

Systematic Literature Review: Implementation of Digital Leadership in Education in Several Countries

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Abstract

Digital leadership is strategic leadership by utilizing technology, especially digital assets to achieve organizational goals. The purpose of this research is to find out how digital leadership is implemented in various countries. The research method used in this study is the SLR (Systematic Literature Review) method. Collecting data by collecting similar research articles with research purposes. The articles used in this study were 30 journal articles after selection that were obtained from the Crossref database using Harzing's Publish or Perish application in the last 5 years, from 2018 to 2022. Based on this research, it was found that digital leadership capabilities by a leader have a significant positive impact in supporting an effective learning process which has implications for the achievement of pre-planned educational goals. This study concludes that it is necessary to apply digital leadership capabilities in the world of education in order to improve the quality of education and achieve more optimal learning objectives.

Keywords: Leadership, Digital, Globalization, Digital Leadership

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Introduction

The emergence of digital technologies, as represented by artificial intelligence, blockchain technology, cloud computing, big data, edge computing and 5G, not only leads a new round of economic and industrial transformation, but also reshapes society and fundamentally changes organizational governance (Peng, 2022). Changes and developments in science and technology that are increasingly advanced in the current era of globalization have given birth to a new lifestyle, where life has been filled with competition so that people and organizations in it need to improve themselves to keep up with the changes that are happening. Technology and the internet have driven innovation and new opportunities by digitizing customers, companies, products, services, and processes (Junita, 2019). Global changes like this also affect the world of education which must be able to adjust or adapt to existing changes in order to achieve educational goals that have been set previously, this is in accordance with research conducted by Kanyarat Suksaen (Suksaen & Trirat, 2021). Inequality in terms of digital skills is a challenge faced by organizations, both companies, governments and the world of education to ensure productivity and effectiveness in carrying out tasks in the era of globalization and during Covid-19 (Saputra & Nugroho, 2021).

The development of knowledge and technology must also be balanced with adequate human resource capabilities in order to utilize these developments effectively and efficiently. In the world of education, the progress or failure of an educational organization is inseparable from the name of the leader, with the development of technology it is hoped that leaders also have good abilities to take advantage of these developments in order to achieve goals. Leadership is part of management, namely planning, organizing, and implementing the evaluation stage. This explains importance of a leader having good competence so that the organization he leads runs in a better direction, one of which is the ability of digital leadership (Rhinesmith et al., 2022).

In the current era of globalization, digital capabilities are the main prerequisite in every activity. Likewise, in the world of education, digital capabilities are the main support in the midst of a pandemic that is full of uncertainty. The leader or leader of an educational institution is a person who usually decides what is right or most appropriate in certain situations, especially in the education policy itself (Andriani et al., 2022). More than just digital capabilities, the world of education also demands more in terms of digital leadership capabilities or what is commonly called Digital Leadership. Technology-based organizations can improve quality and global competitiveness and competitive advantage (Pratiwi et al., 2022). The process of improving Digital Leadership skills in education is not easy. The ideal principal leadership in the digital era is leadership that follows the flow of technological developments where the principal must play a role to influence, move and guide his subordinates to implement educational programs in accordance with technological developments in the era of globalization.

The challenge of leaders in the digital era is that they are required to be able to generate creative and innovative ideas in order to be able to turn problems into solutions and opportunities in carrying out their duties and functions in advancing the world of education in the digital era (Capogna et al., 2018). Leadership in the digital era drives a lot of issues, especially regarding the readiness of leaders and their members in exploring all possibilities in the use of digital technology to maximize their efforts (Erhan et al., 2022). There are many leadership styles, each of which has its advantages and disadvantages, but what must be considered is that the leader's leadership style must be adjusted to the circumstances that

occur in educational institutions today (Rüth & Netzer, 2020). Every leader is expected to have an ideal leadership style tailored to the conditions and demands of the times. The problem is that not all leaders have the ability to adapt to the demands of change, coupled with the lack of knowledge of school principals on the transformation of principal leadership in the digital era. Digital era leadership has an impact on the digital transformation of an organization as well (Sow & Aborbie, 2018; Sunu, 2022). Digital leadership is characterized by technological developments in leadership in educational institutions. Several studies conducted show that digital leadership positively impacts the quality of a leader's performance (Sunu, 2022).

Leadership is the process of influencing individual or group activities to achieve certain goals in certain situations (Visintini, 2022). One of the leadership styles that are in accordance with the conditions of technological development and the digital era at this time is the digital leadership model. The digital leadership style is an appropriate method for determining the level of readiness of followers in information technology, starting from the introduction and operation of software (software, applications, operating systems) and hardware (cell phones, modems, computers, touch screens), work ethic, to legality issues in information technology (Jisr, 2021). Identifying followers' readiness for digital information-based businesses can be done by adjusting the indicators of digital information readiness and skills with the level of readiness of followers in the leadership process. A leader must have an attitude of responsibility and be ready to face every challenge that exists including in the digital era without setting aside his role as a leader (Kahanna, 2021).

Methods

The method used in this research is Systematic Literature Review (SLR). This research method is carried out by identifying, reviewing, evaluating, and interpreting all available research. This method reviews and identifies journals systematically in each process following the following steps (1) Research Question, made based on the topic chosen by the researcher. (2) Search Process, used to obtain answers to research questions in the previous step obtained from relevant sources. The search process can use the google chrome search engine with the site <http://garuda.ristekdikti.go.id> for primary data and <http://google.com> for secondary data. (3) Inclusion and Exclusion Criteria, at this stage a decision is made on whether or not the data used in SLR research is feasible. (4) Quality Assessment, at this stage the data that has been found will be evaluated based on the criteria questions in the predetermined quality assessment. (5) Data Collecting, is the stage where existing research data is collected. And (6) Data Analysis, at this stage the data that has been collected will be analyzed to show the results of the research questions that have been made previously and conclusions are drawn.

This research collects journal articles on the Crossref database with the help of the Publish or Perish application, the keyword is digital leadership. The articles collected are only articles published in the last 5 years, from 2018 to 2022, due to the massive implementation of technology in the world of education due to technological developments and covid-19. The protocol the author uses is the PRISMA Protocol (Preferred Reporting Items for Systematic Reviews and Meta-Analyzes). The primary study selection process is carried out through four stages that refer to PRISMA, namely; identification, screening, eligibility, and inclusion (Dadang Juandi & Tamur, 2020). From the articles collected, we selected 64 articles that were closely related to the keywords used. In the next step, researchers grouped articles

related to the topic to be discussed into 30 articles, then this article will be reviewed and studied by researchers comprehensively.

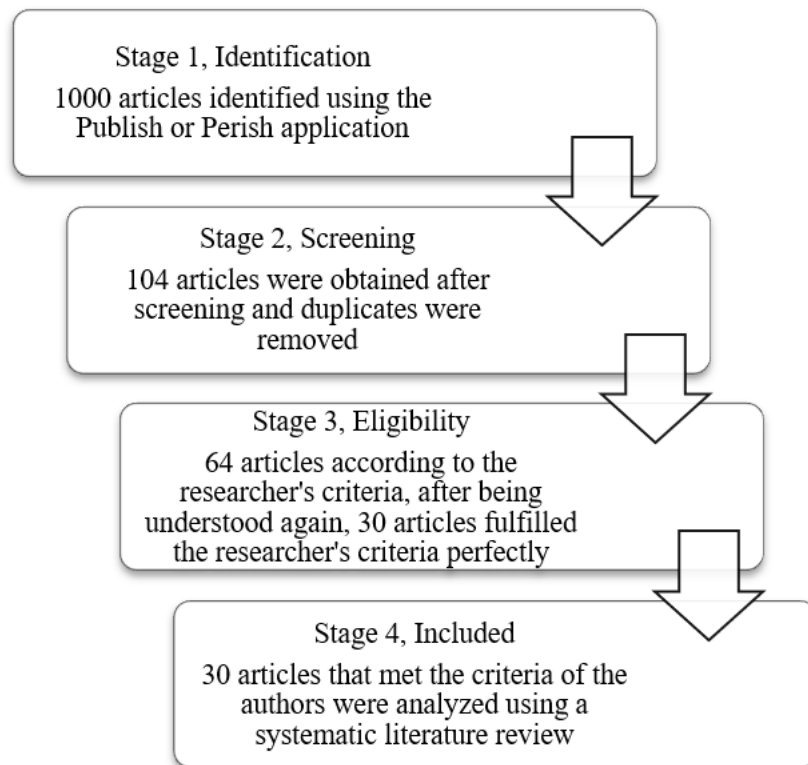


Figure 1: Digital Leadership Prism Diagrams

Results and Discussion

The results of the research data included in this literature review are an analysis and summary of documented research related to digital leadership. In this study, researchers categorized based on five moderating variables, namely research year, education level, sample size, research type, and country. The results of the analysis can be seen in the following table:

Table 1: Analysis Results

Criteria		Number of Articles
Research Year	2018	2
	2019	4
	2020	6
	2021	7
	2022	11
Education Level	elementary school	1
	Junior high school	2
	Senior High School	6
	College/University	21
Sample Size	< 30	8
	>= 30	22

Type of Research	Qualitative	19
	Quantitative	9
	Mix Method	2
Research Location	Indonesia	13
	India	1
	Amerika	4
	Thailand	1
	Italy	1
	Vietnam	1
	Germany	3
	Turkey	1
	China	1
	Inggris	1
	Lebanon	1
	Russia	1
	Romania	1
	Netherlands	1

In today's dynamic digital transformation and modern era, conventional leadership and separate management theories are increasingly disappearing and outdated because the organizational culture and work environment are not effective with the times (Verma et al., 2022). Digital leadership is a disposition for leaders and aspiring leaders to be able to direct the organizations they lead toward digital transformation. It directs, facilitates, and coordinates digital work and knowledge processes within organizations. Digital leadership requires not only an appreciation of the potential of information and communication technologies to assist leadership, but also a recognition of the limitations of these technologies and how they can be used. Digital leadership based on several studies has a positive impact on organizational performance (Theng et al., 2021). There are several criteria that a leader must have in developing digital leadership itself including transformative vision, foresight, technological literacy, adaptability managerial, collaborative, democratic, participatory, and good networking (Thohri, 2022).

Digital leadership competencies researched by Prawiro Theng et al. (Theng et al., 2021) explain that the presence of a leader's digital capabilities will have a positive impact and influence on improving organizational performance. According to research conducted by Michael Jacoby et al. defining the digital revolution and the era of globalization are about optimization and automation supported by networks, machines, and processes that are more effective (Jacoby & Usländer, 2020). Based on research conducted by several researchers in the article, Katie Storm explains that the utilization of existing technological media also has a significant impact and is of interest to several universities in various countries (Strom & Porfilio, 2019). However, as more and more organizations are in the process of digital transformation, this makes it a challenge for a leader who only concerns top management, but all layers of management must be able to utilize and manage this digital technology-driven transformation.

The digital age we are experiencing is changing people's perception of life and work at an impressive pace comparable to the impact of the industrial revolution. The new phase of the digitization process, sometimes called the social stage, is characterized by connections never seen before, both personally and professionally (Mihai & Crețu, 2019). The digital age is

moving so fast that it is changing the way organizations operate, be it private or public institutions, and requires them to be able to adapt to the demands of the times. Therefore, globalization has a profound effect on the human resource function in organizations (Iskamto, 2020; Kuznetsova, 2021). One of the increases in digital leadership competencies will improve employee performance and be able to do work in accordance with the system provided by the company so that the company's vision and mission can be fulfilled properly (Iskamto, 2020).

Empowering leaders means empowering the organization as well as understanding their contribution to managing an organization. Due to the covid 19 pandemic, private and public sectors are severely affected worldwide. This causes all sectors to accept change and undergo digital transformation well. For example, the world of education, which utilizes Zoom or other digital media in the teaching and learning process and banking, has switched to digital activities rather than conventional (Verma et al., 2022). To accept this kind of digital change, leaders need to have various leadership skills in the digital era. These skills are as follows: personal communication, always being ready to accept change, providing free hands to commit errors, responsibility to encourage digital literacy, and leaders should always be innovative (Henderikx & Stoffers, 2022).

By applying the inclusion criteria for relevant studies, articles were further categorized based on their study characteristics or moderator variables, namely year of publication, education level, sample size, research type, and research location. The articles were then described individually based on the predetermined criteria.

A. Research Year

The studies used as data by researchers in this systematic review study are research articles published from 2018 to 2022. Details of the distribution of primary studies from 2018 to 2022 are presented in Figure 2:

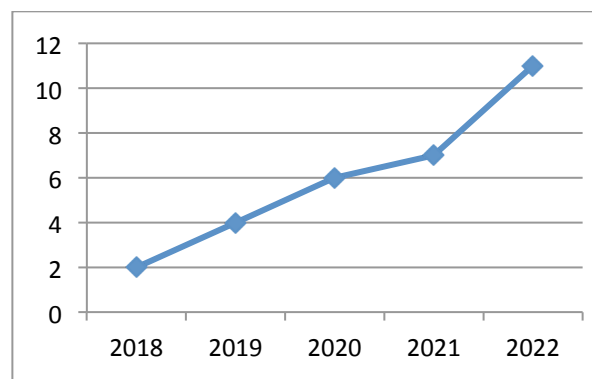


Figure 2: Research data by year

Based on the results of the analysis of several research journals in the last five years, namely from 2018 to 2022, the data obtained can be seen in Figure 2. Based on Figure 2, it can be concluded that research related to digital leadership has increased significantly from year to year. The lowest research on digital leadership was conducted in 2018 with 2 articles, while the highest occurred in 2022 with 11 articles. Therefore, it can be concluded that the urgency and influence of digital leadership increasingly need to be discussed and improved. In accordance with the findings of Mouhamadou Sow's research which shows that the digital leadership style is very impactful in organizational transformation and employee engagement in carrying out their duties to achieve organizational goals (Sow & Aborbie, 2018). In

addition, research conducted by Rajanikant Verma explains that this digital era requires several opportunities that must be owned by every leader including upgraded data collection, knowing customer insights through social media platforms, and companies are witnessing higher profits in the digital transformation (Verma et al., 2022).

B. Education Level

Grouping by education level is divided into 4 categories, namely elementary school, junior high school, high school, and university. The number of studies based on education level is presented in the following graphical data Figure 2:

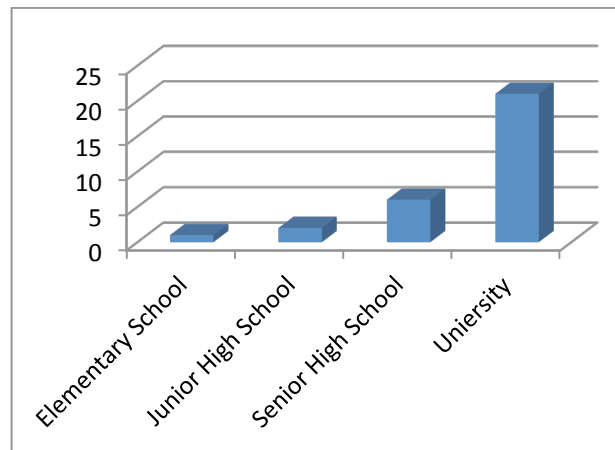


Figure 3: Research data by level

From Figure 3, it can be interpreted that digital leadership is more researched and studied at the university level with a total of 21 articles, while in elementary schools there are still few studies related to digital leadership conducted and published. Therefore, this must be a concern because digital leadership is a competency that is very important to be developed and possessed by every leader regardless of the level of education he leads. This is in accordance with research by Hamzah (Hamzah et al., 2021), which says that school leaders today must strive to fill any gaps in their technical knowledge and skills in order to provide direction and guidance to lead digital development in their school and spread this practice to the school learning environment. Furthermore, research conducted by Rajanikan Verma et al explains that in this modern era, there have been drastic changes in the field of leadership in both the industrial and service worlds, where conventional leadership concepts are increasingly outdated due to changes and developments in science and technology that are increasingly modern and demands to meet organizational needs (Verma et al., 2022). From the research of Galina V. Kuznetsova, several organizations explained that organizations that successfully carry out digital transformation with a clear vision and mission will have a high chance of survival and development (Kuznetsova, 2021).

C. Sample Size

Research related to the size of the research sample is categorized by researchers into 2 categories, namely research with a sample size of < 30 and research with a sample size of ≥ 30 :

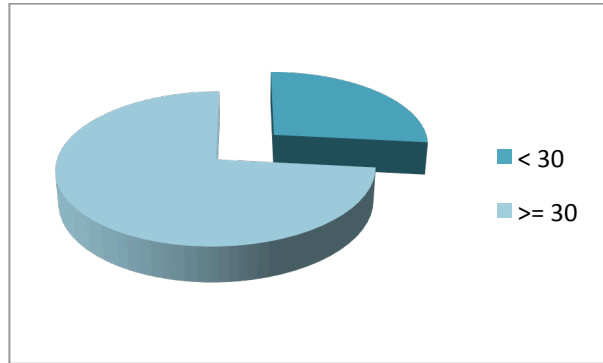


Figure 4: Research Data Based on Sample Size

Based on graph 4. it can be understood that research on digital leadership is dominated by samples with an amount of approximately or equal to 30. The sample is a snippet or part of the population to be studied or it can also be said that the population is in miniature (miniature population). One of the conditions that must be met by the sample is that the sample must be representative of the population (Danuri et al., 2019).

D. Type of Research

Grouping based on the type of research is divided into 3 categories, namely qualitative, quantitative, and mix- method research. In qualitative research, researchers categorize it into descriptive qualitative research, case studies, and phenomenology. While quantitative research is divided into descriptive, experimental, quasi-experimental, and correlational quantitative research, more details can be seen in Figure 5. below:

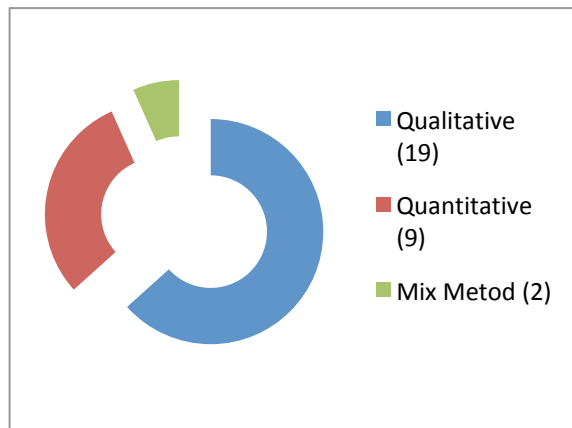


Figure 5: Research data based on research type

Based on Figure 5, it can be concluded that research on digital leadership itself uses the most qualitative research methods compared to quantitative methods and mixed methods. This explains that qualitative research is preferred by researchers and the results of the research are more detailed and in-depth considering that qualitative research itself focuses on quality, the data collection process is flexible and interaction is carried out with the language used in the data collection process. In accordance with research conducted by René R uth and Torsten Netzer who conducted qualitative research on the use of digital media in the world of organizations or the world of education, it has a good impact on improving quality, the technology used, for example, the concept of cultural intelligence and artificial intelligence which provides tools for managing diverse resources from various cultures, backgrounds in one organizational framework (R uth & Netzer, 2020).

E. Research Location

Details of the distribution of studies based on demographics related to digital leadership are categorized by researchers based on the country where the research was conducted. This is presented in Figure 6 below:

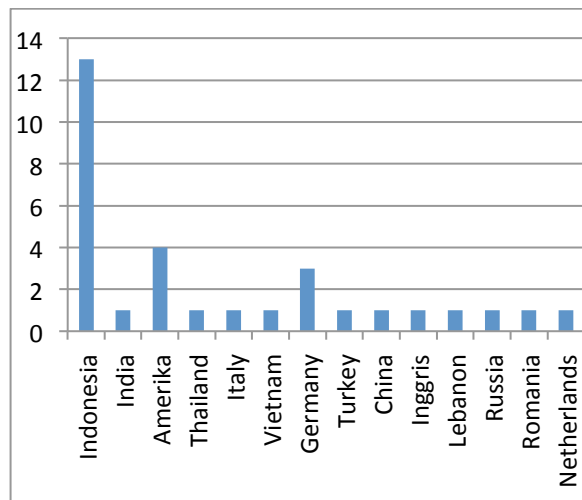


Figure 6: Research Data Based on Research Location

Figure 6 explains that research on digital leadership has been widely researched in several countries in the world. Meanwhile, the most research conducted on digital leadership itself that was obtained by researchers was in Indonesia. This explains that digital leadership is a competency that must be possessed by leaders in the current era of the development of science and technology. This is in line with research conducted by Stefania Capogna et.t who conducted research on the impact of digital society challenges focused on education and digital leadership which explained that in dealing with technological developments we need highly technical and methodological skills to move digitally and require social-social skills. strong emotions to maintain cognitive, emotional, and relational loads in both real and virtual environments (Capogna et al., 2018). Gloria Visintini also conducted research on the academic leadership approach to the implementation of digital education in higher education which explained that technology and human resources are key in implementing education in the digital era (Visintini, 2022).

Conclusion

Based on the results and discussion described above, research on digital leadership has received good attention, especially in the last few years, especially in 2018 to 2022 with qualitative methods as the method most widely used by researchers. The majority of research was conducted at the college or university level with a majority sample size of more than or equal to 30. Research on digital leadership has also been widely researched in various countries and from the results of this research digital leadership has had a positive impact. Suggestions for future researchers are to be able to do in-depth research not only at the university level but also at other levels of education.

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