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A SYSTEMATIC LITERATURE REVIEW ON ACADEMIC SUPERVISION AND DIGITAL LEADERSHIP PRACTICES IN CREATING TEACHER'S PERFORMANCE

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Abstract. This study aims to systematically analyze the roles of academic supervision and digital leadership in enhancing teacher performance in the digital era. Principals are expected to not only manage educational activities but also lead teachers in integrating technology to improve instructional quality. Despite growing literature on both topics, there is a lack of comprehensive synthesis regarding their combined effect on teacher performance. Using the PRISMA protocol, this systematic literature review identified 276 articles from Scopus and Google Scholar databases, from which 20 articles met the inclusion criteria after a rigorous screening and quality appraisal process. The results indicate that effective academic supervision and digital leadership by school principals are key factors in improving teacher competence, motivation, and technological integration in teaching. The majority of the reviewed studies used quantitative methods and were grounded in theories such as clinical supervision, digital leadership, and teacher performance. These findings highlight the necessity of structured supervision programs and digital leadership competencies to face the challenges of educational transformation. The study recommends future efforts to strengthen school leadership capacity through targeted training, promote digital literacy, and implement collaborative supervisory strategies to optimize teacher performance in the evolving educational landscape.

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INTRODUCTION

The purpose of supervision activities is to identify instructors' understanding of their areas of weakness and common errors that need to be corrected to improve teaching and learning (Magen-Nagar & Firstater, 2019). To achieve a better state, supervision helps teachers and students become more adept at handling challenging. In addition to providing guidance, supervision evaluates the instructional process critically. The level of learning in a school setting reflects the instructors' technical expertise (Nasser, 2017).

The scope and priorities of the educational supervision program are related to management tasks in the field of curriculum management, management of students, management of personnel, management of facilities and infrastructure, management of the budget and financing of educators, management of educational institutional cooperation with the community, and management of other special fields in accordance with the type and characteristics of educational institutions (Anderson & Pounder, 2018; Clarke, 2020; Conroy et al., 2025; İrban, 2023).

Educational supervision entails making the most of teachers' roles, the availability of facilities and infrastructure, curriculum design, learning systems, and evaluation and measurement tools to enhance the quality of the educational process in schools (Chang et al., 2022; Dhanpat & Naicker, 2024; Prestiadi et al., 2022; Yuliana et al., 2023). The supervisor has a duty and responsibility to continuously monitor how these elements are developing.

The leadership of the principal is vital in managing educational activities and generating high-caliber human resources. Since the principal's leadership resources may impact the performance of the school organization, the task and function of the principle is to increase the competencies of the teachers in their work (Karkouti et al., 2022). The ability of the principal to plan, manage, and mobilize teachers and staff, which becomes the principal's major duty, is

essential to the operation of a congenial and pleasant organization (Nash et al., 2021; U-Sayee & Adomako, 2021). As a result, the school's principal oversees assuring the institution's quality, which includes enhancing the competencies of both instructors and students in carrying out the teaching process (Ramos-Pla et al., 2021; Taghavinia et al., 2021). In those responsibilities, a variety of actions are required to produce the desired results.

Learning activities that are still traditional and out of date will suffer from the teacher's lack of awareness of technology (Maden, 2023; Panakaje et al., 2024; Spiteri & Chang Rundgren, 2020; Thapa et al., 2024; Theodorio, 2024). As a result, because they believe learning experiences have been subpar, students will eventually experience learning saturation (Dinayusadewi & Agustika, 2020; Okta Priantini, 2021). To enhance learning results, it makes digitalization of instructional activities vital. The industrial revolution 4.0, which calls for teachers to have additional skills like digital competence, is in accordance with Education 4.0 and is why the educational system is being digitalized (Shodiq & Zainiyati, 2020). To maximize learning results, digitizing learning is therefore necessary. Some earlier studies also supported the idea that modern technology has a significant influence in schooling (Ghory & Ghafory, 2021). To arrange online learning, principals must take an active part in ensuring that every instructor has access to the newest technologies (AlAjmi, 2022; Konstantinidou & Scherer, 2022).

The principal's leadership is crucial in recognizing that schools are accustomed to utilizing the most recent technology in teaching and learning process (Liao et al., 2021; Navaridas-Nalda et al., 2020). To achieve educational objectives, principals must be able to use all available resources to their fullest potential (Agustina et al., 2020). Leadership is the art of organizing and inspiring people to take on new challenges and improve the efficiency of the school system. For activities to run smoothly and effectively so that they can achieve designated educational objectives, principals must possess skills in influencing, encouraging, guiding, directing, and mobilizing others who are involved in the implementation and development of education (Effendi et al., 2020; Ramos-Pla et al., 2021).

Digital leadership refers to leadership that involves using contemporary technology (AlAjmi, 2022; Karakose et al., 2021). Digital leadership is the skill of leading, influencing others, bringing about sustainable change through information access, and developing connections to foresee developments that will be crucial to future academic success (Karakose et al., 2021). Because it incorporates digital tools into every aspect of education management, digital leadership will result in change (Ilomäki & Lakkala, 2018). Through a process of strategic planning that is in line with the mission of the school, digital gadgets are also required as learning resources. The benefit of this kind of leadership is that it is required to include digital technology into instructional activities, making learning more flexible and accessible.

To improve learning outcomes, an effective instructional process also depends on the quality of the teachers (Cunningham et al., 2022). To enable the successful execution of the plan to promote digital education, principals must allocate ongoing training with teacher competencies. According to earlier study, it is imperative to apply the digital leadership strategy of today (Navaridas-Nalda et al., 2020). Even though there has been a lot of writing about leadership, the topic of digital leadership vision has not yet been broadly, fully, and thoroughly explored (Ismail & Aisyah, 2021).

There are many studies on academic supervision and digital leadership, but there hasn't been any in-depth research on how academic supervision and digital leadership influences the teacher's performance to adopt and use technology. Therefore, a systematic review or meta-analysis that can comprehensively synthesize different aspects of academic supervision and digital leadership research is required. This paper is an effort in that direction, and it seeks to significantly contribute to the literature in two ways. Based on two decades' worth of gathered research, it first maps the nomological network of academic supervision and digital leadership. Second, it identifies crucial research gaps in the body of knowledge to enhance the study of academic supervision and digital leadership. Based on the description above, this article aims to get answers to research questions, as follows:

RQ 1 : What are the characteristics of the data based on topic, country of origin and year of research?
RQ 2 : What are the dominant research methods used in studies on academic supervision and digital leadership?
RQ 3 : What theories and concepts are used to analyze the implementation of academic supervision and digital leadership?
RQ 4 : What is the positive effect of academic supervision and digital leadership on teacher performance?
RQ 5 : What solutions can be applied in facing challenges and obstacles in the implementation of academic supervision and digital leadership in teacher performance.

RESEARCH METHODS

The PRISMA recommendations were created to assist researchers in producing better systematic reviews and meta-analyses reporting and to help them steer clear of writing mistakes that could cause unintentional bias. PRISMA is also appropriate for the field of educational management. Papers and literature searches were carried out using Scopus and Google Scholar as the main database. Both site indexers have their advantages and disadvantages. The advantage of Google Scholar compared to Scopus is that it searches for all educational or scientific documents, so that we can see the number of locations of all our documents that are presented online. While Scopus only counts the number of citations among documents indexed by Scopus. However, Google Scholar lacks historical depth, as Google only indexes document available online. Identification, screening, and eligibility are the three key phases in a systematic review of the literature (Figure 1).

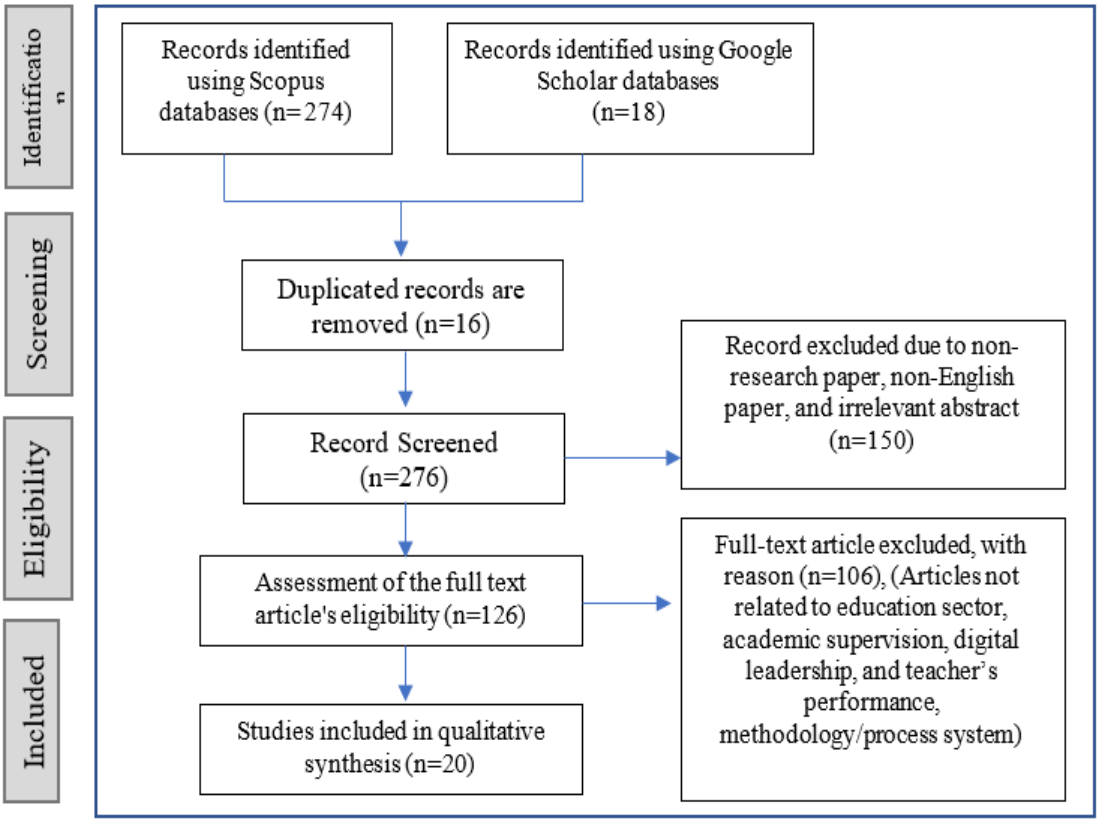

Figure 1. Flowchart for the research

1) Identification

Identification is the process of looking up every possible synonym, phrase connected to it, and variations for the main research keyword. The keywords to be used in the search procedure are determined at this stage. Keywords are made based on the topic of study as stated. After

involving all related keywords, search arrangements were made for the Scopus database in November 2022. Due to its many advantages, including advanced search level capabilities, rigor (indexing more than 5000 publishers), quality control over articles, and a multidisciplinary focus, which includes studies that related. A total of 274 articles from the Scopus database were retrieved and 18 additional articles from Google Scholar. In the initial step of the systematic literature payment procedure, 276 articles were retrieved in all.

2) Screening

The purpose of the initial screening stage is to eliminate duplicate articles. In this case, articles were screened using the following inclusion and exclusion criteria:

- Journals (research papers) are the only literature that gets attention because they serve as the main source of empirical data. Therefore, the current study does not include systematic reviews, reviews, meta-analyses, meta-synthesis, book series, book chapters, or conference proceedings.
- Evaluation is limited to articles in English.
- Only research related to the field of education is selected.

Overall, of the remaining 276 articles, 150 items were disqualified under those standards and 126 articles are currently subject to review.

3) Eligibility

In the third step, eligibility, the author manually checks the articles to ensure everything that remains (after the screening procedure) meets the requirements. Read the title and abstract of the article as the first step in this stage. Due to their lack of focus on the education sector, their lack of explanation about academic supervision and digital leadership, and their imprecise approach, 106 articles were omitted from this procedure. Only 20 articles were selected overall.

4) Quality Appraisal

Colleagues were involved in this step to evaluate the 20 papers that were obtained in the previous stage, especially those who were involved in academic supervision. This is to ensure whether the existing articles meet the quality requirements from the supervisor's point of view.

5) Data Abstraction and Analysis

Assessment and analysis were performed on the remaining publications. Focused efforts are made on research that provides answers to the questions posed. To extract data, abstracts and entire papers were thoroughly examined before identifying pertinent topics and sub-themes. The 20 publications have gone through in-depth analysis, especially in the abstract, findings, and discussion sections. The research question serves as the basis for data abstraction, which means that all information from the studied study that can help answer the research question is retrieved and entered a table.

The authors double-checked all the main themes and sub-themes created during this approach to ensure utility and accurate representation of the data. The correctness of these themes is then reviewed. The author then moves on to the next step by setting a theme for each group and its subgroups.

RESULTS AND DISCUSSION

RQ 1. The Characteristics of the Data Based on Topic, Country of Origin and Year of Research

The systematic review identified three primary research foci across the 20 selected studies: academic supervision (9 articles), digital leadership (7 articles), and teacher performance (4 articles). This distribution reflects a growing scholarly attention toward the intersection between instructional improvement strategies and the leadership dynamics that mediate them. The dominance of studies on academic supervision underscores its foundational role in shaping instructional practices, while the increasing presence of digital leadership research signals a paradigmatic shift in educational leadership amidst rapid technological advancements.

Table 1. The Main Theme

Code	Topic	Country	Years	Title
1	Academic Supervision	Indonesia	2022	"Clinical Supervision Model to Improve the Quality of Learning in Elementary School"
2	Academic Supervision	Norwegian	2022	"Learning from clinical supervision – a qualitative study of undergraduate medical students' experiences"
3	Academic Supervision	Iran	2022	"The Effectiveness of the Educational Supervision Model of French Classes in Iranian Language Schools Using the Situated Action Theory"
4	Academic Supervision	Indonesia	2021	"Improvement of principals' supervision competence through accompaniment in principal working groups"
5	Academic Supervision	Indonesia	2021	"Development of an Instrument for Teachers' Attitudes Towards Academic Supervision Performed by Supervisors in Schools of Special Education"
6	Clinical Supervision	Indonesia	2022	"Special Needs Elementary Schools' Clinical Supervision in Indonesia"
7	Clinical Supervision	Iran	2021	"The Effects of Implementing Clinical Supervision Model on Supervisors' Teaching Perspectives and Qualifications: A Case Study in an EFL Context"
8	Academic Supervision	Jordania	2020	"The Future Role of Vocational Education Teachers in the Professional Learning Communities in Public Schools from the Perspective of Principals and Academic Supervisors in Jordan"
9	Clinical Supervision	USA	2019	"Supporting principal supervisors: what really matters?"
10	Digital Leadership	Kuwait	2022	"The impact of digital leadership on teachers' technology integration during the COVID-19 pandemic in Kuwait"
11	Digital Leadership	Turkey	2021	"Examining Teachers' Perspectives on School Principals' Digital Leadership Roles and Technology Capabilities during the COVID-19 Pandemic"
12	Digital Leadership	USA	2021	"Supporting Professional Development Through Digital Principal Leadership"
13	Digital Leadership	Malaysia	2021	"The authority of principals' technology leadership in empowering teachers' self-efficacy towards ICT use"
14	Digital Leadership	Indonesia	2020	"Influence of the Principal's Digital Leadership on the Reflective Practices of Vocational Teachers Mediated by Trust, Self-Efficacy, and Work Engagement"
15	Digital Leadership	Greece	2020	"Leadership Types and Digital Leadership in Higher Education: Behavioral Data Analysis from University of Patras in Greece"
16	Digital Leadership	Malaysia	2020	"Initializing The Need for Digital Leadership: A Meta-Analysis Review on Leadership Styles in Educational Sector"
17	Teacher Performance	Malaysia	2020	"Relationships Between Supervision and Teachers' Performance and Attitude in Secondary Schools in Malaysia"
18	Teacher Performance	Indonesia	2022	"Implementation of Group and Individual Supervision Techniques, and Its Effect on the Work Motivation and Performance of Teachers at School Organization"
19	Teacher Performance	Peru	2021	"Management of Pedagogical Supervision and Teacher Performance in the Teaching of English in Peru"
20	Teacher Performance	Nigeria	2022	"Digital Leadership and Communication Styles on Public Primary School Teachers Job Performance in Nigeria"

Geographically, the reviewed studies exhibit notable regional diversity, with a significant proportion conducted in Indonesia (6 articles) and Malaysia (3 articles). Other countries

represented include Kuwait, Iran, and the United States (each with 2 studies), and single contributions from Nigeria, Greece, Peru, Jordan, Turkey, and Norway (Table 1). The prominence of research in Southeast Asia may be attributed to systemic educational reforms and digital transformation agendas in the region. This geographical spread demonstrates both the *universal relevance* and *local contextualization* of academic supervision and digital leadership practices.

This trend is supported by several key studies. For example, Nurlaili et al. (2021) emphasized the importance of academic supervision in the Indonesian context through professional learning communities, reflecting a regional prioritization of supervisory competence. Similarly, Agustina et al. (2020) examined digital leadership among vocational school principals in Indonesia, finding strong associations between leadership style, teacher engagement, and technology integration. These findings illustrate how national educational policies and reforms drive local research agendas.

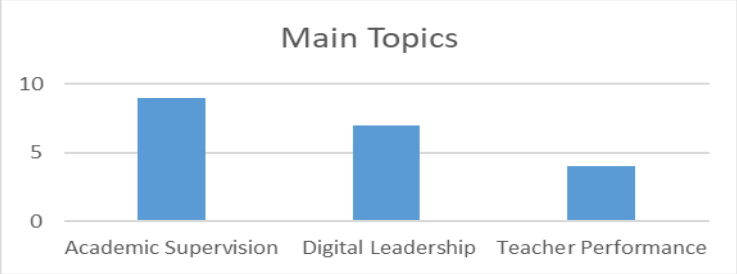

Figure 2. Main topics

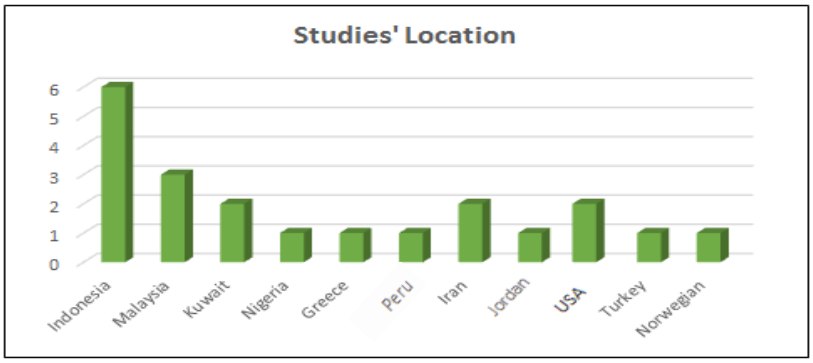

Figure 3. Studies location

Figure 3 displays the nations where the studies were carried out. Out of the 20 articles that were chosen, six studies were carried out in Indonesia, three in Malaysia, two in Kuwait, Iran, and USA and one in each of the following nations: Nigeria, Greece, Peru, Jordan, Turkey, and Norwegian.

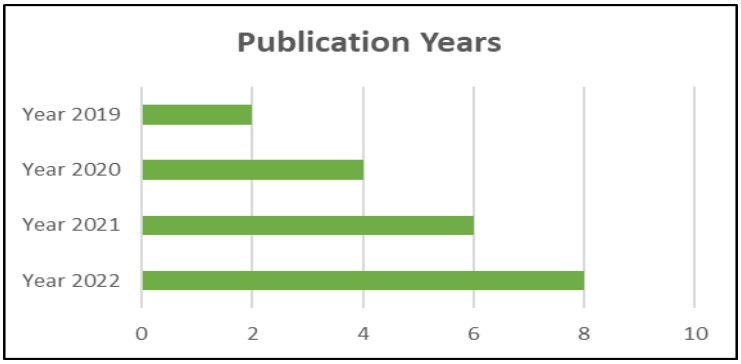

Figure 4. Publication year

Figure 4 shows the year of publication of the 20 selected papers. Two articles from 2019, four articles from 2020, six articles from 2021, and eight articles from 2022 were published out of the 20 articles selected.

Temporally, the publication trend suggests an upward trajectory in scholarly interest over recent years. Of the 20 articles, 8 were published in 2022, 6 in 2021, 4 in 2020, and 2 in 2019. This trend aligns with the global acceleration of educational digitalization, especially in response to the COVID-19 pandemic, which necessitated rapid adaptation in supervision and leadership practices. For instance, Karakose et al. (2021) explored how school principals across different countries adapted digital leadership roles during the pandemic to ensure educational continuity, while AlAjmi (2022) investigated digital leadership in Kuwait during COVID-19, highlighting the urgency for technological integration.

Thematically and temporally, the data illustrate an evolving research landscape wherein academic supervision and digital leadership are increasingly examined for their *interrelated roles* in enhancing teacher performance and school innovation. The findings also point to a *critical research momentum*—particularly in the post-pandemic era—marking a shift from traditional leadership and supervisory models toward more integrated, data-driven, and technologically adaptive educational frameworks.

RQ 2. The Dominant Research Methods Used in Studies on Academic Supervision and Digital Leadership

The analysis of the 20 selected articles reveals a methodological plurality, with a notable dominance of quantitative methods (9 studies), followed by qualitative approaches (6 studies), and a smaller presence of systematic reviews (2 studies), as well as single instances of action research, quasi-experimental, and research and development methods. This distribution suggests a research field that is both empirically grounded and methodologically diverse.

Table 2. Research Methods

No	Methods and Approaches	Article Code	Amount
1	Action Research	1	1
2	Qualitative Methods	2,4,7,8,11,12	6
3	Quasi Experimental	3	1
4	Research and Development	5	1
5	Quantitative Methods	6, 10,13,14,15,17,18,19,20	9
6	Systematic Review	9,16	2

The predominance of quantitative studies reflects an emphasis on measuring relationships between variables, such as the impact of supervision or digital leadership on teacher performance (Wiyono, et al., 2022). These studies typically employ surveys or structured instruments to generate statistically generalizable findings. For example, Ismail et al. (2021) used quantitative methods to assess how principals' digital leadership styles affect teachers' self-efficacy in technology integration.

Meanwhile, qualitative research enriches the field by uncovering nuanced, context-dependent insights into leadership behaviors and supervisory interactions. Studies by Khaef and Karimnia (2021) and Karakose et al. (2021) employed qualitative approaches—such as case studies and interviews—to examine the implementation of clinical supervision models and the lived experiences of principals during digital transitions. These studies highlight the value of qualitative methods in capturing the complexities of professional relationships and organizational dynamics.

The presence of systematic reviews (Arham et al., 2022; Morgül & Findikli, 2023) indicates a growing interest in synthesizing existing knowledge and identifying gaps in the literature. Moreover, research and development approaches, such as those used by Pristiwaluyo and Syamsuddin (2021), demonstrate efforts to construct tools and frameworks for assessing or enhancing supervisory practices.

Taken together, the methodological landscape suggests that while the field relies heavily on empirical, data-driven designs, there is also a strong recognition of the importance of interpretive and developmental methodologies. This balance enhances the robustness of

research findings and supports a more holistic understanding of academic supervision and digital leadership in diverse educational settings.

RQ 3. Theories and Concepts are Used to Analyze the Implementation of Academic Supervision and Digital Leadership

The selected articles demonstrate a diverse theoretical grounding that reflects the multifaceted nature of academic supervision and digital leadership. A total of eight dominant theoretical frameworks were identified across the reviewed literature, ranging from classical educational supervision models to emerging perspectives in digital innovation.

Table 3. Research theories and concepts used in selected articles

Code	Theory	Source
1	Theory of Clinical Supervision	(J. Chang, 2013; Evans & Marcroft, 2015, 2015; Holt et al., 2015; Kennedy et al., 2018; Lee & Kim, 2022; Martin et al., 2022; Milne et al., 2008; Morgan & Sprenkle, 2007; Murr et al., 2020; Tangen & Borders, 2017; Taylor & Sutherland, 2016; Terry et al., 2020)
2	Theory of situasional action	(Barton-Crosby, 2022; Ernst & Gerth, 2023; Herrmann et al., 2025; Pauwels, 2018; Pauwels et al., 2018; Schepers, 2017; Wikström, 2019, 2019; Wyer et al., 2024)
3	Theory of constructivist grounded	(Allen & Davey, 2018, 2018; Crossetti et al., 2016, 2016; Herring, 2018; Keane, 2025, 2025; Kenny & Fourie, 2015; Langley, 2020; Lindqvist & Forsberg, 2023; Metelski et al., 2021)
4	Theory of socio-cultural learning	(Antón, 2014; Coppens & Kelley, 2025; Eun, 2010; Guile & Popov, 2025; Mahuri et al., 2023; Matthews & Cobb, 2005; Mirza, 2014; Tenenberg & Knobelsdorf, 2014; Walqui, 2010)
5	Theory of Leadership	(Alexander et al., 2024; Berkery & Ryan, 2023; Holmes, 2024; Ratan et al., 2024; Ratchford, 2025; Tabassum et al., 2023; Zhong et al., 2024)
6	Theory of Digital Leadership	(Arees, 2025; Bach, 2024; Benitez et al., 2022; Diniz et al., 2024; Fang, 2023; Figueiredo & Rodrigues, 2024; Gierlich-Joas et al., 2020; Kaiyai et al., 2024; Lin, 2024; Malik et al., 2024; Memon & Ooi, 2023; Morgül & Findikli, 2023; Musid et al., 2024; Tigre et al., 2024, 2025)
7	Theory of Teacher Performance	(Alves et al., 2018; Ithnain & Saidin, 2021; Mesquita, 2018; Mohammadi & Faskhodi, 2020; Rogers, 2017; Ruiz et al., 2019; Xia & Long, 2025; Yoon & Goddard, 2023)
8	Theory of Path-Goal	(Al Mazrouei & Bakri, 2023; Bakri et al., 2023; Bastari et al., 2020; Dokony et al., 2020; Ferrari, 2024; Iddrisu & Mohammed, 2025; Porter & Bigley, 2016; Ratyana et al., 2013; Schriesheim et al., 2006)

Table 3 lists theories and ideas for the studies of teacher effectiveness, digital leadership, and academic supervision. Theories and concepts used in academic supervision are clinical supervision theory, situational action theory, and constructivist theory, and socio-cultural learning theory. Theories used for digital leadership are leadership theory and digital leadership theory. The study of teacher performance using teacher performance theory and path-goal theory. In the domain of academic supervision, several studies employed the Clinical Supervision Theory (Kennedy et al., 2018), which posits that supervisory processes should be reflective, dialogic, and grounded in structured feedback cycles. This theory informed the work of Khaef and Karimnia (2021), who demonstrated how the Clinical Supervision Model can enhance the teaching perspectives of supervisors and promote critical reflection.

Another notable framework is Situational Action Theory, which was utilized to understand how contextual dynamics and teacher agency interact within supervision models (Sadeghpour et al., 2022). This theory supports flexible supervisory approaches that adapt to institutional and cultural environments. Additionally, Constructivist Grounded Theory and

Socio-Cultural Learning Theory provided conceptual depth to qualitative studies exploring teachers' sense-making, agency, and professional development within supervisory contexts (Allen & Davey, 2018).

For digital leadership, the reviewed articles predominantly applied Digital Leadership Theory and general Leadership Theory to examine how principals adapt, lead innovation, and integrate technology within school systems (AlAjmi, 2022; Karakose et al., 2021; Lin, 2024). These frameworks conceptualize leadership as a dynamic, technology-mediated process that enables distributed learning, visionary planning, and capacity building in digital ecosystems. For example, Ismail et al. (2021) found that digital leadership significantly enhanced teachers' self-efficacy in ICT integration, affirming the relevance of technology-driven leadership models.

In studies focusing on teacher performance, researchers employed Teacher Performance Theory (Alves et al., 2018; Xia & Zhou, 2025) and the Path-Goal Theory of Leadership (Bakri et al., 2023) to explore how leadership behaviors and supervisory strategies influence motivation, instructional quality, and goal achievement. These theories help elucidate the mediating role of teacher attitudes and leadership style in improving performance outcomes.

The wide array of theoretical perspectives found in the reviewed literature illustrates a growing interdisciplinarity in the study of supervision and leadership in education. Rather than relying on singular theoretical models, researchers are increasingly integrating conceptual frameworks to address the complexity of teacher performance, especially in the context of digital transformation. This theoretical plurality also offers valuable opportunities for developing hybrid models that can better capture the dynamic interplay between supervision, leadership, and performance in contemporary educational settings.

RQ 4. The Positive Effect of Academic Supervision and Digital Leadership on Teacher Performance

Academic supervision plays a transformative role in shaping teacher performance by fostering pedagogical reflection, enhancing instructional competence, and reinforcing professional motivation. Studies demonstrate that structured supervision—particularly through clinical, group, and individualized approaches—enables teachers to critically reflect on their instructional practices, address specific challenges, and develop adaptive strategies (Wiyono, et al., 2022). This aligns with the tenets of Clinical Supervision Theory, which emphasize dialogical feedback, reflective inquiry, and collaborative goal setting as drivers of instructional growth (Chang, 2013; Milne et al., 2008).

For example, Khaef and Karimnia (2021) found that implementing the Clinical Supervision Model (CSM) not only improved supervisors' pedagogical perspectives but also stimulated critical thinking and professional autonomy among teachers. Similarly, studies by Pristiwaluyo and Syamsuddin (2021) suggest that academic supervision has a direct impact on the perceived efficacy and commitment of special education teachers. These findings underscore the developmental orientation of supervision practices when grounded in context-sensitive and teacher-centered models.

In parallel, digital leadership has emerged as a key enabler of teacher performance in technologically evolving school ecosystems. Principals who demonstrate digital leadership competencies—visionary thinking, strategic resource allocation, and the cultivation of a digital learning culture—are better positioned to enhance teacher engagement with educational technologies (AlAjmi, 2022; Karakose et al., 2021). Grounded in Digital Leadership Theory, such leadership fosters an environment in which teachers are empowered to experiment with digital tools, engage in ongoing professional learning, and co-create innovative instructional strategies (Gierlich-Joas et al., 2020; Lin, 2024).

Digital leaders also serve as catalysts for collective efficacy by modeling technology use and facilitating professional networks, which, in turn, inspire teachers to adopt new pedagogical paradigms (Lin, 2024; Sterrett & Richardson, 2020). As such, digital leadership not only facilitates access to digital infrastructure but also reshapes school culture to become more agile, collaborative, and innovation-driven.

The synergy between academic supervision and digital leadership is particularly evident in contexts where instructional improvement and technological transformation are pursued simultaneously. Together, these constructs elevate teacher performance by integrating continuous pedagogical support with adaptive digital competencies—essential attributes for navigating the demands of Education 4.0. Notably, the convergence of these practices reinforces teacher agency, deepens instructional quality, and ultimately contributes to more resilient and future-ready educational systems.

RQ 5. Solutions in facing challenges and obstacles in academic supervision and digital leadership in teacher performance

Teachers can find faults and shortcomings that arise during the learning process with the aid of group and individual clinical monitoring procedures. Principals and teachers are seeking for methods to improve the standard of learning based on these flaws and deficiencies. Teachers can therefore reflect on each lesson because they have the foundational supervisory skills (Syamsuddin et al., 2021). Students feel psychologically safe, they are more likely to act and interact during clinical supervision. One way to increase psychological safety is to foster a relationship between students and supervisors (Thyness et al., 2022). Sadeghpour et al.(2022) suggest that educational institutions need to highlight this kind of supervision and use and train educational consultants in appropriate and successful forms of educational supervision. The principal of the school has follow-up plans to increase teacher professionalism, including seminars on creating learning materials, media, and training in classroom management techniques (Nurlaili et al., 2021).

For effective teaching and learning, principals and teachers must raise awareness of the necessity of clinical supervision. To conduct clinical supervision activities in our schools, principals and supervisors require training. The budget for the principal must be set by the government. They require it under medical guidance. Simulators should be made available to school administrators for clinical supervision training. It is necessary to give cutting-edge technology tools for instructing and documenting what occurs during clinical supervision exercises (Sihombing & Manurung, 2022).

The achievement of the desired objectives in the supervisory process is strongly dependent on the "consultative" function rather than the dominant role of the supervisor, which is another significant practical consequence that can be made from the study's findings. CSM alters the traditional roles of teachers and supervisors and aids in their mutual comprehension of the primary objectives of classroom observation by offering a stimulating atmosphere. The consequence is that for the CSM implementation process to be successful, instructors and supervisors must adopt a more flexible and collaborative approach to classroom monitoring (Khaef & Karimnia, 2021).

This analysis also suggests that studies into the function of intermediary organizations or external trainers should consider the extent to which these organizations not only deliver high-quality support services but also develop district capacity in ways that lessen their reliance on outside help. In school district headquarters, where leaders' actions can send a powerful message about the worth of change when they devote their own time to supporting it rather than simply outsourcing support, such a capacity building role for outside trainers may be especially crucial.

It can be argued that school administrators help instructors in areas like developing a digital learning environment, utilizing suitable technology tools, teaching technology classes, and utilizing e-books and e-exams in order to help schools develop a culture of digital learning. The results also show that technology use, managerial skills, and personal skills are seen as the three areas in which principals' digital leadership abilities fall. As a result, school administrators can make a big contribution to achieving digital transformation in education by demonstrating how they support the company's digital learning culture (Karakose et al., 2021).

Higher education and the job of the human resources in charge of it are not promoted by the consolidation of educational leadership in previous structures, mindsets, and situations. To progressively transition into positions of educational leadership, educators must be vigilant, work hard, stay current on new technologies and the capabilities of digital tools, and take part in

top-notch training and retraining programs. If the current situation is to be a priority, central leadership mechanisms also need to provide encouragement, significant prizes for exceptional professors, and start effective appraisal systems.

Future research should concentrate on rural schools because it is vital to determine whether instructors in rural regions are subject to supervision and whether their supervisors provide them with the required help (Hoque et al., 2020). Teachers might also take part actively in activities including supervision. Techniques for individual monitoring are beneficial in boosting teachers' motivation to do their jobs well. The conditions, needs, and issues that each instructor personally faces can be discovered through the deployment of personalized supervision approaches, allowing supervisors to effectively increase their job motivation. (Wiyono et al., 2022). Teaching materials are always during teaching and learning activities to foster learning in students. School administrators should not rely on a particular style of communication within the school system. In other words, the type of teacher at school will determine the style of communication used.

The government needs to reassess the rules and regulations made to regulate the teaching profession and equip the education sector with better technology, to improve teaching and learning processes, hold seminars for school administrators on the effective use of technology. There should be self-development from school administrators regarding the use of software programs its and applications. Teachers also need self-development in the effective use of digital devices to improve their job performance and improve students' academic achievement. Students should be encouraged to install educational applications that will facilitate learning. In this digital era, school administrators must combine digital leadership and communication styles in other ways to improve teacher performance.

CONCLUSIONS AND SUGGESTIONS

For this investigation, the area of education looked at 20 papers on the role of academic supervision school principals' digital leadership strategies in fostering teacher performance. We can train educational consultants to perform at a high level of effectiveness by employing the designed model of educational supervision. Successfull in the teaching-learning process can be achieved by knowing the fundamentals of educational monitoring. To improve the standard of supervision of educational consultants in this study's typology. This analysis also revealed many more researchable subjects and any possible gaps in knowledge regarding digital leadership practices. In addition, there are three key ideas that define leadership behavior. Digital leadership practices in the education sector have been found through a thorough review. The topic that garnered the most emphasis in training for everyone, whether as individuals or as groups, was the digital era learning culture and digital citizenship because of the importance of principals' digital leadership. The study field is unequal to other academic institutions when most published works only concentrate on schools and universities without exposure. These findings provide chances for fresh research and learning for educational practitioners, authorities, and researchers to look at the role of leadership in bringing about change and growth, particularly in areas where there is a need of digital leadership practices in educational institutions.

REFERENCES

Agustina, R., Kamdi, W., Hadi, S., Muladi, & Nurhadi, D. (2020). Influence of the principal's digital leadership on the reflective practices of vocational teachers mediated by trust, self efficacy, and work engagement. *International Journal of Learning, Teaching and Educational Research*, *19*(11), 24–40. https://doi.org/10.26803/ijlter.19.11.2

Al Mazrouei, A. A., & Bakri, M. H. (2023). Leadership behaviour styles and the UAE municipalities employee's motivation through entrepreneurial mindset. *Quality - Access to Success*, *24*(194), 102–111. https://doi.org/10.47750/QAS/24.194.12

AlAjmi, M. K. (2022). The impact of digital leadership on teachers' technology integration during the COVID-19 pandemic in Kuwait. *International Journal of Educational Research*, *112*, 101928. https://doi.org/10.1016/j.ijer.2022.101928

Alexander, K. C., Mackey, J. D., Maher, L. P., McAllister, C. P., & Ellen, B. P. (2024). An implicit leadership theory examination of cultural values as moderators of the relationship between destructive leadership and followers' task performance. *International Business Review*, *33*(3), 102254. https://doi.org/10.1016/j.ibusrev.2024.102254

Allen, N., & Davey, M. (2018). The Value of Constructivist Grounded Theory for Built Environment Researchers. *Journal of Planning Education and Research*, *38*(2), 222–232. https://doi.org/10.1177/0739456X17695195

Alves, M. P., Cunha, P., Lourenço, A. A., & Monteiro, A. P. (2018). Teachers' perceptions about teacher performance assessment. *Revista Portuguesa de Educacao*, *31*(1), 61–78. https://doi.org/10.21814/rpe.14082

Anderson, E., & Pounder, D. G. (2018). Shaping the school-wide learning environment through supervisory leadership. In *The Wiley Handbook of Supervision* (pp. 533–554). wiley. https://doi.org/10.1002/9781119128304.ch22

Antón, M. (2014). Sociocultural perspectives. In *The Routledge Handbook of Hispanic Applied Linguistics* (pp. 9–24). Taylor and Francis. https://doi.org/10.4324/9781315882727-10

Arees, B. A. S. (2025). Digital Leadership: Challenges and Opportunities in the Era of Technology. *Journal of Ecohumanism*, *4*(2), 601–607. https://doi.org/10.62754/joe.v4i2.6269

Arham, A. F., Norizan, N. S., Arham, A. F., Hasbullah, N. N., Najihah, I., Malan, B., & Alwi, S. (2022). Initializing The Need For Digital Leadership: A Meta-Analysis Review On Leadership Styles In Educational Sector. *Journal of Positive School Psychology*, *2022*(8), 2755–2773. https://journalppw.com/index.php/jpsp/article/view/10280

Bach, R. (2024). A phenomenological learning approach to leading digitalization. *Business Horizons*, *67*(4), 345–355. https://doi.org/10.1016/j.bushor.2024.04.001

Bakri, M. H., Al Mazrouei, A. A., Ismail, A. F., Md Razak, M. I., & De Mello, G. (2023). The Impact of Leadership Styles Among UAE Municipalities Employees. *Global Business and Finance Review*, *28*(4), 115–131. https://doi.org/10.17549/gbfr.2023.28.4.115

Barton-Crosby, J. (2022). The nature and role of morality in situational action theory. *European Journal of Criminology*, *19*(6), 1421–1437. https://doi.org/10.1177/1477370820977099

Bastari, A., Eliyana, A., & Wijayanti, T. W. (2020). Effects of transformational leadership styles on job performance with job motivation as mediation: A study in a state-owned enterprise. *Management Science Letters*, *10*(12), 2883–2888. https://doi.org/10.5267/j.msl.2020.4.019

Benitez, J., Arenas, A., Castillo, A., & Esteves, J. (2022). Impact of digital leadership capability on innovation performance: The role of platform digitization capability. *Information and Management*, *59*(2). https://doi.org/10.1016/j.im.2022.103590

Berkery, E., & Ryan, N. F. (2023). A longitudinal study investigating changing implicit leadership theory in an Irish business school. *Gender in Management*, *38*(5), 687–702. https://doi.org/https://doi.org/10.1108/GM-10-2021-0319

Chang, J. (2013). A Contextual-Functional Meta-Framework for Counselling Supervision. *International Journal for the Advancement of Counselling*, *35*(2), 71–87. https://doi.org/10.1007/s10447-012-9168-2

Chang, T.-J., Sung, Y.-T., & Chiou, H.-J. (2022). Exploring the Multilevel Mediation Effects of Teacher Collaboration on the Correlation Between Principal Instructional Leadership and Teacher Self-Efficacy: Education Level as a Moderator. *Journal of Research in Education Sciences*, *67*(4), 35–72. https://doi.org/10.6209/JORIES.202212_67(4).0002

Christiana Obadimeji, C., & Olasumbo Oredein, A. (2022). Digital Leadership and Communication Styles on Public Primary School Teachers Job Performance in Nigeria. *Science Journal of Education*, *10*(1), 1. https://doi.org/10.11648/j.sjedu.20221001.11

Clarke, F. R. (2020). Educational supervision in obstetrics and gynaecology. *Obstetrics, Gynaecology and Reproductive Medicine*, *30*(7), 225–227. https://doi.org/10.1016/j.ogrm.2020.03.007

Conroy, D., Down, N., & Morgan, H. (2025). Managing your placement and supervision. In *A Student's Guide to Placements in Health and Social Care Settings: From Theory to Practice* (pp. 95–107). Taylor and Francis. https://doi.org/10.4324/9781041053972-10

Coppens, A. D., & Kelley, R. (2025). Building from Sociocultural Learning Theory to Culturally Responsive Assessment. In *Culturally Responsive Assessment in Classrooms and Large-Scale Contexts: Theory, Research, and Practice* (pp. 17–33). Taylor and Francis. https://doi.org/10.4324/9781003392217-3

Crossetti, M. G. O., de Goes, M. G. O., & de Brum Federal, C. N. (2016). Application of constructivist grounded theory in nursing research. *Qualitative Report*, *21*(13), 48–53. https://doi.org/10.46743/2160-3715/2016.2610

Cunningham, C., Zhang, W., Striepe, M., & Rhodes, D. (2022). Dual leadership in Chinese schools challenges executive principalships as best fit for 21st century educational development. *International Journal of Educational Development*, *89*, 102531. https://doi.org/10.1016/j.ijedudev.2021.102531

Dhanpat, K., & Naicker, S. R. (2024). Perceptions of principals and district officials regarding how the school district supports principals' instructional leadership. *Perspectives in Education*, *42*(4), 349–365. https://doi.org/10.38140/pie.v42i4.8510

Dinayusadewi, N. P., & Agustika, G. N. S. (2020). Development Of Augmented Reality Application As A Mathematics Learning Media In Elementary School Geometry Materials. *Journal of Education Technology*, *4*(2), 204. https://doi.org/10.23887/jet.v4i2.25372

Diniz, D. M., Carvalho Neto, A. M., & Sant'anna, A. S. (2024). Digital Leadership: Much Ado about Nothing? *BAR - Brazilian Administration Review*, *21*(3). https://doi.org/10.1590/1807-7692bar2024240035

Dokony, H. A. I., Singh, J. S. K., & Arumugam, T. (2020). The influence of leadership behaviors based on the path-goal theory towards employees' satisfaction in a developing nation. A study in the telecommunication sector in N'djamena, Chad. *International Journal of Psychosocial Rehabilitation*, *24*(2), 1324–1336. https://doi.org/10.37200/IJPR/V24I2/PR200432

Effendi, Y. R., Bafadal, I., Sudana, I. N. D., & Arifin, I. (2020). The principal transformational leadership strategy in developing national policies for strengthening character education in eastern Indonesia. *Italian Journal of Sociology of Education*, *12*(2), 51–78. https://doi.org/10.14658/pupj-ijse-2020-2-3

Ernst, A., & Gerth, M. (2023). Explaining cheating in schools with Situational Action Theory: Within-estimations using a German school panel. *European Journal of Criminology*, *20*(5), 1621–1640. https://doi.org/10.1177/14773708211055270

Eun, B. (2010). From learning to development: A sociocultural approach to instruction. *Cambridge Journal of Education*, *40*(4), 401–418. https://doi.org/10.1080/0305764X.2010.526593

Evans, C., & Marcroft, E. (2015). Clinical supervision in a community setting. *Nursing Times*, *111*(22), 16–18. https://europepmc.org/article/med/26201154

Fang, L. (2023). Examining the Effects of Digital Leadership Strategies on Enhancing Organizational Innovation Performance. *Journal of Logistics, Informatics and Service Science*, *10*(4), 318–335. https://doi.org/10.33168/JLISS.2023.0422

Ferrari, F. (2024). Path-Goal Theory and Followers' Work Engagement: An Empirical Exploration of the Situational Leadership Approach. In P. M. (Ed.), *Proceedings of the European Conference on Management, Leadership and Governance* (Vol. 20, Issue 1, pp. 182–191). Academic Conferences and Publishing International Limited. https://doi.org/10.34190/ecmlg.20.1.3173

Figueiredo, P., & Rodrigues, R. (2024). Digital Leadership and Virtual Performance. In *New Research on Leadership Styles and Performance* (pp. 187–202). Nova Science Publishers,

Inc. https://www.isg.pt/wp-content/uploads/2024/11/2024_Digital-leadership_Chapter-12.pdf

Ghory, S., & Ghafory, H. (2021). The impact of modern technology in the teaching and learning process. *International Journal of Innovative Research and Scientific Studies*, *4*(3), 168–173. https://doi.org/10.53894/ijirss.v4i3.73

Gierlich-Joas, M., Hess, T., & Neuburger, R. (2020). More self-organization, more control—or even both? Inverse transparency as a digital leadership concept. *Business Research*, *13*(3), 921–947. https://doi.org/10.1007/s40685-020-00130-0

Guile, D., & Popov, J. (2025). Machine learning and human learning: a socio-cultural and -material perspective on their relationship and the implications for researching working and learning. *AI and Society*, *40*(2), 325–338. https://doi.org/10.1007/s00146-024-01891-6

Herring, J. E. (2018). Constructivist grounded theory: A 21st century research methodology. In *Research Methods: Information, Systems, and Contexts: Second Edition* (pp. 225–240). Elsevier Inc. https://doi.org/10.1016/B978-0-08-102220-7.00009-1

Herrmann, C., Uhl, A., & Treiber, K. H. (2025). Peeking into the Black Box of Offender Decision-Making: A Novel Approach to Testing Situational Action Theory's Perception Choice Process. *Deviant Behavior*. https://doi.org/10.1080/01639625.2025.2494144

Holmes, W. T. (2024). The four frames of leadership and motivating language theory: Version 2.0. *Development and Learning in Organizations: An International Journal*, *39*(1), 14–17. https://doi.org/10.1108/DLO-01-2024-0016

Holt, H., Beutler, L. E., Kimpara, S., Macias, S., Haug, N. A., Shiloff, N., Goldblum, P., Temkin, R. S., & Stein, M. (2015). Evidence-based supervision: Tracking outcome and teaching principles of change in clinical supervision to bring science to integrative practice. *Psychotherapy*, *52*(2), 185–189. https://doi.org/10.1037/a0038732

Hoque, K. E., Bt Kenayathulla, H. B., D/O Subramaniam, M. V., & Islam, R. (2020). Relationships Between Supervision and Teachers' Performance and Attitude in Secondary Schools in Malaysia. *SAGE Open*, *10*(2), 1–11. https://doi.org/10.1177/2158244020925501

Iddrisu, I., & Mohammed, B. (2025). Exploring the Impact of Leadership Styles on Organizational Effectiveness: the Mediating Role of Employee Motivation and Engagement. *Public Organization Review*. https://doi.org/10.1007/s11115-025-00845-w

Ilomäki, L., & Lakkala, M. (2018). Digital technology and practices for school improvement: innovative digital school model. *Research and Practice in Technology Enhanced Learning*, *13*(1), 25. https://doi.org/10.1186/s41039-018-0094-8

İrban, D. (2023). An Evaluation of the Application of the Clinical Supervision Model. *Milli Egitim*, *52*(238), 1501–1516. https://doi.org/10.37669/milliegitim.1094754

Ismail, N., & Aisyah, S. (2021). Islamic Social Finance: A Bibliometric Analysis. *Global Review of Islamic Economics and Business*, *9*(2), 19–28. https://doi.org/10.14421/grieb.2021.092-02

Ismail, S. N., Omar, M. N., & Raman, A. (2021). The authority of principals' technology leadership in empowering teachers' self-efficacy towards ict use. *International Journal of Evaluation and Research in Education*, *10*(3), 878–885. https://doi.org/10.11591/ijere.v10i3.21816

Ithnain, I., & Saidin, K. (2021). The effectiveness of professional development model in enhancing teachers' competencies. *Malaysian Online Journal of Educational Management*, *9*(4), 32–52. https://jpmm.um.edu.my/index.php/MOJEM/article/view/32917

Kaiyai, H., Kenaphoom, S., & Pommarang, S. (2024). Indicator of the digital leadership skill. In *Consumer and Organizational Behavior in the Age of AI* (pp. 251–270). IGI Global. https://doi.org/10.4018/979-8-3693-8850-1.ch009

Karakose, T., Polat, H., & Papadakis, S. (2021). Examining Teachers' Perspectives on School Principals' Digital Leadership Roles and Technology Capabilities during the COVID-19 Pandemic. In *Sustainability* (Vol. 13, Issue 23). https://doi.org/10.3390/su132313448

Karkouti, I. M., Abu-Shawish, R. K., & Romanowski, M. H. (2022). Teachers understandings of the social and professional support needed to implement change in Qatar. *Heliyon*, *8*(1). https://doi.org/10.1016/j.heliyon.2022.e08818

Keane, E. (2025). CONSTRUCTIVIST GROUNDED THEORY IN QUALITATIVE RESEARCH FOR SOCIAL JUSTICE: PURPOSE, PROCESS, PROMISE. *New Trends in Qualitative Research*, *21*(2). https://doi.org/10.36367/ntqr.21.2.2025.e1289

Kennedy, E.-K., Keaney, C., Shaldon, C., & Canagaratnam, M. (2018). A relational model of supervision for applied psychology practice: professional growth through relating and reflecting. *Educational Psychology in Practice*, *34*(3), 282–299. https://doi.org/10.1080/02667363.2018.1456407

Kenny, M., & Fourie, R. (2015). Contrasting classic, straussian, and constructivist grounded theory: Methodological and philosophical conflicts. *Qualitative Report*, *20*(8), 1270–1289. https://doi.org/10.46743/2160-3715/2015.2251

Khaef, E., & Karimnia, A. (2021). The Effects of Implementing Clinical Supervision Model on Supervisors' Teaching Perspectives and Qualifications: A Case Study in an EFL Context. *Education Research International*, *2021*(1), 6138873. https://doi.org/10.1155/2021/6138873

Konstantinidou, E., & Scherer, R. (2022). Teaching with technology: A large-scale, international, and multilevel study of the roles of teacher and school characteristics. *Computers & Education*, *179*, 104424. https://doi.org/10.1016/j.compedu.2021.104424

Langley, E. (2020). Doing constructivist grounded theory research. In *Enjoying Research in Counselling and Psychotherapy: Qualitative, Quantitative and Mixed Methods Research* (pp. 95–114). Springer International Publishing. https://doi.org/10.1007/978-3-030-55127-8_6

Lee, S.-N., & Kim, H.-J. (2022). The Experiences of Psychiatric Mental Health Nurse Practitioners with Clinical Supervision in South Korea: A Grounded Theory Approach. *International Journal of Environmental Research and Public Health*, *19*(23). https://doi.org/10.3390/ijerph192315904

Liao, Y.-C., Ottenbreit-Leftwich, A., Glazewski, K., & Karlin, M. (2021). Coaching to support teacher technology integration in elementary classrooms: A multiple case study. *Teaching and Teacher Education*, *104*, 103384. https://doi.org/10.1016/j.tate.2021.103384

Lin, Q. (2024). Digital leadership: a systematic literature review and future research agenda. *European Journal of Innovation Management*. https://doi.org/10.1108/EJIM-07-2023-0522

Lindqvist, H., & Forsberg, C. (2023). Constructivist grounded theory and educational research: constructing theories about teachers' work when analysing relationships between codes. *International Journal of Research and Method in Education*, *46*(2), 200–210. https://doi.org/10.1080/1743727X.2022.2095998

Maden, C. (2023). Improving Teachers' Skills for Pedagogic Use of Educational Technologies: Turkish Perspective. In *Research, Policymaking, and Innovation: Teacher and Education Development in Belt and Road Countries* (pp. 285–302). Springer Nature. https://doi.org/10.1007/978-981-19-4349-2_14

Magen-Nagar, N., & and Firstater, E. (2019). The Obstacles to ICT Implementation in the Kindergarten Environment: Kindergarten Teachers' Beliefs. *Journal of Research in Childhood Education*, *33*(2), 165–179. https://doi.org/10.1080/02568543.2019.1577769

Mahuri, D., Dorovolomo, J., & Mwaraksurmes, A. (2023). Teachers' perceptions of socio-cultural practices on students' academic achievement in North Pentecost, Vanuatu. *International Education Journal*, *22*(2), 77–91. https://openjournals.test.library.sydney.edu.au/IEJ/article/view/17726

Malik, M., Raziq, M. M., Sarwar, N., & Tariq, A. (2024). Digital leadership, business model innovation and organizational change: role of leader in steering digital transformation. *Benchmarking*. https://doi.org/10.1108/BIJ-04-2023-0283

Martin, P., Kumar, S., Tian, E., Argus, G., Kondalsamy-Chennakesavan, S., Lizarondo, L., Gurney, T., & Snowdon, D. (2022). Rebooting effective clinical supervision practices to

support healthcare workers through and following the COVID-19 pandemic. *International Journal for Quality in Health Care*, *34*(2). https://doi.org/10.1093/intqhc/mzac030

Matthews, M. W., & Cobb, M. B. (2005). Broadening the interpretive lens: Considering individual development along with sociocultural views of learning to understand young children's interactions during socially mediated literacy events. *Journal of Literacy Research*, *37*(3), 325–364. https://doi.org/10.1207/s15548430jlr3703_3

Memon, K. R., & Ooi, S. K. (2023). Identifying digital leadership's role in fostering competitive advantage through responsible innovation: A SEM-Neural Network approach. *Technology in Society*, *75*. https://doi.org/10.1016/j.techsoc.2023.102399

Mesquita, S. S. A. (2018). Benchmarks of the "good high school teacher": Theoretical discussion exercise. *Cadernos de Pesquisa*, *48*(168), 506–531. https://doi.org/10.1590/198053144820

Metelski, F. K., dos Santos, J. L. G., Cechinel-Peiter, C., Fabrizzio, G. C., Schmitt, M. D., & Heilemann, M. (2021). Constructivist Grounded Theory: characteristics and operational aspects for nursing research. *Revista Da Escola de Enfermagem*, *55*, 1–9. https://doi.org/10.1590/S1980-220X2020051103776

Milne, D., Aylott, H., Fitzpatrick, H., & Ellis, M. V. (2008). How does clinical supervision work? Using a best evidence synthesis approach to construct a basic model of supervision. *Clinical Supervisor*, *27*(2), 170–190. https://doi.org/10.1080/07325220802487915

Mirza, N. M. (2014). Frames, framing and thinking space: A sociocultural exploration within an educational project. In *Activities of Thinking in Social Spaces* (pp. 65–82). Nova Science Publishers, Inc. https://www.scopus.com/inward/record.uri?eid=2-s2.0-84949543819&partnerID=40&md5=20e0a4434e91d1ded16af99f9947fc59

Mohammadi, M., & Faskhodi, A. A. (2020). Modeling AMO Factors Affecting English Teachers' Performance Using System Dynamics. *Language Teaching Research Quarterly*, *16*, 22–39. https://doi.org/10.32038/ltrq.2020.16.02

Morgan, M. M., & Sprenkle, D. H. (2007). Toward a common-factors approach to supervision. *Journal of Marital and Family Therapy*, *33*(1), 1–17. https://doi.org/10.1111/j.1752-0606.2007.00001.x

Morgül, G., & Findikli, M. A. (2023). Game makers of the digital world: A literature review on digital leaders. In *Organizational Behavior in the Digital World* (pp. 165–178). Nova Science Publishers, Inc. https://www.scopus.com/inward/record.uri?eid=2-s2.0-85179561126&partnerID=40&md5=1b26fefa7622482a2369b91e174ce5b1

Murr, S., Nicklas, L., & Harper, S. (2020). How does supervision aid cognitive behaviour therapy skill development? Perspectives of CBT trainees: A thematic analysis. *Cognitive Behaviour Therapist*. https://doi.org/10.1017/S1754470X20000422

Musid, N. A., Matore, M. E. E. M., & Hamid, A. H. A. (2024). A scoping review on mapping the digital leadership constructs for educational settings: what we can learn? *International Journal of Evaluation and Research in Education* , *13*(1), 111–121. https://doi.org/10.11591/ijere.v13i1.26760

Nash, R., Otten, C., Pill, S., Williams, J., Mainsbridge, C., Cruickshank, V., & Elmer, S. (2021). School leaders reflections on their school's engagement in a program to foster health literacy development. *International Journal of Educational Research Open*, *2*, 100089. https://doi.org/10.1016/j.ijedro.2021.100089

Nasser, R. (2017). Qatar's educational reform past and future: challenges in teacher development. *Open Review of Educational Research*, *4*(1), 1–19. https://doi.org/10.1080/23265507.2016.1266693

Navaridas-Nalda, F., Clavel-San Emeterio, M., Fernández-Ortiz, R., & Arias-Oliva, M. (2020). The strategic influence of school principal leadership in the digital transformation of schools. *Computers in Human Behavior*, *112*, 106481. https://doi.org/10.1016/j.chb.2020.106481

Nurlaili, N., Warman, W., & Raolah, R. (2021). Improvement of principals' supervision competence through accompaniment in principal working groups. *Cypriot Journal of Educational Sciences*, *16*(4), 1704–1720. https://doi.org/10.18844/cjes.v16i4.6033

Okta Priantini, D. A. M. M. (2021). The Development of Teaching Video Media Based on Tri Kaya Parisudha in Educational Psychology Courses. *Journal of Education Technology*, *4*(4 SE-Articles), 448–455. https://doi.org/10.23887/jet.v4i4.29608

Panakaje, N., Ur Rahiman, H., Parvin, S. M. R., Shareena, P., Madhura, K., Yatheen, M., & Irfana, S. (2024). Revolutionizing pedagogy: navigating the integration of technology in higher education for teacher learning and performance enhancement. *Cogent Education*, *11*(1). https://doi.org/10.1080/2331186X.2024.2308430

Pauwels, L. J. R. (2018). Analysing the perception–choice process in Situational Action Theory. A randomized scenario study. *European Journal of Criminology*, *15*(1), 130–147. https://doi.org/10.1177/1477370817732195

Pauwels, L. J. R., Svensson, R., & Hirtenlehner, H. (2018). Testing Situational Action Theory: A narrative review of studies published between 2006 and 2015. *European Journal of Criminology*, *15*(1), 32–55. https://doi.org/10.1177/1477370817732185

Porter, L. W., & Bigley, G. A. (2016). Motivation and Transformational Leadership: Some Organizational Context Issues. In *Organizational Influence Processes, Second Edition* (pp. 263–274). Taylor and Francis. https://doi.org/10.4324/9781315290614-24

Prestiadi, D., Nurabadi, A., & Ubaidillah, E. (2022). Effectiveness of Implementation of Instructional Supervision during the COVID-19 Pandemic through Utilization of Information and Communication Technology. *Proceedings - 2022 2nd International Conference on Information Technology and Education, ICIT and E 2022*, 391–397. https://doi.org/10.1109/ICITE54466.2022.9759862

Pristiwaluyo, T., & Syamsuddin, S. (2021). Development of an Instrument for Teachersâ€™ Attitudes towards Academic Supervision performed by Supervisors in Schools of Special Education. *Journal of Educational Science and Technology (EST)*, *7*(1), 40–49. https://doi.org/10.26858/est.v7i1.12954

Ramos-Pla, A., Tintoré, M., & del Arco, I. (2021). Leadership in times of crisis. School principals facing COVID-19. *Heliyon*, *7*(11). https://doi.org/10.1016/j.heliyon.2021.e08443

Ratan, B. M., Antoniewicz, L., Kilpatrick, C. C., & Greely, J. T. (2024). Utilizing Complexity Leadership Theory to Promote Faculty Mentorship and Resident Leadership. *Journal of Surgical Education*, *81*(7), 938–946. https://doi.org/10.1016/j.jsurg.2024.04.001

Ratchford, F. M. (2025). An adult nursing undergraduate student's perspective: Theory-practice gap, innovation and leadership. *Nurse Education Today*, *149*, 106637. https://doi.org/10.1016/j.nedt.2025.106637

Ratyana, T., Khalaf, B., & Rasli, A. (2013). Overview of path-goal leadership theory. *Jurnal Teknologi (Sciences and Engineering)*, *64*(2), 49–53. https://doi.org/10.11113/jt.v64.2235

Rogers, C. (2017). A Social psychology of schooling: The expectancy process. In *A Social Psychology of Schooling: The Expectancy Process*. Taylor and Francis. https://doi.org/10.4324/9781315225180

Ruiz, A. G., Jiménez-Vásquez, M. S., & Díaz-Barriga, Á. (2019). Evaluación del desempeño docente en Chile y México: Antecedentes, convergencias y consecuencias de una política global de estandarización. *Perfiles Educativos*, *40*(163), 156–176. https://www.scielo.org.mx/scielo.php?pid=S0185-26982019000100177&script=sci_arttext

Sadeghpour, R., Safa, P., & Gashmardi, M. R. (2022). The Effectiveness of the Educational Supervision Model of French Classes in Iranian Language Schools Using the Situated Action Theory. *Language Related Research*, *13*(1), 29–64. https://doi.org/10.52547/LRR.13.1.2

Schepers, D. (2017). Causes of the causes of juvenile delinquency: Social disadvantages in the context of situational action theory. *European Journal of Criminology*, *14*(2), 143–159. https://doi.org/10.1177/1477370816649622

Schriesheim, C. A., Castro, S. L., Zhou, X. T., & DeChurch, L. A. (2006). An investigation of path-goal and transformational leadership theory predictions at the individual level of analysis. *Leadership Quarterly*, *17*(1), 21–38. https://doi.org/10.1016/j.leaqua.2005.10.008

Shodiq, I. J., & Zainiyati, H. S. (2020). Pemanfaatan Media Pembelajaran E-Learning Menggunakan Whastsapp Sebagai Solusi Ditengah Penyebaran Covid-19 Di Mi Nurulhuda Jelu. *Al-Insyiroh: Jurnal Studi Keislaman*, *6*(2), 144–159. https://doi.org/10.35309/alinsyiroh.v6i2.3946

Sihombing, W. L., & Manurung, N. (2022). Special Needs Elementary Schools' Clinical Supervision In Indonesia. *Education Quarterly Reviews*, *5*(3), 550–556. https://doi.org/10.31014/aior.1993.05.03.566

Spiteri, M., & Chang Rundgren, S.-N. (2020). Literature Review on the Factors Affecting Primary Teachers' Use of Digital Technology. *Technology, Knowledge and Learning*, *25*(1), 115–128. https://doi.org/10.1007/s10758-018-9376-x

Sterrett, W., & Richardson, J. (2020). Supporting professional development through digital principal leadership. *Journal of Organizational & Educational Leadership*, *5*(2), 4. https://digitalcommons.gardner-webb.edu/joel/vol5/iss2/4

Syamsuddin, A., Babo, R., Sulfasyah, & Rahman, S. (2021). Mathematics Learning Interest Of Students Based On The Difference In The Implementation Of Model Of Thematic Learning And Character-Integrated Thematic Learning. *European Journal of Educational Research*, *10*(2), 581–591. https://doi.org/10.12973/EU-JER.10.2.581

Tabassum, M., Raziq, M. M., & Sarwar, N. (2023). Toward an overarching multi-level conceptualization of emergent leadership: Perspectives from social identity, and implicit leadership theories. *Human Resource Management Review*, *33*(2), 100951. https://doi.org/10.1016/j.hrmr.2022.100951

Taghavinia, M., Maleki, M. R., & Arabshahi, K. S. (2021). Educational leadership in education development centers: A qualitative study. *Journal of Education and Health Promotion*, *10*(1). https://doi.org/10.4103/jehp.jehp_733_20

Tangen, J. L., & Borders, L. D. (2017). Applying Information Processing Theory to Supervision: An Initial Exploration. *Counselor Education and Supervision*, *56*(2), 98–111. https://doi.org/10.1002/ceas.12065

Taylor, A., & Sutherland, A. (2016). CLINICAL SUPERVISION - WHAT ABOUT THE SPECIALIST TRAINEES? *Archives of Disease in Childhood*, *101*(9), e2. https://doi.org/10.1136/archdischild-2016-311535.24

Tenenberg, J., & Knobelsdorf, M. (2014). Out of our minds: A review of sociocultural cognition theory. *Computer Science Education*, *24*(1), 1–24. https://doi.org/10.1080/08993408.2013.869396

Terry, D., Nguyen, H., Perkins, A. J., & Peck, B. (2020). Supervision in healthcare: A critical review of the role, function and capacity for training. *Universal Journal of Public Health*, *8*(1), 1–14. https://doi.org/10.13189/ujph.2020.080101

Thapa, P., Jaheer Mukthar, K. P., & Aoun, M. (2024). The Role of Educators in Integrating Technology into Education: A Conceptual Proposition. In *Studies in Systems, Decision and Control* (Vol. 537, pp. 635–644). Springer Science and Business Media Deutschland GmbH. https://doi.org/10.1007/978-3-031-62106-2_48

Theodorio, A. O. (2024). Examining the support required by educators for successful technology integration in teacher professional development program. *Cogent Education*, *11*(1). https://doi.org/10.1080/2331186X.2023.2298607

Thyness, C., Aslak, S., & and Grimstad, H. (2022). Learning from clinical supervision – a qualitative study of undergraduate medical students' experiences. *Medical Education Online*, *27*(1), 2048514. https://doi.org/10.1080/10872981.2022.2048514

Tigre, F. B., Henriques, P. L., & Curado, C. (2024). The digital leadership emerging construct: a multi-method approach. *Management Review Quarterly*. https://doi.org/10.1007/s11301-023-00395-9

Tigre, F. B., Henriques, P. L., & Curado, C. (2025). The digital leadership emerging construct: a multi-method approach. *Management Review Quarterly*, *75*(1), 789–836. https://doi.org/10.1007/s11301-023-00395-9

U-Sayee, C. R., & Adomako, E. B. (2021). Supervisory practices and challenges faced by senior high school principals in Greater Monrovia, Liberia: implications for quality education. *Heliyon*, *7*(4). https://doi.org/10.1016/j.heliyon.2021.e06895

Walqui, A. (2010). The Growth of Teacher Expertise for Teaching English Language Learners: A Socio-Culturally Based Professional Development Model. In *Teacher Preparation for Linguistically Diverse Classrooms: A Resource for Teacher Educators* (pp. 160–177). Taylor and Francis. https://doi.org/10.4324/9780203843239-19

Wikström, P.-O. H. (2019). Situational Action Theory: A General, Dynamic and Mechanism-Based Theory of Crime and Its Causes. In *Handbooks of Sociology and Social Research* (pp. 259–281). Springer Science and Business Media B.V. https://doi.org/10.1007/978-3-030-20779-3_14

Wiyono, B. B., Imron, A., & Arifin, I. (2022). The Effectiveness of Utilizing Information and Communication Technology in Instructional Supervision with Collegial Discussion Techniques for the Teacher's Instructional Process and the Student's Learning Outcomes. *Sustainability (Switzerland)*, *14*(9). https://doi.org/10.3390/su14094865

Wiyono, B. B., Widayati, S. P., Imron, A., Bustami, A. L., & Dayati, U. (2022). Implementation of Group and Individual Supervision Techniques, and Its Effect on the Work Motivation and Performance of Teachers at School Organization. *Frontiers in Psychology*, *13*(July). https://doi.org/10.3389/fpsyg.2022.943838

Wyer, T., Love, S., Anderson, L., & Truelove, V. (2024). Location, location, location! An application of situational action theory to phone use while driving in different environments. *Transportation Research Part F: Traffic Psychology and Behaviour*, *106*, 356–369. https://doi.org/10.1016/j.trf.2024.08.020

Xia, Y., & Long, Y. (2025). Development and validation of the teacher performance appraisal questionnaire (TPAQ) for primary schools: a study of Guizhou, China. *Asia Pacific Journal of Education*. https://doi.org/10.1080/02188791.2024.2448151

Xia, Y., & Zhou, X. (2025). Improving the Use of Parallel Analysis by Accounting for Sampling Variability of the Observed Correlation Matrix. *Educational and Psychological Measurement*, *85*(1), 114–133. https://doi.org/10.1177/00131644241268073

Yoon, I., & Goddard, R. D. (2023). Professional development quality and instructional effectiveness: Testing the mediating role of teacher self-efficacy beliefs. *Professional Development in Education*. https://doi.org/10.1080/19415257.2023.2264309

Yuliana, L., Setiawan, J., & Fadli, M. R. (2023). The performance of vocational high school principal's learning supervision in Indonesia. *International Journal of Evaluation and Research in Education*, *12*(3), 1486–1496. https://doi.org/10.11591/ijere.v12i3.24995

Zhong, J., Ma, C., Chen, Z. X., Zhang, L., & Zhang, X. (2024). Humble leader, successful follower: Linking leader humility with follower career outcomes via leader competence from an implicit leadership theory perspective. *Journal of Vocational Behavior*, *155*, 104060. https://doi.org/10.1016/j.jvb.2024.104060