Perspectives on Educational Leadership and Decision-Making in the Era of Digitalization

Puspita Sari, Saut Purba, Irsan Rangkuti, Nasrun
Postgraduate Program, Medan State University
North Sumatra, Indonesia
Correspondence: puspha2602@gmail.com

Abstract: Changes in the digital era affect education. To synergize with change, educational leaders must be able to adapt. The problems presented are a research gap that will become a scientific discourse related to leadership perspectives and decision-making in the era of digitalization. The aim of the research will be limited to discussing the educational leadership model in the digital era, which is expected to be a solution to educational problems, and how the facts in the field describe the perspective of educational leadership in decision-making with the rise of digitalization. A deeper perspective of educational leadership related to the spirit of positive change in further educational improvement.The purpose of this research is to determine the model of educational leadership in the digital era and the perspective of educational leadership in decision-making with the rise of digitalization. This research is qualitative research using the literature study method. Literary sources are limited from the last four years, namely articles or writings published in 2019-2023. The results of this study found several models of leadership in the digital era, namely collaborative leadership, transformational leadership, democratic leadership, participatory leadership, and coercive digital leadership. Meanwhile, decision-making with a digitalization perspective is the use of educational data.

Keywords: Educational Leadership, Decision-Making, Digital Era.

INTRODUCTION

The era of digitalization has had a significant influence on the implementation of education. The presence of technology has had a massive impact on change in all aspects of life. Not only is the socio-economic system in society changing, but this is also happening in the education system. Education from low level to higher education currently takes place by utilizing digital technology in learning activities. So that the world of education can run dynamically and can synergize with the digitalization of technology, education stakeholders must be digitally responsive and wise in making decisions so that they can direct all elements so they can move together in realizing the vision and mission of educational institutions (Timan et al., 2022). So, educational transformation takes place as a whole, forming an educational ecosystem that can produce a superior generation with 21st-century skills and character (Dowansiba & Hermanto, 2022).

The ideal educational leadership in the digital era is leadership that can actualize innovation

and strategy in responding to the demands of 21st-century education (Yuniarsih et al., 2023). Educational leaders must be able to adapt to development technology at a time; skills leadership is capable of influencing, guiding, and motivating the people around them to be active in education And learning in the era of digitalization. Keep going, grow, And develop. Leader education in carrying out management education Also expected own competence entrepreneurship, so become more creative in innovating and creating breakthroughs in the 4.0 era (Kurniawan et al., 2023).

Leadership education and making a decision are two mutual things. Decision-making as part of leadership is a goal-oriented ability, a setting, and a commitment to immediate and accurate goals (Aarkrog & Wahlgren, 2022). They are making decisions required in solving the problem of activity organization education. This process is contained in educational planning to achieve the goals of educational organizations (Sirojudin, 2019).

Leaders of educational organizations, such as school principals and others, are required to think not only about how their education is beneficial for the surrounding environment but also, beyond that, how the quality of educational output can contribute to global interests (Siagian, 2021). Leaders of educational organizations as managers in educational institutions are required to work professionally, based on relevant data, referring to applicable regulations and prioritizing logical considerations (Wening & Santosa, 2020). School principals are required to be open to developments in the digital era but also critical so they can filter information before making decisions (Kurniawan et al., 2023).

Unfortunately, leadership and decision-making in education in the digital era cannot yet go hand in hand with the rapid development of digitalization. From education report card data as of July 2022, by taking a sample of junior high school level education report card assessments, the condition of education in Indonesia requires special intervention. The data presented shows that the implementation of innovative practices in learning is in the passive category (national average value of 51.46 on a scale of 1-100), and instructional leadership is still limited (average value of 1.67 on a scale of 1-3). This data is the basis for the assumption that the system built in Indonesian education is still far from being defined by a digitalization perspective.

This is also reinforced by several previous research which present the problems of digitalization in education. Research (Anita & Astuti, 2022) states that digitalization causes educational inequality, where the quality of education in rural areas lags behind education in cities. Most educators have not demonstrated full readiness to digitize learning (Miftah & Rozi, 2022). This is different from Islamic boarding school-based education; research (Lundeto, 2021) states that there is doubt and unpreparedness for this religious-based education to utilize digitalization in its learning; apart from the education management system that must be

transformed, they must also prepare mentally if there is a transformation of Islamic boarding school culture and traditions.

The problems presented are a research gap that will become a scientific discourse related to leadership perspectives and decision-making in the era of digitalization. The aim of the research will be limited to discussing the educational leadership model in the digital era, which is expected to be a solution to educational problems, and how the facts in the field describe the perspective of educational leadership in decision-making with the rise of digitalization. A deeper perspective of educational leadership related to the spirit of positive change in further educational improvement.

METHOD

The research carried out is qualitative research (Sugiyono, 2019). The method used is to study literature. Studies literature or studies References used For collecting data sourced on literature with carrying out analysis or studies in a comprehensive way For looking for information (Zed, 2014). With studies literature, researchers study draft leadership and making decisions in the era of digitalization by collecting source data from scientific work like articles or various source information.

The research design for literature studies on leadership perspectives and decisions in the era of digitalization is presented in Figure 1.
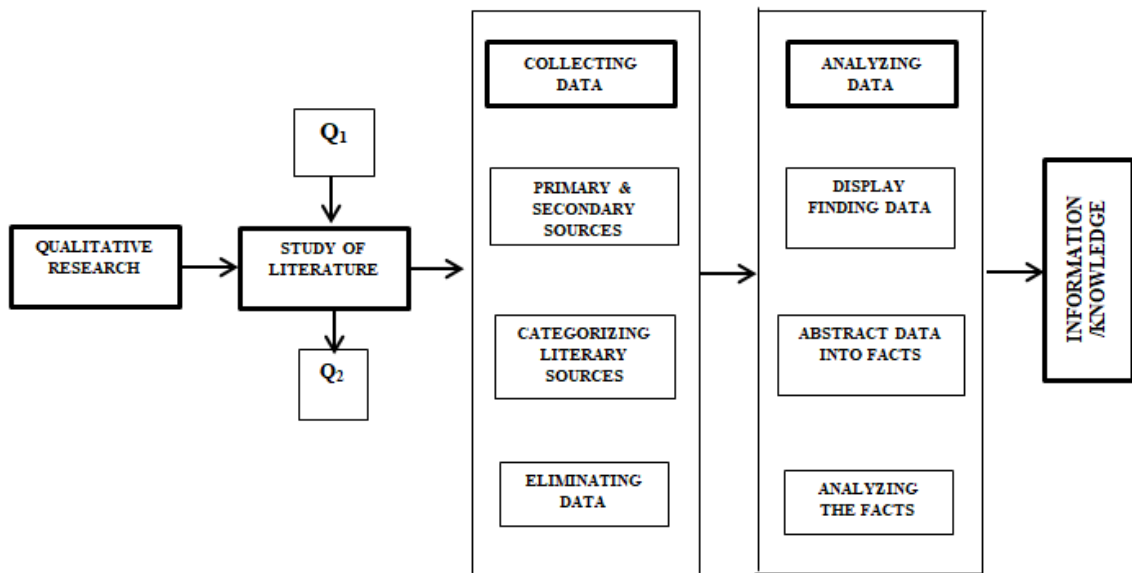

Figure 1. Research Design Using Literature Study

With Questions:

Q $_1$:   What leadership model is appropriate for the development of digitalization?

Q₂: What is the perspective of educational leadership with digitalization in decision-making?

The research design planned in Figure 1 begins with a problem formulation that is narrowed down to just two topics, namely, what leadership model is appropriate to the development of digitalization and the perspective of educational leaders in the era of digitalization in decision making. Furthermore, data collection will include various appropriate studies relevant to the topic of digitalization leadership as well as making decisions in the digital era, from work writing scientific articles and books to scientific digital media. So that the information presented stays up to date, collection source writing is limited to only four years. But no, regardless of the possibility, it is also considered as a source study if there is important source information obtained from published sources longer. Sources of the libraries that have been collected are categorized, then the data is taken. In the next stage of data analysis, the data is abstracted and displayed in tabular form to make it more systematic so that it will make it easier for researchers to analyze the findings. Results analysis and synthesis of data literacy were summarized, and the connection with theory reference was analyzed. At stage end, the withdrawal conclusion was done to produce knowledge and new information.

RESULTS

This study started with the formulation of a problem about leadership and decision-making in education in the digital era. Analysis of previous research problems using the VosViewer application, where previous research data was collected using Publish or Perish. After analysis, several words that often appear in VosViewer (Figure 2) include COVID, digital transformation, educational leadership, education leader, policy-making, decision-making process, artificial intelligence, school, teaching, information, school leadership, innovation, digital divide, learn, and so on.

Figure 2. Analysis of research topics using *VosViewer*

Figure 2. Analysis of research topic relationships using *Vos Viewer*

By using path analysis in VosViewer (Figure 3), it was found that there was not much relationship between previous research and the topic of educational leadership and decision-making in education in the digital era. Thus, this topic is worthy of being raised as a research topic because there is no path connecting the two topics, which is novel in research.

Figure 3. Analysis of research topic relationships using path analysis by *Vos Viewer*

Furthermore, at the data collection stage, several previous studies on the topics of educational leadership and decision-making in the digital era were obtained separately. From studies literature carried out from four years of research (issue 2019 until 2023), generally, the topic of leadership education and decision-making in the digital era stands alone. The following literature study from previous research related to educational leadership in the digital era and decision-making in the digital era is presented in the following table:

Table 1. Previous Research on the Topic of Educational Leadership and Decision-Making in the Digital Era

No.	Author's Name, Year of Publication	Research Title	Approach/Method	Research Results
1.	(Ulfah et al., 2022)	Educational Leadership in The Era of Disruption	Study of literature	The character of an educational leader who can adapt to digital developments.
2.	(Asmadi et al., 2022)	Educational Leadership Amidst the Complexity of Change	Study of literature	Environment and style influence leadership. To face changes in digitalization requires collaborative leadership.
3.	(Rosita & Iskandar, 2022)	Principal Leadership Style in the Digital Era	Study of literature	The leadership style that is widely used in the

No.		Title	Method	Result
				digital era is democratic leadership.
4.	(Silvana et al., 2019)	Teacher Information Needs in the Digital Era: Case Study at Labschool Elementary School, Indonesian Education University	Qualitative, descriptive	Teachers need information from four aspects, namely (1) the aspect of planning learning, (2) aspects of fill or material experience learning, (3) the aspect of election strategy And method learning, and (4) aspects of media selection.
5.	(Prasetyo, 2022)	Effective Islamic Boarding Schools: A Study of Participative Leadership Style	Descriptive qualitative	Islamic boarding schools use participative leadership because it is effective, especially in terms of the decision-making process, the process of handling organizational conflicts, and communication strategies in forming a positive Islamic boarding school culture.
6.	(Sirojudin, 2019)	The Relevance of Decision-Making in Islamic Education Organizations	Study of literature	Decision-making and systematics run according to the specified mechanism and needs or according to the level of the decision-maker.
7.	(Sugiyanto & Ruknan, 2020)	The Influence of Leadership, Managerial Skills, and Decision Making on Employee Performance of the Directorate General of Early Childhood and Community Education	Quantitative/survey	Effective decision-making results in employee performance, strong leadership causes increased decision-making, and high managerial skills will determine effectiveness in decision-making.
8.	(Shapiro & Stefkovich, 2021)	Ethical Leadership and Decision Making In Education: Applying Theoretical Perspectives to Complex Dilemmas	*Book*	Ethical leadership in decision-making involves four principles, namely ethics of justice, ethics of criticism, ethics of care, and ethics of profession.

9.	(Milton & Al-Busaidi, 2023)	*New Role Leadership in AI Era: Educational Sector*	*External desk research*	Digital era leaders must have hard skills such as cloud computing and data flow to be able to utilize new technology and soft skills in managing teams because they are required to be able to use strong data analysis capabilities based on AI.
10.	(Ahmed et al., 2021)	*Digital Transformation and Organizational Operational Decision Making: A Systematic Review*	*Systemic review of literature*	An organizational perspective of operations decision-making approaches under the umbrella of digital transformation.
11.	(Antonopoulou et al., 2021)	*Transformational leadership and digital skills in higher education institutes: During the COVID-19 pandemic*	Quantitative	In digital transformation, it is recommended that leaders develop a combination of digital skills, especially the ability to communicate effectively using digital technology, take the initiative and adapt to change, and be ready to face complex situations.
12.	(Zeike et al., 2019)	*Digital leadership skills and associations with psychological well-being*	Quantitative	Leaders with good digital leadership skills are significantly associated with higher psychological well-being, such as coping skills, control skills, optimism, and perceived self-efficacy.
13.	(Ehlers, 2021)	*Digital Leadership in Higher Education*	Study of literature	The transformational leadership approach is the approach that best suits digital leadership because transformational leadership focuses on communication and participation.
14.	(Pratiwi et al., 2022)	*Transformational leadership and digital skills in higher education institutes: During the COVID-19 pandemic*	Explanatory research	Coercive digital leadership (the ability to capture information and follow it up, digitally oriented strategy, wanting to create opportunities, being able to seize

				opportunities, behave best, and develop good practices) has a significant positive effect on performance.
15.	(Fernandes, 2020)	*Making Sense of Data-informed decision making in educational contexts*	Book Section	Decision-making based on school data helps schools use their knowledge, strategies, relationships, and educational management processes to provide educational services.

Discussion

Educational Leadership Model that is Suitable for Digitalization Developments

Digitalization has had a significant impact on the world of education. Educational leaders are required to be able to adapt to these changes. To be in line with existing changes, research results show several models and styles of leadership that can applied. Digital leadership is wrong. It is a leadership model that utilizes technology with the purpose of transforming and becoming an adaptive organization with change (Jannah et al., 2023). The leadership model digital based stands on four element supporters, namely (1) vision digitally based, (2) digitally behaved, (3) digitally skilled, and (4) patterned think digital.

According to Asmadi et al. (2022), the leadership that is also needed in facing digitalization changes is collaborative. Referring to Thompson & Perry (Sulistiyanto & Fiitriati, 2020), the form of activity collaboration carried out in education and learning more focused on (1) how to get between member organization education can interact with good formal or informally, (2) growth Spirit mutual work together and cooperate, (3) do effective communication and good coordination between organization, (4) adapt with difference especially related ones with interest organization, and (5) mutual believe it will happen positive collaboration.

Meanwhile, research by Ehlers (2021) suggests that the transformational leadership approach is the most suitable approach to digital leadership. Because transformational leadership focuses on communication and participation, in line with Ehlers, research by (Silvana et al., 2019) states that leaders in organizational education must be competent, mastering hard skills and soft skills such as the ability to think critically, be communicative, collaborative, and creative. In digital transformation, leaders are recommended to develop a combination of digital skills, especially the ability to communicate effectively using digital technology, take the initiative, adapt to change, and be ready to face complex situations (Antonopoulou et al., 2021). Digital era leaders must have hard skills such as cloud computing and data flow to be able to utilize new

technology and soft skills in managing teams because they are required to be able to use strong data analysis capabilities based on AI (Milton & Al-Busaidi, 2023).

Other research confirms that leadership in the digital era tends to be done democratically so that the relationship that is built between leader and subordinate takes place with a harmonious impact on the enhancement of the quality of education (Rosita & Iskandar, 2022). Next, Islamic boarding schools are wrong in one form of organization education, using a leadership model because effective especially in matter activity determination policy, do approach in solution problem If conflict in the organization, which becomes part of the strategy communicative in form culture adaptive Islamic boarding school with change (Prasetyo, 2022).

In addition to the leadership models outlined above, there is one more model found that is also used in the digital era, namely coercive digital leadership, namely the ability to capture information and act on it. The principle of coercive digital leadership is a digital-oriented strategy, wanting to create opportunity, capable of catching opportunities, behave best, develop best practices, and influential positive significance to performance (Pratiwi et al., 2022). Leaders with good digital leadership skills are significantly associated with higher psychological well-being, such as coping skills, control skills, optimism, and perceived self-efficacy (Zeike et al., 2019).

There are some aspects of psychological requirements somebody moment leads. Some say a proper leader does not depend only on the characteristics or character of a psychological leader. However, a leader must show exemplary behavior in demand and behavior leadership best to members of the organization he leads. (Ulfah et al., 2022). A capable figure puts themself as leader, fine when is at in front, in the middle nor moment is behind.

Perspectives on Leadership and Decision Making in the Era of Digitalization

The consequence of digitalization changes is a change in perspective. Change perspective leadership educational implications to deciding on organization education in the digital era apply in scope power to make further steps in operating impactful organizations on optimization initiatives and idea leaders. According to (Asmadi et al., 2022), continuation wheel organization education decided based on the principle of participative will cultivate a sense of being part of the organization, which conveys a sense of belonging to the organization in between member organization education. However, involving interested members in organization education, especially in making decisions, must be accompanied by skills possessed by members of the principal juridical And linkages party with an objective determination policy.

In perspective management, yes, there are two functions the principal contained in making a decision. Namely: (1) as the underlying foundation of all activity organization education carried out with full awareness and directed, without differentiation is the activity personal or

group; (2) determine conditions will happen in time front, nature futuristic decision result the effect new will seen on future come. Although so, the decision must start with existing planning.

When making decisions, strive to be appropriate with planning and setting goals in organizational education. Good vision and mission will become formulation thinking for a leader in a decision organization. This is what works as a reference in arranging the way implementation education is to achieve objectives together (Sirojudin, 2019). Leadership directly impacts activity determination decisions. A dominant leadership style or strong will be accompanied by enhancement-taking decisions (Sugiyanto & Ruknan, 2020). Ethical leadership in decision-making involves four principles, namely ethics of justice, ethics of criticism, ethics of care, and ethics of profession (Shapiro & Stefkovich, 2021).

Organizational perspective of decision-making approaches under the umbrella of digital transformation (Mohammed et al., 2022). In making educational decisions, data is an important basis for monitoring work and diagnosing certain areas whose performance needs to be improved to improve the quality of education efficiently and effectively (Schildkamp, 2019). Decision-making based on educational data helps educational institutions use their knowledge, strategies, relationships, and educational management processes in providing educational services (Fernandes, 2020).

Implications

The ability of leaders to adapt to digital changes will create a modern leadership model that considers digitalization not only limited to using technology as a tool and media. But it will also animate digitalization and make it part of the perspective and basis for behavior, mindset, and skills in solving problems. Educational leadership in the digital era should be able to integrate the use of digitalization in data-based decision-making so that measurable educational goals can be achieved and educational management evaluations can be carried out accurately.

CONCLUSION & SUGGESTION

Conclusion

Leadership and decision-making in the field of education from a digital perspective are necessary. In this era of digitalization, educational leaders must be able to adapt to change. From the literature study that has been carried out, several educational leadership models have been found that can synergize with digitalization, including collaborative leadership, transformational leadership, democratic leadership, participative leadership, and coercive digital leadership. Decision-making in the digital era is carried out based on a digital perspective, where data is used as a basis for determining decisions. That way, decision-making will be more effective and accurate.

SUGGESTION

Leadership, especially in the school environment, needs to pay attention to the digital perspective. This is because the current era has entered the era of digitalization. So that each principal is expected to be able to adapt to any changes, especially in terms of leadership and decision making.

REFERENCES

Aarkrog, V., & Wahlgren, B. (2022). Goal Orientation and Decision-Making in Education. *Vocations and Learning*, *15*(1), 71–86. https://doi.org/10.1007/s12186-021-09278-0

Ahmed, A., Alshurideh, M., Al Kurdi, B., & Salloum, S. A. (2021). *Digital Transformation and Organizational Operational Decision Making: A Systematic Review BT - Proceedings of the International Conference on Advanced Intelligent Systems and Informatics 2020* (A. E. Hassanien, A. Slowik, V. Snášel, H. El-Deeb, & F. M. Tolba (eds.); pp. 708–719). Springer International Publishing.

Anita, A., & Astuti, S. I. (2022). Digitalisasi Dan Ketimpangan Pendidikan: Studi Kasus Terhadap Guru Sekolah Dasar Di Kecamatan Baraka. *Jurnal Pendidikan Dan Kebudayaan*, *7*(1), 1–12. https://doi.org/10.24832/jpnk.v7i1.2509

Antonopoulou, H., Halkiopoulos, C., Barlou, O., & Beligiannis, G. N. (2021). Transformational leadership and digital skills in higher education institutes: During the covid-19 pandemic. *Emerging Science Journal*, *5*(1), 1–15. https://doi.org/10.28991/esj-2021-01252

Asmadi, I., Ilyas, A. A. R. M., Tirtajaya, A., Muctar, H. S., & Wahidin, D. (2022). Kepemimpinan Pendidikan di Tengah Kompleksitas Perubahan. *Edukatif : Jurnal Ilmu Pendidikan*, *4*(4), 6050–6056. https://doi.org/10.31004/edukatif.v4i4.3444

Dowansiba, N., & Hermanto, H. (2022). Strategi Kepala Sekolah Menengah Atas dalam Menyiapkan Sekolah Penggerak. *Jurnal Pendidikan Dan Kebudayaan*, *7*(2), 125–137. https://doi.org/10.24832/jpnk.v7i2.3060

Ehlers, U. D. (2021). Digital Leadership in Higher Education. *Journal of Higher Education Policy and Leadership Studies*, *1*(3), 6–14. https://doi.org/10.29252/johepal.1.3.6

Fernandes, V. (2020). Making Sense of data-informed decision making in educational contexts. In *Handbook of Research on Modern Educational Technologies, Applications, and Management (2 Vol.)* (pp. 545–563). IGI Global Books. https://doi.org/10.4018/978-1-7998-3476-2.ch033

Jannah, R., Rosidin, A. M., Nurmala, T., Yuningsih, N., & Yenni, E. (2023). Kepemimpinan di Era Digital dan Implementasinya di Lembaga Pendidikan. *Jurnal Syntax Admiration*, *4*(2), 264–269. https://doi.org/https://doi.org/10.46799/jsa.v4i2.557

Kurniawan, K., Kusumawati, K., Hurriyati, S. D., Amirrasyid, A. F., & Mugni, M. (2023). Strategi Kepemimpinan Kepala Sekolah dalam Menghadapi Revolusi Digital 4.0. *Journal on Education*, *5*(2), 2238–2247. https://doi.org/10.31004/joe.v5i2.876

Lundeto, A. (2021). Digitalisasi Pesantren: Hilangnya Budaya Tradisionalis Atau Sebuah Kemajuan? *Jurnal Education and Development*, *9*(3), 452–457. http://journal.ipts.ac.id/index.php/ED/article/view/2882

Miftah, Z., & Rozi, F. (2022). Digitalisasi dan Disparitas Pendidikan di Sekolah. *Ibtida': Media Komunikasi Hasil Penelitian Pendidikan Guru Madrasah Ibtidaiyah*, *03*(02), 149–164. https://doi.org/https://doi.org/10.37850/ibtida.v3i02.361

Milton, J., & Al-Busaidi, A. (2023). New Role of Leadership in AI Era: Educational Sector. *SHS Web of Conferences*, *156*, 1–4. https://doi.org/10.1051/shsconf/202315609005

Mohammed, A., Jabbour, A. B. L. de S., Koh, L., Hubbard, N., Jabbour, C. J. C., & Ahmed, T. Al. (2022). The sourcing decision-making process in the era of digitalization: A new quantitative methodology. *Transportation Research Part E: Logistics and Transportation Review*, *168*, 102948. https://doi.org/https://doi.org/10.1016/j.tre.2022.102948

Prasetyo, M. A. M. (2022). Pesantren Efektif: Studi Gaya Kepemimpinan Partisipatif. *Munaddhomah: Jurnal Manajemen Pendidikan Islam*, *3*(1), 1–12. https://doi.org/10.31538/munaddhomah.v3i1.159

Pratiwi, R., Putra, Y. D., & Iswati. (2022). The Adaptive Learning Effects in Developing Coercive Digital Leadership: Efforts to Improve Lecturer Performance in Central Java Province Through Integration of Transformational Leadership, Power and Digital Intellectuality. *Quantitative Economics and Management Studies (QMES)*, *3*(3), 426–434. https://doi.org/10.35877/454ri.qems974

Rosita, R., & Iskandar, S. (2022). Gaya Kepemimpinan Kepala Sekolah di Era Digital. *Jurnal Basicedu*, *6*(4), 6005–6011.

Schildkamp, K. (2019). Data-based decision-making for school improvement: Research insights and gaps. *Educational Research*, *61*(3), 257–273. https://doi.org/10.1080/00131881.2019.1625716

Shapiro, J. P., & Stefkovich, J. A. (2021). *Ethical Leadership and Decision Making in Education: Applying Theoretical Perspectives to Complex Dilemmas*. Taylor & Francis. https://books.google.co.id/books?id=HKhMEAAAQBAJ

Siagian, A. O. (2021). *Pengaruh Kepemimpinan Pendidikan di Era Revolusi Digital Industri 5.0 di Masa Pandemi Ade*. *3*(2), 37–47.

Silvana, H., Rullyana, G., & Hadiapurwa, A. (2019). Kebutuhan Informasi Guru Di Era Digital: Studi Kasus Di Sekolah Dasar Labschool Universitas Pendidikan Indonesia. *Baca: Jurnal Dokumentasi Dan Informasi*, *40*(2), 147–158. https://doi.org/10.14203/j.baca.v40i2.454

Sirojudin, D. (2019). Relevansi Pembuatan Keputusan dalam Organisasi Pendidikan Islam. *Dinamika*, *4*(2), 65–78.

Sugiyanto, & Ruknan. (2020). Pengaruh Kepemimpinan, Keterampilan Manajerial, Dan Pengambilan Keputusan Terhadap Kinerja Karyawan Direktorat Jenderal Paud Dan Pendidikan Masyarakat …. *Jurnal Lentera Pendidikan Pusat Penelitian LPPM UM Metro*, *5*(1), 37–46. http://ojs.ummetro.ac.id/index.php/lentera/article/view/1252

Sugiyono. (2019). *Metode Penelitian Pendidikan: Penekatan Kuantitatif, Kualitatif dan*

R&D. Alfabeta.

Sulistiyanto, & Fiitriati, R. (2020). *World Class Navy: Kepemimpinan Kolaboratif di Sekolah Staf dan Komando Angkatan Laut*. M&c! https://books.google.co.id/books?id=aDHXDwAAQBAJ

Timan, A., Mustiningsih, & Imron, A. (2022). Digital Leadership Kepala Sekolah Hubungannya dengan Kinerja Guru dan Kompetensi Siswa Era Abad 21. *JAMP: Jurnal Adminitrasi Dan Manajemen Pendidikan*, *5*(4), 323–333. https://doi.org/http://dx.doi.org/10.17977/um027v5i42022p323

Ulfah, Supriani, Y., & Arifudin, O. (2022). Kepemimpinan Pendidikan di Era Disrupsi. *JIIP - Jurnal Ilmiah Ilmu Pendidikan*, *5*(1), 153–161. https://doi.org/10.54371/jiip.v5i1.392

Wening, M. H., & Santosa, A. B. (2020). Strategi Kepemimpinan Kepala Sekolah dalam Menghadapi Era Digital 4.0. *JMKSP (Jurnal Manajemen, Kepemimpinan, Dan Supervisi Pendidikan) Volume*, *5*(1), 56–64. https://doi.org/https://doi.org/10.31851/jmksp.v5i1.3537

Yuniarsih, C., Azis, A., Septialona, A., Agama, U., Bunga, I., & Cirebon, B. (2023). *Menganalisis Kompentensi Pemimpin Perubahan Di Era Perubahan Digital Dan Implementasi Di Lembaga Pendidikan*. *4*(1), 17–32. https://doi.org/https://doi.org/10.46799/jsa.v4i1.528

Zed, M. (2014). *Metode Penelitian Kepustakaan*. Yayasan Pustaka Obor Indonesia. https://books.google.co.id/books?id=zG9sDAAAQBAJ

Zeike, S., Bradbury, K., Lindert, L., & Pfaff, H. (2019). Digital leadership skills and associations with psychological well-being. *International Journal of Environmental Research and Public Health*, *16*(14), 1–12. https://doi.org/10.3390/ijerph16142628