

Principal Decision-Making Strategy as a Transformation of Digital Technology-Based School Culture

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Keywords

Decision Making
School Transformation
Digital Technology

Abstract

This study aims to analyze the principal's decision-making strategy as a digital-based technology transformation in schools. This research uses a qualitative approach, SLR type. The procedure carried out is to identify references from various sources using search engines such as Publish or Perish (PoP), science direct, Vos Viewer, Mendeley (referring to the PRISMA pipeline flow), and making PRISMA flowcharts. The study found that collaborative leadership helps principals create a more technology-responsive school environment, improve digital literacy for all school members, and support the development of sustainable technology infrastructure. However, challenges such as limited technology infrastructure, resistance to change and lack of digital literacy are still major obstacles. This study concludes that optimizing DBSC through collaborative leadership not only improves the quality of education but also prepares schools to face the demands of future technological developments.

1. Introduction

The use of technology in schools emphasizes the need to integrate theories from the West with sustainable development issues in other countries including in Asia (Kim, 2024). The findings of empirical studies in Indonesia emphasize the need for digitalization in the decision-making process in schools which is useful for reporting online learning practices in education (Aditya et al., 2021). In the Indonesian context, the results of empirical studies show that teacher attitudes play an important role in the successful implementation of Education (Kurniawati et al., 2012). The era of technological disruption characterized by the rapid development of information and communication technology has brought significant changes in various sectors, including education with the adjustment of disruptive learning innovations (Ulfatin et al., 2022). This development forces educational institutions, especially schools, to adopt and integrate technology in various aspects of their operations and management with the principle of content-based education to outcome-based education (Pavai Madheswari & Uma Mageswari, 2020). One of the concepts that has emerged in this context is Digital Based School Culture (DBSC) or Digital School Culture (BDS) (Rasdiana et al., 2024), which is a digital-based school culture where learning, management, and interaction processes in schools are carried out by utilizing digital technology.

A later problem that arises is the lack of adaptive capacity to cope with the impact of social, economic, and cultural conditions, such as rapid population growth (Laplaza et al., 2017). This difficulty is not due to a lack of will or resources, but due to a lack of appropriate strategies for certain types of organizations (Gouveia & Mamede, 2022). Research has been conducted by (Hidayati, dkk, 2012) in NTB Province on application media such as e-learning by piloting it in one of the Junior High Schools in Mataram, namely SMP Negeri 11 Mataram.

The results showed that students' interest in the application of this e-learning media at school was quite high, so that it could attract students to learn because it has the potential to create a pleasant learning atmosphere and make it easier for students to understand the material presented (Hidayati & Wuryandari, 2012). However, studies show that the failure rate of digital transformation is quite high up to 90% (Marcel et al., 2024). Therefore, a new leadership concept is needed, namely collaborative leadership, which encourages the need for adaptable and responsive leadership practices (Nadeem, 2024). So that the principal's decision-making can consider the needs of stakeholders. The aim is to provide a workable model based on the principles of media and scope to help formulate policies for the school (Bhatnagar & Bolia, 2023).

2. Methods

The approach used in this study is qualitative with the Systematic Literature Review (SLR) method type of review of educational management research (Mahajan et al., 2023). The included data used is related to "Collaborative Leadership: Principal Decision Making Strategy in Optimizing Digital Based School Culture (DBSC) in the Era of Disruptive Technology" as keywords. Exclude data are those that are not directly related to the theme, abstract, focus, not using English, not indexed by Scopus, and other irrelevancies. This SLR uses VOSviewer in determining themes by displaying results in the form of bibliometric images visually at the global level indexed by Scopus using Bibliometric analysis (Huong et al., 2024).

Engine search in the form of an application through Publish or Perish (PoP) Software (Huong et al., 2024) by selecting the maximum result of 500 in the last 5 years between 2020-2024, then strengthened through science direct which has undergone filtering with the provisions between 2020-2024, is a research article or review results, and to obtain data using open access. Furthermore, for the method of assessing the risk of bias and methods in data interpretation using the 2020 prism flow diagram, namely at the identification stage, a database of 500 was obtained and from other registers 116 were obtained. From this data, there are similarities or duplicates as many as 5,000 databases.

3. Result and Discussion

Determination of Gap Research and themes using the VOS Viewer application exported in pdf format into a processed RIS format, resulting in the following Bibliometrics:

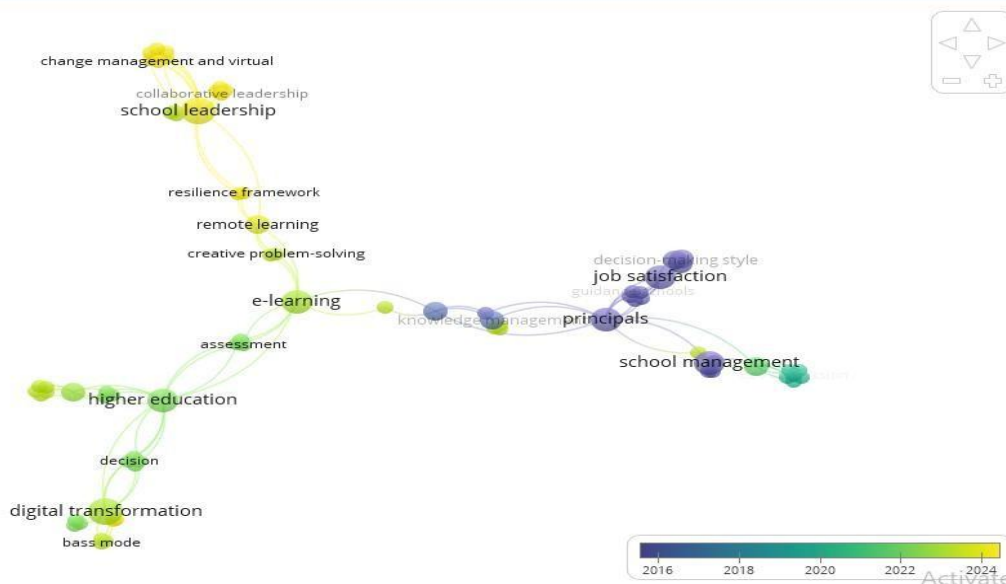


Figure 1. Bibliometric Using VOS Viewer

The figure above shows that the yellow-colored part has novelty to be researched and is very relevant to the current context of education.

Principal leadership is very important because it is considered as the main authority to achieve educational goals (Ozmen & Muratoglu, 2010). In the context of sustainable Digital Based School Culture (DBSC), it is not only individually responsible, but also must manage the participation of teachers, students, parents, and other stakeholders, as pedagogy can be conducive to transformative learning in a digital environment (Taimur & Onuki, 2022). Because after all, there is a significant direct effect of academic service quality on satisfaction, both in higher education and at the primary and secondary education unit level (Supriyanto et al., 2024).

The findings of the problems (Gap Research) from the SLR carried out are; 1) weak adaptive capacity, 2) lack of appropriate strategies in decision making, 3) lack of Open and Transparent Communication, 4) weak Stakeholder Empowerment and Involvement, 5) absence of sustainable Technology Capacity and Competency Development. Research has been conducted by (Hidayati, dkk) in NTB Province on application media such as e-learning by piloting it in one of the Junior High Schools in Mataram, namely SMP Negeri 11 Mataram. The results showed that students' interest in the application of this e-learning media at school was quite high, so that it could attract students to learn because it has the potential to create a pleasant learning atmosphere and make it easier for students to understand the material presented (Hidayati & Wuryandari, 2012). The research revealed that the use of digital technology in learning can increase students' interest in learning, but it is limited to experiments only and has no obligation to be implemented sustainably.

While another study conducted by (Marcel, et al.) shows that the failure rate of digital transformation is quite high up to 90% (Marcel et al., 2024). This is due to the fact that digital transformation changes so quickly and results in changes in processes, learning models, and school culture. The transformational leadership model alone has not had a significant impact on the adaptation of digital transformation. Therefore, a collaborative leadership concept is needed that requires school principals to be involved in every decision-making process and implementation of digital-based learning. Mastery of digital technology knowledge for a leader is a must to develop digital learning habits which in turn is to make a sustainable digital-based school culture. challenges such as limited technological infrastructure, resistance to change, and lack of digital literacy are still the main obstacles. Therefore, principals need to adopt a flexible and solutive approach in facing these challenges.

When viewed from these two studies, it shows that there is an imbalance between the efficient and attractive use of digital technology and the level of achievement of digital transformation. Based on preliminary studies conducted at two different schools, namely SDN 3 Mataram and SDN 28 Mataram on how Collaborative Leadership: Principal Decision-Making Strategy in Optimizing Sustainable Digital Based School Culture (DBSC) in the Era of Technological Disruption in Mataram City. The principal's collaborative leadership has an impact on the high motivation of teachers and students in the learning process. The use of digital technology such as literacy and numeracy learning applications becomes very interesting when presented by teachers in classroom learning.

4. Conclusion

Education has undergone many changes in the learning system and school management in general. Therefore, in facing the era of technological disruption, school principals need to adopt the right decision-making strategies to adapt to these developments and advances, in an effort to optimize the concept of Education transformation with Digital Technology Based School Culture. Open, participatory, and data-driven principal leadership can improve the quality of education, strengthen collaboration between stakeholders, and present innovative solutions to the challenges of technological disruption in the education unit environment. The existing challenges must be overcome with adaptive and cooperation-based strategies, so that digital transformation can be carried out effectively and sustainably.

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