Bibliometric Analysis: Resilient Future Educational Supervision for Teacher Professionalism in the Era of Digital Transformation

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ABSTRACT

Activities intended to improve the quality of learning in educational institutions are often known as educational supervision. Educational supervision should be able to adapt to technological advances in the era of digital transformation which is increasingly developing rapidly. To implement this, educational supervision is carried out through various kinds of problem-solving processes to optimally increase the efficiency and productivity of teacher professionalism. It contributes to improving the quality of education, which until now is still far from the expected standards. Supervisory role is responsible for monitoring developments in digital science and technology as well as the use of supervision techniques to improve teacher learning professionally. This research aims to analyze important role of educational supervision in developing level of teacher professionalism in the era of digital transformation. Research method used is a literature review with Publish or Perish (PoP) application and VOSviewer software to obtain results of analyzing the relationship between bibliometric data elements. Results of research analysis have shown that educational supervision is able to influence the quality of teaching and teacher professionalism in the era of digital transformation. The findings of this research include: (a) The role of educational supervision; (b) Educational supervision in developing teacher professionalism; and (c) Educational supervision in the era of digital transformation.

Keywords: Educational supervision; Teacher professionalism; Digital transformation

INTRODUCTION

Supervision in the era of digital transformation is increasingly becoming more prominent in the education system. This is because many educational and teaching institutions have developed as a result of the integration of professional teacher preparation that can be provided for their students (Starkey, 2020). The focus on educational digital competencies is identified and framed in three ways throughout the literature including generic digital competencies, digital teaching competencies as well as the emerging concept of professionalism digital competencies. Professional teachers must continue to learn to be involved in the work of a teacher in a digitally integrated education system which should support future research (Wiyono et al., 2023). The implementation of educational supervision can be considered effective when supervisors support the learning progress of trainees by providing access to appropriate training opportunities to obtain the benefits needed now and in the future (Abdulla, 2008).

Supervisors in the education sector in the future must be able to provide good feedback from participants who have been trained and accepted professionally and can respond wisely to problems that occur in each institution in accordance with the provisions of the organization's policies (Imron et al., 2023). This can be explained by educational supervisors, if in the future there are some teachers who do not consider positive guidance and advice to realize educational goals optimally (Witman,

2014). When providing constructive feedback to teachers whether formally or informally, supervisors need to meet curriculum requirements. This is relevant when focusing on educational supervisors from educators who really want to develop their competencies professionally ('Alam, Supriyanto, et al., 2023).

Another problem faced is that supervisors should provide professional guidance for teachers according to their area of expertise and teaching skills in a more innovative way based on digital technology (Rasdiana et al., 2024).Supervision must be proactive in ensuring that teachers' professional relationships continue to be strengthened by holding formal and informal meetings together and continuously (Sofyan et al., 2024). Using a fundamental approach identified in developing teacher professionalism in the era of digitalization with the use of information and communication technology can also ensure a comfortable supervision process capable of increasing teacher professionalism (Wiyono et al., 2021).

Education supervisors can show how to value supervision to the extent that teachers can adapt this process according to the needs of the current era (Patel, 2016). Meanwhile, almost all supervisors felt that supervisors lacked awareness of the curriculum. The education supervisors did not prepare themselves adequately and thus lacked an understanding of the specific program foundations that had been previously reported by the relevant parties. This of course greatly influences the quality of feedback which is believed to strengthen the level of teacher professionalism which must be delivered in accordance with curriculum targets and educational objectives.

RESEARCH METHODS

This research uses a literature review method with the help of Publish or Perish (PoP) application and VOSviewer software to obtain more accurate analysis results. The database search from resilient future educational supervision for teacher professionalism in the era of digital transformation can be seen more clearly in Figure 1.

Cites		Per year	Rank	Authors	Title	Year	Publication
☑	1	0.13	1	Mozes Kurniawan	DEVELOPING TEACHER PROFESSI...	2016	Satya Widya
☑	0	0.00	2	Tota Nababan, Sah...	Educational Supervision to Increas...	2020	Proceedings c
☑	0	0.00	3	Hilde Hiim	Developing teacher professionalis...	2023	Representatic
☑	0	0.00	4	Mite Setiansah, Wi...	Teacher Challenges in Developing ...	2021	Proceedings c
☑	0	0.00	5	Sugiyanto Sugiyant...	Teacher professionalism in digital ...	2021	JPGI (Jurnal Pe
☑	0	0.00	6	Vichaya Lipipun, Ch...	Educational transformation in the ...	2023	Corporate an
☑	0	0.00	7	Afifah Tidjani, Zulfi...	The role of academic supervision i...	2023	Educenter : Jı
☑	0	0.00	8	Isjoni Isjoni, Sumar...	The Effect of School Principal Supe...	2017	International .
☑	0	0.00	9	G Qanay	Teacher Professionalism and Lead...	2021	Journal of Edu
☑	0	0.00	10	Fujiono Fujiono, Cit...	Developing Teacher Professionalis...	2023	Journal on Ed
☑	0	0.00	11	Ummi Nurul Musli...	Teacher Professionalism on the De...	2016	Register Journ
☑	0	0.00	12	Caitlin McMunn Do...	Teacher Performance Assessments ...	2018	The Wiley Har
☑	0	0.00	13	Annabel Georges, ...	Developing an Audiovisual Cultura...	2015	International .
☑	2	1.00	14	F. Sehkar Fayda-Kinik	The Digital Teacher	2022	Impact of Dig
☑	0	0.00	15	Ummi Nurul Musli...	Teacher Professionalism on the De...	2016	Register Journ

Figure 1. Database search: resilient future educational supervision for teacher professionalism in the era of digital transformation

As for clarifying the previous database search, there is also metric results data which explains publication years, citation years, papers, and so on. For more details, see Table 1.

Table 1. Data metric results

Indicators	Data Metric Results
Publication years	: 2014-2024
Citation years	: 10 (2014-2024)
Papers	: 1000
Citations	: 4378
Cites/year	: 437.80
Cites/paper	: 4.38
Authors/paper	: 1.84
h-index	: 30
g-index	: 60
hI,norm	: 20
hI,annual	: 2.00
hA-index	: 12
Papers with ACC >= 1,2,5,10,20	: 152, 79, 36, 14, 9

Literature reviews can provide some analysis of better understanding because they have a detailed overview of the current state of research regarding the use of digital technology media to share knowledge (Ahmed et al., 2019). A literature review is conducted in an effort to explain the various topics that will be discussed later, propose categorizations that have been previously observed, highlight the main issues described in the study, and to answer ongoing research questions in this field (Milian et al., 2019). A literature review is a review of literature from various articles and research journals and literature studies that are considered more relevant for use today (Snyder, 2019).

RESULTS AND DISCUSSION
Result

Final result makes it possible to group together a series of research and critical analyzes regarding inclusion of digital technologies in the context of the role educational supervision. Findings from bibliometric network analysis and visualization using VOSviewer can be seen in Figure 2.

Figure 2. Bibliometric network analysis and visualization results

In this sense, it can be seen that established conceptual frameworks and pedagogical strategies of media education can and should be expanded to meet the new challenges posed by digital and social media. This will present several reflections as an epigraph to the special edition of learning in the era of digital transformation and success for a brighter future. Education is one of the fundamental domains of life that is being re-engineered to adopt life values that will function in this new era of digitalization. A school paradigm that relies on the conditions and requirements of the digital transformation era seems to be able to meet all life needs and learning demands in the 21st century (Saykili, 2019). Based on the results of bibliometric network analysis and visualization in VOSviewer in Figure 2, it has been shown that teacher professionalism is an important factor in the role of educational supervision in the era of digital transformation which is increasingly visible in the world of technology-based education. For more details about the findings from educational supervision, see Figure 3.

Figure 3. Resilient future educational supervision

Based on Figure 3, it can be seen that there are three important things that must be considered in implementing educational supervision, including the role of educational supervision, educational supervision in developing teacher professionalism, and educational supervision in the era of digital transformation. Educational supervision itself also has a very important role in the teacher professional development process in today's digital era. The approach from each field of education is broader and more critical towards the rise of digital capitalism and the presence of digital media in everyday life (Buckingham, 2020).

Discussion

Changes in increasingly advanced times have made schools as educational institutions, required to produce a generation that can answer the various needs of society. To give birth to a quality generation, of course, the role of educational institutions and educational staff must be of good quality. This will all be born with supervision within the scope of education carried out by educational supervisors (Ilham, 2017). role of the principal as a supervisor is also the main role carried out by the principal as a supporter of the educational process in certain educational institutions. To be able to provide a deeper and clearer understanding of the important role of educational supervision, an analysis of the understanding of the professionalism of teaching staff was carried out when implementing teaching and learning activities in the classroom and virtually.

Role modeling, teaching and guidance, coaching, and supervision lie within the mentoring spectrum of increasingly structured interactions and are assisted by assessment, feedback, and personal supports that culminate in a mentoring approach (Radha Krishna et al., 2019). In this case, validation still requires a reconceptualization of mentoring that is appropriate for each process and changes to the mentor training program are also needed and how in the future there will be mentoring activities that can be assessed and supported comprehensively. By understanding the role of educational supervision, it is certainly hoped that supervisors will be able to carry out their role to the maximum extent possible.

The role of supervision is one of the most important parts for progress and development in the world of education (Reuven Even Zahav et al., 2020). Supervision satisfaction plays an important role in developing teachers' professional identity to be able to carry out their duties well. Satisfaction from the role of educational supervision refers to the extent to which the supervisor's expectations from training are in line with how supervision is carried out and with the results. When teachers feel that the supervisor is interested in the learning process that has been carried out and is available when needed, they will feel more satisfied with the results of the supervision (Amirulloh et al., 2019).

In addition, the satisfaction felt by teachers and students will depend on different aspects of the supervision process such as the quality of the relationship with the supervisor, realizing the potential of teachers and students, emotional support provided, the feeling that the time devoted to supervision is used efficiently, professional development experience, and so on (Sunandar et al., 2023). The role of educational supervision is very important for teachers who are just starting to form their professional identity and can significantly influence students' motivation to learn and develop their skills and competencies (Rusdiana et al., 2020).

A detailed analysis of the interests in supervision activities and feedback mechanisms from the results of supervision of educational institutions is also included in the activities and processes (Haris et al., 2018). The main challenges faced by supervisors or supervisors of educational institutions and opportunities for educational supervision can be used as suggestions and constructive input, so that the organization can become even better than before. According to Rachmat Satria et al. 2019, it was found that the role of educational supervision includes the following: (a) the role of supervisors in the supervision program can reconstruct the professionalism of teacher performance which is developed in accordance with technological advances; (b) supervision is able to create competitiveness for educational graduates in today's global market; and (c) information technology-based supervision can be developed to improve professionalism, teacher competency and education quality.

Teacher professionalism is an educator or teacher who is able to competently master and control change with insight into science and technology. Professional teachers are considered capable of implementing competencies and skills innovatively with students (Nasution, 2017). The four components of competency standards that teachers must have are personality competence, pedagogical competence, professional competence and social competence. The development of teacher professionalism can be pursued through a system called educational supervision or certification with a teacher training system and professional learning assignments (Purnawanti et al., 2016).

Professionalism support for teachers and the extent to which instructional supervisors are effective in carrying out supervisory duties and knowing the main challenges of course in implementing instructional supervision based on data from "Practices and Challenges of Instructional

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467

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Supervision in Government Secondary Schools of Wolaita Zone" in 2019. Educational supervision in the development process Teacher professionals in the future will identify various needs for appropriate teacher education regarding theory, relevant practical strategies, and guidance or supervision (Lisak Šegota et al., 2020). This right is solely aimed at determining the extent to which instructional supervisors carry out their duties as optimally as possible for quality national education (Wahyudi, Arifin, 2021).

Education supervisors must be able to provide regular and adequate support to teachers in the professional development and curriculum of educational institutions (Hudaya et al., 2021). Educational supervisors are able to provide training to teachers in either pedagogical issues or the importance of instructional supervision. On the other hand, instructional educational supervision faces different challenges which can affect the implementation of effective supervision. Recommendations within the organizational scope are that educational supervisors or supervisors need to provide regular and adequate support to teachers in professional and curriculum development (Darmawan, 2023). It is better for educational supervision to focus on academic tasks by delegating administrative tasks to other personnel (Sunaryo, 2020).

Supervisors or educational supervisors are expected to put pressure on the process of forming and developing teacher professionalism with the aim of responding to the main understanding and needs related to each of their duties (Astuti, 2019). The formation of teacher professionalism that intends to support reform in the world of education and combat educational decline must start with teaching teachers (Maulana et al., 2021). With this consistent improvement, it is hoped that students can learn well so that educational and teaching goals can be achieved optimally.

The model designed by each education supervisor must include the ability to carry out basic duties and functions as an educator such as personal, pedagogical, professional and social competencies, especially for teachers who are assigned to manage and provide educational services for students with special needs (Haerani et al., 2020). Training programs are also useful for improving the quality of teacher performance, so that they can have a positive influence on educational success. The implications that can be provided gradually by highly dedicated educational supervisors will be able to increase initiatives for developing teacher professionalism (Vereijken et al., 2018).

Teachers will often receive systematic support in learning, therefore rely largely on formal and informal learning opportunities in educational organizations. A teacher's learning is documented in one year where he did not have systematic support but had to adapt to the educational innovations of the digital transformation era. Various research also shows that in one consecutive year teachers learn and receive supervision individually or in groups. During the supervision process, teachers become aware of beliefs and patterns that previously prevented them from changing (Hoekstra & Korthagen, 2011). This awareness triggered significant changes in classroom beliefs and behavior as well as the way teachers carried out teaching and learning activities in the classroom. It is also shown that professional learning will occur only if a teacher is supported in learning how to deal effectively with the personal factors involved in the learning process (Tampang & Wonggo, 2018).

The role of educational supervisors, supervisor skills, and perceptions about what supervision is and the challenges of the digital era all depend on the readiness of teachers. It can be concluded that there is evidence at the level of implications for a group of supervisors, because the procedures used in this perception are most suitable for monitoring and developing the teacher's teaching work delivered to students. Understanding educational supervision as an administrative practice that is adapted to certain procedures with applicable supervisory and punitive functions can later change habits for the better scientifically and culturally. This will be considered as an additional instrument for future teacher professional development. When educational supervisors take over the character of accompanying teachers in the classroom during learning activities, this process has been considered an event and not a space or moment of practical training for some supervisors and teachers (Nicaquela & Assane, 2021).

An important role in educational supervision in the era of digital transformation is to create awareness about digital ethics. Considering current needs, it is considered quite important to monitor and teach students how to behave in a digital world. If you already have experience with digital technology, you often need to create awareness because of the important rules that play an active role in the world of education (Ismail, 2018). Digital ethics provides insight for parents, educators and

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468

students because there is a lot of knowledge that discusses behavior, best practices for using technology, and consequences for making maximum use of technological resources (Alam et al., 2023). To become an informed digital citizen, you must be able to learn the topics and issues of digital transformation in order to be able to adapt to the environment. This is a continuous learning process and with new technology of course new potential is created in the future.

Human rights in the era of digital transformation are the main human rights specifications stipulated in the constitutions of various countries and guaranteed by international law (Berlyavskiy et al., 2020). Most professional teachers also study various major human rights problems such as politics, socio-economics, students' personalities and so on which can be used as guarantees for new conditions in the current era of digital transformation. Education and skill acquisition are very important to solve some of the world's most pressing problems or problems (Muslihati et al., 2022). Education is a basic right that supports other rights such as health and community participation (Pratiwi et al., 2020). One of the main keys to unlocking the development potential of students, the wider community and the country is to provide educational supervision that is appropriate to the level of need (Savu, 2020).

The provision of information technology is prepared for the digital world where students will be able to be responsible by making appropriate choices and enjoy the many benefits that accompany the use of digital technology, while educators play an important role as educational service providers. Students must learn several kinds of skills that can be flexible and easily adaptable in the current digital era where this is also guided by teachers or professional educators (Rachmat Satria et al., 2019). Of course, workers will need many skills such as the ability to read and count as well as the ability to think critically and solve problems collaboratively (Dina Destari, 2023). The world needs to immediately rethink the way education is conducted, how it is delivered, and what skills students need to become healthy and productive members of society in the future (Sunarni et al., 2019).

The country's past contributions and potential for innovation and the creation of better education in the era of digital transformation need to be understood now, more than ever. Of course, the country also has its own obstacles, its role in educational innovation and technological transformation is increasingly being challenged and stripped away in many other countries (Hanna, 2018). This educational supervision role demands new capabilities from the state to suit the demands of the era of digital transformation in the field of education in particular. This is a call for strategic learning and the entire teaching staff who have contributed to advancing the nation's education ('Alam, Wiyono, et al., 2023). Learning at this time must of course be able to master various forms of digital transformation and be able to show that the role of educational supervision is very important and must continue to develop in synchronization with wider society (Prihatin, 2022).

CONCLUSIONS

The conclusion that can be drawn is that there is full involvement from the role of educational supervisors to be able to advance and develop every competency possessed by teachers in an educational institution. Increasing teacher professionalism can create new breakthroughs for educational organizations to be able to develop hidden potential that has not been properly channeled. The important role of educational supervision will continue to keep up with the times which continue to advance rapidly in the era of digital transformation. The recommendation that can be given to future researchers is to carry out various research regarding the implementation of strategies and special techniques in carrying out the role of supervision by using technology and artificial intelligence to be able to face the challenges of the era of digital transformation which continues to develop in the world of education.

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