-makers to achieve higher performance in adapting to change and overcoming inertia in fast-moving organizations (Santosa, 2013). In addition, the principal implements a sprint planning mechanism in school management meetings, which allows for quick and repeated identification of problems and solutions (Todd, 2022). This has been proven to increase the effectiveness of school management in the face of sudden policy changes (Todd, 2022). The principal also divides the management team into small units that focus on specific tasks with clear and measurable goals. Research shows that this approach can increase team effectiveness, collaboration, and achievement of school goals (Benoliel, 2021; Chen-Levi et al., 2021). Each unit maintains effective communication to ensure all parties are involved in decision-making (Pirzadeh et al., 2020).

Increased collaboration is a critical factor in the success of Agile Leadership. The Principal of SMAN 1 Kelumpang Hilir actively involves teachers and staff in discussions and decision-making, creating a dynamic and participatory work environment. Collaboration between teachers, staff, and students is emphasized through regular

meetings and discussion forums, allowing all parties to participate in decision-making and provide constructive feedback (Bond-Barnard et al., 2018). Research shows that collaboration between teachers can significantly improve students' academic performance (García-Martínez et al., 2021). In addition, the use of digital technologies in school management, such as online communication platforms and cloud-based learning management systems, accelerates adaptation to change (Dalle et al., 2021) (Munsamy et al., 2023).

The application of Agile leadership at SMAN 1 Kelumpang Hilir also involves an iterative cycle consisting of planning, execution, and reflection (Galloway et al., 2013). Each iteration lasts within a specific time, allowing the team to evaluate progress and make necessary adjustments (Wang et al., 2015). This allows schools to respond to changing needs of students and society more quickly and effectively.

Other findings suggest that innovation in curriculum management and learning is a positive impact of Agile Leadership (Galloway et al., 2013). Schools can respond to changes in curriculum policies more quickly through project-based and technology-based learning strategies (Suriansyah et al., 2014) (Debarger et al., n.d.). This increases student engagement and the relevance of teaching materials to the needs of industry and the world of work (Khurniawan et al., 2021).

The implementation of Agile Management at SMAN 1 Kelumpang Hilir has a very positive impact. The decision-making process becomes faster and more responsive, while the quality of educational services improves. Students feel more engaged in learning, and teachers feel better prepared to face future educational challenges. By implementing Agile Management, SMAN 1 Kelumpang Hilir proves that education can be more dynamic and responsive to the needs of the community. Through strong teamwork and adaptive attitude, the school is ready to face the challenges of education in the modern era.

CONCLUSION

Based on research conducted at *SMAN 1 Kelumpang Hilir*, it can be concluded that the application of Agile Leadership has a significant role in increasing learning innovation and school adaptability to rapid changes in the modern era. Agile Leadership, which emphasizes flexibility, collaboration, and data-driven decision-making, has succeeded in creating a more dynamic and responsive learning environment. Principals as agile leaders play the role of facilitators who encourage a culture of innovation, experimentation, and active participation of teachers and staff in the development of learning methods that are more creative and relevant to the needs of students. The results show that the implementation of Agile Leadership involves three main aspects: flexibility in decision-making, increased collaboration between stakeholders, and innovation in curriculum management and learning. Flexibility in decision-making allows schools to respond more quickly to changing policies and student needs. Close collaboration between teachers, staff, and students creates a more participatory and dynamic work environment. Meanwhile, innovations in curriculum and learning, including the

implementation of project-based learning and the use of digital technology, increase student engagement and the relevance of teaching materials to the demands of the world of work. In addition, Agile Leadership also strengthens data-driven decision-making, allowing schools to evaluate the effectiveness of various learning innovations and make necessary adjustments. Mechanisms such as sprint planning and the division of management teams into small units with clear goals have been proven to increase the effectiveness of school management. Overall, this research shows that Agile Leadership not only improves the quality of educational services, but also prepares schools to face the challenges of education in the modern era. With solid teamwork, an adaptive attitude, and effective collaboration, *SMAN 1 Kelumpang Hilir* has proven that education can be more dynamic and responsive to the needs of the community. These findings provide practical recommendations for school leaders and other stakeholders to adopt Agile Leadership principles in managing educational institutions amid rapid and complex change.

REFERENCES

- Anggadwita, G., Suganda, G. A. D., Azis, E., & Bagus Profityo, W. (2021). The Implementation of Technology Capabilities, Agile Leadership and Innovation Ambidexterity to Improve SMEs' Sustainability in Bandung. *Proceedings of the International Conference on Industrial Engineering and Operations Management*, 2019, 125–135.
- Aydin, G., & Mutlu, O. (2023). Project-Based Learning and Flipped Classroom Model Supported Project-Based Learning's Impact on Academic Success, Retention, and Individual Innovation Competence. *International Journal of Contemporary Educational Research*, 10(4(Online First)), 823–833. <https://doi.org/10.52380/ijcer.2023.10.4.532>
- Basir, S. A., Davies, J., Douglas, J., & Douglas, A. (2017). The influence of academic culture on quality management system ISO 9001 maintenance within Malaysian universities. *Journal of Higher Education Policy and Management*, 39(3), 320–340. <https://doi.org/10.1080/1360080X.2017.1298199>
- Baydar, F. (2023). The Effect of School Principals' Agile Leadership Behaviors on Entrepreneurial Teacher Behaviors through Innovative Organizations. *The Universal Academic Research Journal*, 5(3), 168–181. <https://doi.org/10.55236/tuara.1324118>
- Benoliel, P. (2021). A team-based perspective for school improvement: The mediating role of school management teams. *Journal of Research on Educational Effectiveness*, 14(2), 442–470.
- Bohari, A., Wider, W., Udang, L. N., Jiang, L., Tanucan, J. C. M., & Lajuma, S. (2024). Transformational leadership's role in shaping Education 4.0 within Higher Education. *Journal of Infrastructure, Policy and Development*, 8(8), 1086–1099.
- Bond-Barnard, T. J., Fletcher, L., & Steyn, H. (2018). Linking trust and collaboration in project teams to project management success. *International Journal of Managing Projects in Business*, 11(2), 432–457.
- Breakspear, S., Peterson, A., Alfadala, A., & Khair, M. S. B. M. (2017). Developing Agile Leaders of Learning: School leadership policy for dynamic times. In *World Innovation Summit for Education (WISE) Research Series*.

- Campbell, A., Craig, T., & Collier-Reed, B. (2020). A framework for using learning theories to inform 'growth mindset' activities. *International Journal of Mathematical Education in Science and Technology*, 51(1), 26–43. <https://doi.org/10.1080/0020739X.2018.1562118>
- Carlson, S. E., Lewis, D. G. R., Maliakal, L. V, Gerber, E. M., & Easterday, M. W. (n.d.). Version of Record: <https://www.sciencedirect.com/science/article/pii/S0142694X20300491>. 0–31.
- Chen-Levi, T., Schechter, C., & Buskila, Y. (2021). Exploring systems thinking in schools: mental models of school management teams. *International Journal of Educational Reform*, 30(2), 116–137.
- Dalle, J., Raisingshani, M. S., Putra, A. P., Suriansyah, A., Hadi, S., & Sahara, B. (2021). A technology acceptance case of Indonesian senior school teachers: Effect of facilitating learning environment and learning through experimentation. *International Journal of Online Pedagogy and Course Design (IJOPCD)*, 11(4), 45–60.
- Darling-Hammond, L. (2015). *The flat world and education: How America's commitment to equity will determine our future*. Teachers College Press.
- Debarger, A. H., Penuel, W. R., Moorthy, S., Beauvineau, Y., & Kennedy, C. A. (n.d.). *Science Curriculum Adaptation*.
- Francis, D. L. (2022). The Agile Paradigm and Organisation Development in Higher Educational Institutions. *Proceedings of 8th International Conference on Higher Education Advances (HEAd'22)*, 833–840. <https://doi.org/10.4995/HEAd22.2022.14658>
- Galloway, T., Cole, M., & Lewis, C. (2013). ORE Open Research Exeter. *Journal of Cleaner Production*, 0–48.
- García-Martínez, I., Montenegro-Rueda, M., Molina-Fernández, E., & Fernández-Batanero, J. M. (2021). Mapping teacher collaboration for school success. *School Effectiveness and School Improvement*, 32(4), 631–649. <https://doi.org/10.1080/09243453.2021.1925700>
- Gebregergis, W. T., Beraki, F., Michael, M., Ahmedin, M., Debesay, N., Atoshm, T., Tekleberhan, W., Kovács, K. E., & Csukonyi, C. (2023). Factors Influencing Academic Achievement Among College Students: The Influence of Emotional Intelligence, Student Engagement and Demographics. *European Journal of Psychology and Educational Research*, volume-6-2(volume-6-issue-4-december-2023), 181–193. <https://doi.org/10.12973/ejper.6.4.181>
- Gren, L., & Ralph, P. (2022). What Makes Effective Leadership in Agile Software Development Teams? *Proceedings - International Conference on Software Engineering (ICSE)*, 2402–2414. <https://doi.org/10.1145/3510003.3510100>
- Heale, R., & Twycross, A. (2018). What is a case research? *Evidence-Based Nursing*, 21(1), 7–8. <https://doi.org/10.1136/eb-2017-102845>
- Khurniawan, A. W., Sailah, I., Muljono, P., Indriyanto, B., & Maarif, M. S. (2021). Strategy for improving the effectiveness of management vocational school-based enterprise in Indonesia. *International Journal of Education and Practice*, 9(1), 37–48. <https://doi.org/10.18488/journal.61.2021.91.37.48>
- Laval, J., Fleury, A., Karami, A. B., Lebis, A., Lozenguez, G., Pinot, R., & Vermeulen, M. (2021). Toward an innovative educational method to train students to agile approaches in higher education: The A.L.P.E.S. *Education Sciences*, 11(6), 1–17. <https://doi.org/10.3390/educsci11060267>

- López-Alcarria, A., Olivares-Vicente, A., & Poza-Vilches, F. (2019). A systematic review of the use of Agile methodologies in education to foster sustainability competencies. *Sustainability* (Switzerland), 11(10), 1–29. <https://doi.org/10.3390/su11102915>
- Mardiana, M., & Emmiyati, E. (2024). Implementasi Kurikulum Merdeka dalam Pembelajaran: Evaluasi dan Pembaruan. *Jurnal Review Pendidikan Dasar : Jurnal Kajian Pendidikan Dan Hasil Penelitian*, 10(2), 121–127. <https://doi.org/10.26740/jrpd.v10n2.p121-127>
- Marlina, D., & Suriansyah, A. (2019). The Effect of Transformational Leadership and Work Motivation on Teacher Performance Through Teacher Discipline. *Journal of K6, Education, and Management*, 2(4), 340–348. <https://doi.org/10.11594/jk6em.02.04.09>
- Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative Data Analysis: A Methods Sourcebook* (3rd ed). California: SAGE Publications Inc.
- Mulyono, & Ampo, I. (2021). Pemanfaatan Media Dan Sumber Belajar Abad 21. *Paedagogia: Jurnal Pendidikan*, 9(2), 93–112. <https://doi.org/10.24239/pdg.vol9.iss2.72>
- Munsamy, M., Dhanpat, N., & Barkhuizen, E. N. (2023). El desarrollo y validación de una escala de competencias de liderazgo digital. *Acta Commercii*, 23(1), 1–15.
- Ng, P. L., Maqsood, T., Khalfan, M., & Rahmani, F. (2023). AgiBuild: A Scaled Agile Framework for Building Adaptation Projects †. *Buildings*, 13, 1–22. <https://doi.org/10.3390/buildings13123019>
- Nissim, Y., & Simon, E. (2023). Agilecation: Agile Leadership in a Higher Education Institution (HEI) during the Covid-19 Pandemic a Test Case. *European Journal of Contemporary Education*, 12(1), 139–151. <https://doi.org/10.13187/ejced.2023.1.139>
- Nissim, Y., & Simon, E. (2024). Navigating Uncertainty: Teachers’ Insights on Their Preservice Training and Its Influence on Self-Efficacy during the COVID-19 Pandemic. *Behavioral Sciences*, 14(2). <https://doi.org/10.3390/bs14020135>
- Northouse, P. G. (2016). *Leadership: Theory and practice* (7th ed.). Thousand Oaks, CA: Sage. *Journal of Educational Administration*, 46(2), 91–94.
- Özdemir, G. (2023). The Relationship between School Administrators’ Agile Leadership and their Innovation Management Competencies. *International Journal of Education and Literacy Studies*, 11(1), 175–184. <https://doi.org/10.7575/aiac.ijels.v.11n.1p.175>
- Pirzadeh, P., Lingard, H., & Blismas, N. (2020). Effective communication in the context of safe design decision making. *Safety Science*, 131, 104913.
- Postholm, M. B. (2019). The school leader’s role in school-based development. *Educational Research*, 61(4), 437–450. <https://doi.org/10.1080/00131881.2019.1677171>
- Poza-Vilches, F., López-Alcarria, A., & Mazuecos-Ciarra, N. (2019). A professional competences’ diagnosis in education for sustainability: A case research from the Standpoint of the Education Guidance Service (EGS) in the Spanish Context. *Sustainability* (Switzerland), 11(6), 1–25. <https://doi.org/10.3390/su11061568>
- Prajogo, D. I., & McDermott, C. M. (2005). The relationship between total quality management practices and organizational culture. *International Journal of Operations and Production Management*, 25(11), 1101–1122. <https://doi.org/10.1108/01443570510626916>

- Putra, R. A., Nurjanah, Juandi, D., & Jufri, L. H. (2023). Adversity Quotient in Mathematics Learning. *Plusminus: Jurnal Pendidikan Matematika*, 3(3), 385–398. <https://doi.org/10.31980/plusminus.v3i3.1503>
- Rakhmadiningrum, P., Soetjipto, B. E., & Rahayu, W. P. (2021). The Influence of Adversity Quotient, Entrepreneurial Environment and Entrepreneurial Attitudes on Entrepreneurial Intentions on Students in Malang. *International Journal of Business, Economics and Law*, 24(4), 140–147. <https://www.ijbel.com/wp-content/uploads/2021/07/IJBEL24-564.pdf>
- Singh, M. N. (2021). Inroad of Digital Technology in Education: Age of Digital Classroom. *Higher Education for the Future*, 8(1), 20–30. <https://doi.org/10.1177/2347631120980272>
- Spiegler, S. V., Heinecke, C., & Wagner, S. (2021). An empirical research on changing leadership in agile teams. *Empirical Software Engineering*, 26(3), 1–35. <https://doi.org/10.1007/s10664-021-09949-5>
- Stoddard, M. M., Gillis, B., & Cohn, P. (2019). Agile Project Management in Libraries: Creating Collaborative, Resilient, Responsive Organizations. *Journal of Library Administration*, 59(5), 492–511. <https://doi.org/10.1080/01930826.2019.1616971>
- Suriansyah, A., Aslamiah, A., Sulaiman, S., & Noorhafizah, N. (2014). Strategi pembelajaran. Jakarta: PT RajaGrafindo Persada.
- Todd, A. W. (2022). Using Agile Principles to Efficiently Execute FMEAs with a Distributed Workforce. 2022 Annual Reliability and Maintainability Symposium (RAMS), 1–6.
- Uhl-Bien, M., & Arena, M. (2018). Leadership for organizational adaptability: A theoretical synthesis and integrative framework. *Leadership Quarterly*, 29(1), 89–104. <https://doi.org/10.1016/j.leaqua.2017.12.009>
- Varga-Atkins, T., Sharpe, R., Bennett, S., Alexander, S., & Littlejohn, A. (2021). The choices that connect uncertainty and sustainability: Student-centred agile decision-making approaches used by universities in australia and the uk during the covid-19 pandemic. *Journal of Interactive Media in Education*, 2021(1), 1–16. <https://doi.org/10.5334/jime.649>
- Wang, J., Balazinska, M., & Halperin, D. (2015). Asynchronous and fault-tolerant recursive datalog evaluation in shared-nothing engines. *Proceedings of the VLDB Endowment*, 8(12 12), 1542–1553. <https://doi.org/10.14778/2824032.2824052>