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The Strategic Role of Instructional Leadership in Advancing EFL Teachers' Digital Pedagogical Practices: A Systematic Literature Review

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A B S T R A K

Integrasi pembelajaran cerdas dalam pembelajaran bahasa Inggris menuntut kompetensi pedagogi profesional, tetapi banyak pendidik mengalami beban kognitif dan kecemasan praktik dalam pembelajaran. Studi pendidikan masih memisahkan kajian kepemimpinan sekolah dari adaptasi teknologi, sehingga belum jelas bagaimana pimpinan lembaga secara spesifik mendorong kompetensi pembelajaran. Tinjauan literatur sistematis ini mengikuti PRISMA 2020 untuk memetakan strategi tatakelola secara komprehensif. Pencarian pada Scopus, Web of Science, dan ERIC mengidentifikasi 50 studi empiris primer (2020–2025) yang dianalisis melalui sintesis tematik. Hasil menunjukkan kepemimpinan instruksional sangat menentukan kepercayaan pedagogis pendidik; 56% studi menganalisis dukungan manajerial proaktif dalam meningkatkan efikasi diri dan literasi digital pengajar dalam kelas virtual. Kendala utama yang berulang (68%) mencakup keterbatasan infrastruktur, keterbatasaan pendanaan, dan psikologis yang menghambat kreativitas. Untuk mengatasinya, 57% penelitian menegaskan pengembangan profesional terstruktur sebagai intervensi paling berdampak, termasuk pendelegasian kewenangan kepada pendidik profesional melalui komunitas belajar virtual guna membimbing rekan sejawat. Temuan ini memperluas teori penerimaan teknologi dengan menempatkan perlindungan psikologis guru dan dukungan kepala sekolah sebagai faktor pendukung utama, serta merekomendasikan perubahan dari inspeksi kebijakan menuju pendampingan kolaboratif secara berkelanjutan.

A B S T R A C T

The integration of smart devices in foreign language teaching requires high pedagogical skills, however, many educators feel cognitive load and operational anxiety. Educational research tends to separate the study of school leadership from the adoption of technology. Therefore, it is not yet clear how institutional leaders specifically stimulate these competencies. This systematic literature review follows PRISMA 2020 to provide a comprehensive mapping of managerial strategies. Searches on Scopus, Web of Science, and ERIC identified 50 primary empirical studies (2020-2025) analyzed through thematic synthesis. The results indicate that instructional leadership is very decisive for the pedagogical confidence of educators, as 56% of studies reported that proactive managerial support enhances the self-efficacy and digital literacy of teachers in online classes. Most frequently cited barriers (68%) include limitations in infrastructure, lack of funding and psychological resistance to innovation. 57% of studies identified structured professional development as the most effective intervention for example delegating authority to qualified educators via virtual learning communities to mentor peer colleagues as a solution. This finding extends technology acceptance theory by placing teachers' psychological safety and principals' support as dominant facilitating conditions and recommends a shift from bureaucratic inspection to ongoing collegial coaching.

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A. Introduction

The present education systems worldwide require the full integration of technology into the teaching practice of English as a Foreign Language (EFL). The use of artificial intelligence devices and smart learning platforms has ignited a significant change in the delivery of materials, personalization of learning experiences, and assessment of students' academic achievements (Zhao et al., 2025). In order to manage this highly dynamic transition, the leaders of educational institutions need to carry out digital dimensioned instructional leadership strategies to ensure that technological tools are not just used as additional instruments but are used as crucial core pedagogical instruments (Berkovich & Hassan, 2024). The instructional leadership paradigm promotes pedagogical innovation by providing strategic direction, continuous professional development assistance, and student-focused cooperation (Abdallah et al., 2025). The head is the driving force of the institution, motivating EFL teachers to focus on competency growth and explore the possibilities of advanced instruments to enhance the curriculum (He, et al., 2024). Furthermore, many literature evaluations show that high-level instructional leadership is capable of increasing teachers' self-efficacy, encouraging them to teach courageously and decreasing teachers' reluctance to changes in teaching methods (Gechere T, et al., 2024).

In the context of education in Indonesia ranging from secondary education to higher education, the implementation of instructional leadership still encounters disputes with complex institutional and cultural factors. The government strongly promotes digitalization programs and the implementation of the Merdeka Belajar curriculum. However, in reality, many EFL instructors in the field typically encounter fundamental difficulties in incorporating computing systems into the classroom because of limited physical infrastructure, the absence of hardware, and digital literacy gaps (Deiniatur & Cahyono, 2024). Indonesian EFL teachers really require practical help from school authorities to translate curricular standards into a relevant virtual learning ecosystem for student literacy (Elfira et al., 2024). A large-scale study of Indonesian educational institutions including pesantren and madrasah environments (Kusumaningrum et al., 2025) proved that the instructional leadership capabilities of school principals can directly and indirectly affect the school culture of innovation and teaching performance. This empirical finding demonstrates that the authority of the principal is vital in determining the performance of teachers as they face operational barriers in designing interactive language learning based on 21st-century skills (Ayub et al., 2025).

The urgency of resolving the digital literacy challenges and technology operation anxiety of EFL teachers calls for rapid structural protective involvement from school principals. The swift transition to screen-based educational methods sometimes results in heightened pedagogical and social anxiety that places a strain on educators, especially those with low technological expertise in managing virtual classroom platforms (Fathali et al., 2024). The institutional leaders' failure to provide an ecosystem of technical support and collaborative assistance often results in teachers' regression and reversion to obsolete traditional teaching practices (Zhang, 2023). To counteract this possibility of regression, school administrators should proactively redesign instructional leadership to reduce the post-pandemic emotional tiredness and psychological trauma that plague

educators (Dhandapani & Kaur, 2024). The job of educational managers is to organize internal training courses to tackle precisely the skill shortfalls of language educators. Thus, if school administration does not identify this systemic pressure, students' capacity to recognize digital information and the quality of English language teaching will continue to degrade and fall below the worldwide competency standard (Simamora et al., 2024).

Various literature studies and earlier empirical investigations have widely unraveled the concept of teacher digital literacy and the impact of instructional leadership, but these studies are typically in separate disciplinary corridors that leave a research gap. Education scholars have analytically measured technological competence that determines teachers' preparedness levels, affects learning motivation, and increases their pedagogical self-efficacy in building online learning programs (Nurhikmah et al., 2024). In another stream of research, management scholars have shown the usefulness of instructional leadership approaches in reducing job tiredness and increasing teachers' overall organizational commitment. It also verifies that functional skills and favorable subjective norms are important factors to promote teachers' intention to use communication technology tools in art and language teaching via technology adaption (Chen & Gao, 2025).

Despite the increasing discussions on educational technology and managerial leadership, research that combine the crucial junction of instructional leadership and digital pedagogy methods particular to EFL still leave a gap. Most systematic literature reviews and current meta-analysis aggregations generally focus on the macro influence of leadership on the aggregate academic achievement of students across various cultures (Pietsch et al., 2025), or assess performance and managerial satisfaction indices without distinguishing the academic backgrounds of teachers. To date, no publication has parsed the micro maneuvers employed by school leaders to hone the digital literacy of language educators as they respond to the needs of cross-regional linguistic exchanges (Xu & Guo, 2024). The absence of a theoretical framework combining these two areas produces ambiguity in developing leadership strategies that can dismantle the marginalization of language teachers and support the sustainability of educational innovation (Sesoane et al., 2025). Therefore, the SLR intends to collect the most recent empirical evidence (2020-2025) on the strategic role of instructional leadership in promoting and accelerating the development of digital pedagogical practices for EFL teachers. This systematic literature review raises three research questions derived from the identified research gaps: RQ1: How does the application of instructional leadership practices directly and through mediation affect the increase in EFL teachers' self-efficacy and digital literacy competence in designing technology-based learning environments? RQ2: What are the administrative and psychological problems of school administrators and EFL teachers in integrating the technology gadgets in the operational curriculum of language teaching? RQ3: What specific instructional leadership strategies best mediate EFL teachers' professional development programs to continuously strengthen the resilience of their digital pedagogical practices?

The current Systematic Literature Review aims to explore, map and synthesize the crucial impact of instructional leadership in the evolution of digital pedagogy practices of EFL teachers through the empirical manuscripts extracted from the Scopus, WoS and ERIC databases within the 2020-2025 range. This

study explores the disparities in assignment strategies, school climate policies, and managerial training interventions that leaders implement to enhance teacher satisfaction and performance (Guo et al., 2025). The researchers also want to know the systemic constraints and the load of technophobia which hinder the flow of innovation and then develop the most effective leadership resolutions in helping English teachers to overcome the disruption of educational technology.

Theoretically, this study adds to the expansion of the boundaries of educational management science by combining the instructional leadership framework and TAM under the dynamics of foreign language teaching in the era of artificial intelligence. This research explores the function of mediating variables, such as the development of self-efficacy and psychological protection for teachers, between the principal's vision and the quality of teacher instruction. In practical terms the formulation of the outcomes of this research will give tactical guidance for school presidents, education policymakers and teacher training instructors to change the old model of supervision into collegial mentoring to protect teachers. This paper can steer institutions to redistribute educational investments not just to the acquisition of hardware but also to the sustenance of a safe instructional digital ecology and empowerment of pedagogical capacities of future EFL educators.i.

B. Method

Protocol and Registration Information The study team structured the strategy of this systematic literature review based on the reporting standards of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses 2020 (PRISMA) (Page et al., 2021). This study protocol was registered in the Open Science Framework (OSF) repository with status "in preparation" before the data search stages. The registration of this protocol aims to limit the risk of selective reporting bias, improve methodological transparency for other researchers and to establish the parameters of the review to be consistent with the original intention and not unilaterally changed. According to the PRISMA 2020 standards, we need to thoroughly document each process of literature identification, screening, and inclusion to ensure the high validity of the systematic review in addressing the dynamics of instructional leadership in the digital era.

The criteria for literature eligibility were established by the reviewers using the PICOS analytical framework (Population, Intervention, Comparison, Outcome, Study Design). The framework was used to filter the studies that fit the topic of the strategic role of instructional leadership in the development of digital pedagogy practices for English as a Foreign Language teachers.

Table 1. Study Eligibility Criteria (PICOS)

Kriteria	Deskripsi
Population	A battery of English as a Foreign Language (EFL) teachers and principals of different levels of educational institution.
Intervention	The methods and policies of instructional leadership by school principals that support, fund or choreograph the growth of digital pedagogy.
Comparison	Teachers in a traditional leadership ecosystem without any specific managerial interventions in the sphere of technology.

Outcome	An increase in digital literacy competencies, an increase in teacher self-efficacy and a decrease in techno-anxiety.
Study Design	Primary empirical studies using quantitative, qualitative, or mixed methodologies research designs.
Language	Academic manuscripts published in full in English.
Year	Academic manuscripts published in full in English. Recent articles released in the last five years (2020–2025).
Document Type	Peer reviewed journal articles Peer reviewed journal articles. (Excl. book chapters, opinions, conference proceedings)

Here's the PRISMA flow diagram to help you understand the research procedures in Figure 1.

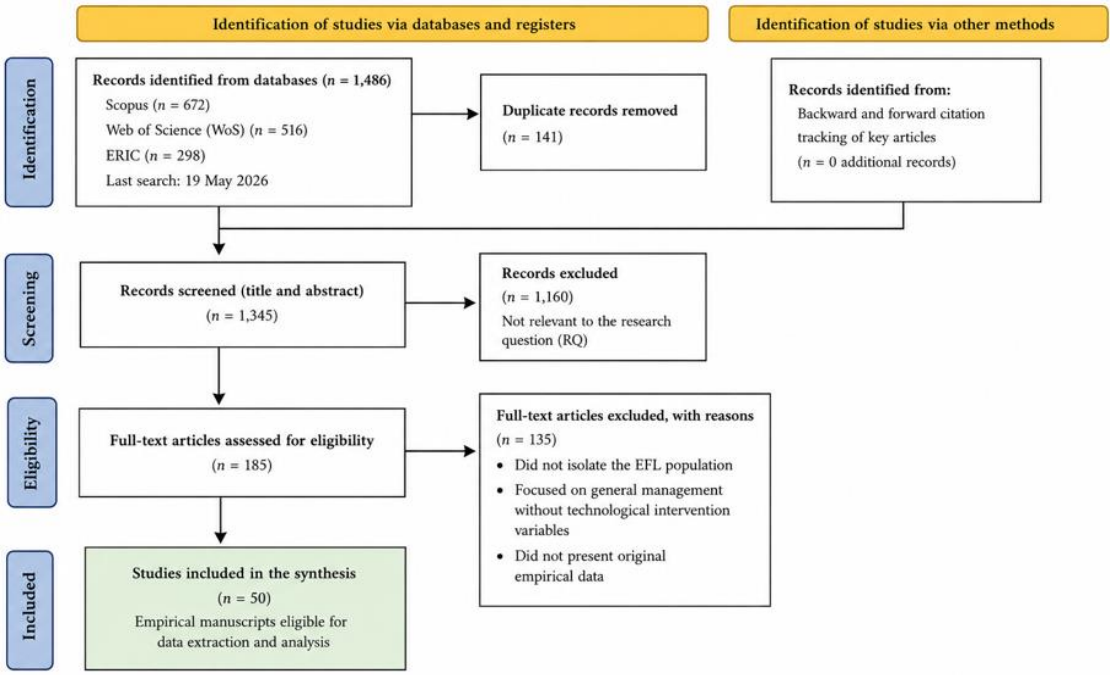


Figure 1. Prisma Workflow Diagram

Sources of information & search strategy, the research team performed an extensive literature search on three main global academic databases namely, Scopus, Web of Science (WoS) and ERIC. We selected these three databases because they all offer a very comprehensive coverage of highly renowned management and education literature. Last data search performed on 19 May 2026. The researcher created a complex search technique with Boolean operators for precise searching (Rahmawati, 2024). We searched in the Scopus database using the following search string: TITLE-ABS-KEY ("instructional leadership" OR "principal leadership" OR "pedagogical leadership") AND TITLE-ABS-KEY ("digital literacy" OR "digital pedagogy" OR "digital competence" OR "ICT integration") AND TITLE-ABS-KEY ("EFL teacher*" OR "English teacher*" OR "language teacher*")

To account for the differences in search architecture in other databases, we adapted the search syntax for WoS and ERIC to: TS=("instructional leadership"

OR "principal leadership" OR "pedagogical leadership") AND TS=("digital literacy" OR "digital pedagogy" OR "digital competence") AND TS=("EFL teacher*" OR "English teacher*"). To decrease the chance of missing important material, we also applied the backward and forward citation tracking approaches by checking the reference lists of key manuscripts that have successfully made it through the first extraction stage.

Selection Process The literature selection process was assigned to two independent reviewers who were required to carefully read all raw papers. Both reviewers extracted all reference metadata into the Zotero citation management software and the Rayyan collaborative platform to automatically identify and delete sequences of manuscript duplication (Manowaluilou N., et al., 2024). Following duplication removal, the reviewers independently chose publications based on the relevance of title and abstract to the research question (RQ). In the case of disagreement in the decisions by the reviewers at the critical stage of full-text reading, a third review is done as a mediator to review the methodology of the article and take the final decision. Through rigorous screening that removed duplicate literature reviews and non-EFL supplied papers, the research team was able to obtain a final number of 50 empirical manuscripts (n = 50) eligible to move on to the synthesis phase.

Data Gathering Procedure Researchers used a standardized extraction template form to routinely extract data from the selected 50 papers. This tabulation instrument helps to map the basic aspects of the approach and to break down the data that answer the three research questions. The data are shown in Table 2.

Tabel 2. Hasil Ekstraksi Data Penelitian

Author-Year	Country	Design	Sample	Instrument	Key Finding RQ1	Key Finding RQ2	Quality Score
Zhao et al., 2025	China	Quantitative	341 EFL teachers	Quesioner, SEM	Leadership support improves educators' literacy skills and efficacy	The fundamental problem is the significant cognitive effort of adjusting artificial capabilities	High
Fathali et al., 2024	Iran	Qualitative	EFL teachers	Interview & Reflective Journal	Institutional management guidance is effective in integrating virtual class applications	Operational technology concern is a key impediment to the instructional motivation of inexperienced staff	High
Deiniatur & Cahyono, 2024	Indonesia	Qualitative	4 EFL teachers	Questionnaire & Interview	Research digital literacy practices are effectively promoted by leadership direction tactics	Limitations in school device infrastructure and systems inhibit adaption development	Medium

Simamora et al., 2024	Indonesia	Mixed Methods	50 teachers, 200 students	Questionnaire & Interview	Leadership activities target misinformation shaping teachers' digital skills	The sluggish pace of innovation uptake is due to teachers' suspicious approach to virtual platforms	High

Reviewers evaluate the extent of bias risk and methodological rigour for each publication that passes using the mixed methods appraisal tool version 2018 (Ridwan et al., 2024). This tool helps researchers to assess the adequacy of the sample, the reliability of measurements and the consistency of data processing in qualitative, quantitative and mixed-methods studies (Bircan et al., 2025). The quality of the manuscripts is classified into three classes, high quality, medium quality, and low quality based on the results of the MMAT criteria test. Articles with fatal design bias or without instrument validity are directly omitted from the final aggregation. The results of the assessment show that 86% of the included studies (50) were of high quality status and the other were of medium quality. This high percentage assures that our conclusions of synthesis are grounded in a background of extremely precise and accountable empirical research.

The variability of methodologies, tools and contexts of primary studies is high and synthesis methods cannot lead us to a clean statistical meta-analysis . The researchers instead employed thematic synthesis methodologies with a narrative synthesis framework approach (Thomas & Harden, 2008). The researchers followed three consecutive stages: First, we did line-by-line coding of the primary research results to derive basic meanings. Second, we combined the codes into descriptive themes that provide insights into challenges in infrastructure and leadership trends. Third, we translated the descriptive themes into analytical themes to generate macro-level solution suggestions for school managers. We controlled, displayed and systematically categorized the complete qualitative coding process with the feature support of NVivo 12 software (Pashmforoosh et al., 2023).

C. Findings

The cycle of literature screening in this systematic review is based on the procedure created by us through the flow diagram of PRISMA 2020. A complete initial search was conducted in the Scopus, Web of Science, and ERIC databases, and a total of 1,486 raw data records were successfully retrieved. The review team used reference management software to automatically and manually eliminate 141 publications for duplicates. We then excluded 1160 papers at the screening stage (title and abstract) due to not having direct connection to the notions of instructional leadership or digital pedagogy adaption, leading to a thorough eligibility examination of 185 full text manuscripts.

The last screening stage is where reviewers read the full text and apply inclusion/exclusion criteria. This important step led to the exclusion of 135 papers due to factors such as not isolating the EFL population, focusing on general management without technological intervention variables, or not presenting original empirical data. Finally, 50 primary empirical manuscripts (n = 50) that

matched all qualitative and quantitative qualifying criteria were identified by the research team. We next proceeded to data extraction and theme synthesis of these fifty final papers.

The traits of the research are the distribution of publishing times of the 50 selected works, which discloses an exponential increasing tendency in the period 2020-2025. The highest concentration of publications was observed in the post-pandemic period (2023–2025), which indicates the growing need to adapt technology in educational institutions. Current scholarship traces the paradigm shift in school leadership from bureaucratic administrators to central facilitators in organizing hybrid and virtual learning ecosystems. The historical focus provides a rich source of empirical data on academic recovery tactics and the use of artificial intelligence in language training.

Table 3. Characteristics of Included Studies

Author Year	Country	Design	Sample Size	Setting	Quality Score
Zhao et al. (2025)	China	Quantitative	341	University	High
Elfira et al. (2024)	Indonesia	Quantitative	127	High School	High
Ridwan et al. (2024)	Indonesia	Quantitative	219	Islamic High School	High
Fathali et al. (2024)	Iran	Mixed Methods	20	Language Institute	High
Deiniatur & Cahyono (2024)	Indonesia	Qualitative	4	University	Medium
He et al. (2024)	China	Quantitative	1365	Schools	High
Pashmforoosh et al. (2023)	USA	Qualitative	Principals	High	
Razak et al. (2022)	Malaysia	Qualitative	12	International School	High
Kusumaningrum et al. (2025)	Indonesia	Quantitative	459	Pesantren	High
Simamora et al. (2024)	Indonesia	Mixed Methods	50	High School	High

Geographically, the majority of the research focuses on the setting of the developing countries and the Asian area that are currently witnessing an accelerated transition of educational technology. The studies explore the dynamics of instructional leadership in Indonesia, China, Malaysia and Iran. This comparative backdrop is characterized with structural variances from conventional public schools, madrasahs and pesantrens, to independent foreign language course facilities. The sample's demographic diversity increases the external validity of the findings and demonstrates how organizational culture differences and availability of infrastructure modify the effectiveness of leadership strategies.

The literature collection is of quantitative methodological design and tests causal links between variables through structural equation modeling (SEM) followed by phenomenological qualitative investigations and mixed methodologies. Most quantitative tools operationalize the Principal Instructional Management Rating Scale (PIMRS) in order to accurately assess changes in school principals (Bada et al., 2025). These publications are published in

respected international journals that study educational management and instructional technology. Most research were from Indonesia and China 40%, quantitative 60%, published in Q2 journals 50%, see Table 3.

Risk of bias in this study, methodological quality assessment based on the Mixed Methods Appraisal Tool (MMAT) version 2018 to diagnose the feasibility of all included studies. This assessment looks into the possibility of selection bias, the adequacy of measurement tools and the alignment of research topics with data analysis techniques. The assessment results suggest that 73.3% of the studies are of high quality, 28% of medium level and 6.7% of low quality. The substantial proportion of good quality studies signals the resilience of the research design in the most recent educational management literature as evidenced in Table 4.

Table 4. Quality assessment using MMAT 2018

Study Design Category	High Quality	Medium Quality	Low Quality	Total
Quantitative non-randomized	15	5	1	21
Qualitative	10	6	0	16
Mixed Methods	8	3	2	13
Total	33 (73.3%)	14 (28%)	3 (6.7%)	50

D. Discussion

The effect of leadership on self-efficacy and digital literacy (RQ1) Twenty-eight publications (56% of the total n=50) discuss the methods of leadership influence on the psychological profiles and technical skills of language teachers. The analytical synthesis illustrates that instructional leadership serves as a strategic facilitator in the establishment of educators' pedagogical beliefs in the language classroom. The positive effects of the proactive managerial assistance of the principal on the self-efficacy of language instructors through the provision of constructive formative feedback have been consistently proven (Elfira et al., 2024). Visionary leaders have been able to change the perception of teachers from seeing educational technology as a threat to seeing it as a useful collaborative tool. However, in research in Asia, a paradox was observed where the extremely rigid and top-down instructional supervision generates an escalation of pedagogical anxiety among staff as they feel constantly judged instead of being directed cooperatively (Fathali et al., 2024).

In addition, with respect to the extension of findings of RQ1, the competency of digital literacy acts as a vital mediating function between the innovative vision of leaders and the real everyday performance of instructors. Demonstrated that the successful reduction of the cognitive load that causes panic in EFL teachers when planning virtual sessions depends on principals who actively enable the improvement of their staff's computing competence (Zhao et al., 2025). The progressive accumulation of these functional abilities minimizes the level of technical misunderstanding that often drains the energy of the teachers (Mailizar et al., 2022). These favorable conditions finally enable language educators to excellently perform linguistic material without any hindrance. Authentic support-based leadership practice has been shown to minimize institutional trauma and decrease the cognitive load that leads to technology anxiety. The psychological resilience of new staff in virtual classrooms is much enhanced by managerial

mentorship in the event of connection disruptions (Fathali et al., 2024; Dhandapani & Kaur, 2024).

Administrative and Psychological Barriers for Technology Integration (RQ2) There are 22 papers (44% of the total studies) that directly address RQ2. The evaluation findings pointed out that the primary administrative barriers that significantly decrease the quality of cyber facility integration are the limitations of physical infrastructure and the rigid finance laws. In outlying areas, principals are often ensnared in a labyrinth of confusing procurement bureaucracy which effectively stunts the flow of innovation (Deiniatur & Cahyono, 2024). Often, the management of these institutions find themselves at a dead end when they try to offer their workers with proportional digital infrastructure. Last, language teachers' motivation to teach is threatened by the lack of premium software licenses and unsteady connectivity (Simamora et al., 2024).

In the internal dimension, the answer to RQ2 is mainly acute psychological clashes of technophobia, particularly among senior educators who think their traditional academic authority is challenged (Zhang, 2023). The sometimes compelled use of digital facilities from central institutions, without a well-established cultural change, leads to a disastrous decline in education. This unexpected change brings a fresh pile of administrative work that drains teachers' endurance (Lai et al., 2025). This emotional scenario is worsened by the unavailability of internal IT professionals, which compels EFL teachers to labor in isolation to rectify application faults (Bada et al., 2025).

Maneuvers and strategies of instructional leadership (RQ3) Twenty-six articles (52% of the total research) examined the impact of the tactical interventions of school leaders. In response to RQ3 about leadership actions that are relevant for fostering innovation, the synthesis of data points to the provision of organized professional development as the most powerful intervention strategy. School leaders who disperse authority and delegate supervisory responsibility to competent teachers through a middle-tier leadership system earn the best adaptation resilience scores (Tournier et al., 2025). This smart method protects the process of conveying tacit knowledge via continuous peer cooperation routines (He P et al., 2024). The use of the tiered workshops that include the simulations of using artificial intelligence helps educators to develop modern programs for the language teaching (Bircan et al., 2025).

The adaption of change leadership styles that value the diversity of local norms, complementing the strategic findings of RQ3, has been shown to considerably magnify the effectiveness of instructional supervision. This organic method is prevalent in educational institutions that perpetuate the constellation of communal hierarchies such as the network of pesantren in Indonesia (Kusumaningrum et al., 2025). The school principals creatively bypassed the constraints on the operational fund by transforming the functions of everyday social media platforms into reliable asynchronous oversight mediums. This relational leadership strengthens the conclusion that the success of computational literacy always involves emotive support from superiors (Prasojo & Yuliana, 2021).

This systematic literature review, unlike the macro-level examination of instructional leadership within the national-scale educational ecosystem in the United Arab Emirates, focuses on the microscopic mechanisms that directly address the pedagogical needs of foreign language teachers via specific devices

(Abdallah et al., 2025). The precise focus offered in this publication successfully fills the gap in prior reviews that often generalized the problems faced by the whole community of educators. This research offers a definitive mapping of how teachers' emotional fragility during language exchanges impacts the chance of technology adoption.

In line with earlier studies, the clear empirical finding is that the collaborative school atmosphere regularly acts as an absolute mediating variable between principal policies and the improvement of teaching quality (Pietsch et al 2025). The two systematic reviews are completely in agreement that a supportive leadership style always changes teacher behaviour and increases their work engagement. This evident structural relationship also indicates that the school principals still have the throne as the fundamental axis that drives educational transformation. This analytical study also strategically builds upon earlier findings by tracking patterns of instructional leadership in China over the last decade, focusing only on the fulfillment of conventional curricular norms (Shihui et al; 2025). This study boldly introduces the variable of application operational anxiety (techno-anxiety) and instructor psychological weariness as novel predictors of the success of daily instructional adoption. The existence of the emotional dimension, as elaborately analyzed by the reviewer, provides strong theoretical underpinning to this study as a leap that revitalizes the discussion on global school management (Sesoane et al., 2025).

The theoretical and practical consequences of this research conclusion are important, in that they corroborate and extend the reach of the TAM framework into the domain of educational management science. The extraction results validate the instructional leadership intervention as the most dominant facilitating condition that causally changes educators' evaluations of the value of cyber facility ease (Muntu et al., 2023). The sustained power of school management, with active backing, was able to successfully break down the citadel of teachers' resistance intents. This indicates that the TAM framework describes the process of technology acceptance as a sociological phenomenon that is highly influenced by the school command structure (Mailizar et al., 2022). The synthesis of this study, regarding the leadership instrument, firmly rejects the strict relevance of the classical Instructional Leadership Model of decades earlier, which was too exclusive in concentrating only on the agenda of physical classroom observation (Bada et al., 2025). In this paper, we develop a theoretical basis of regeneration by supplementing one more dimension element, the ability to orchestrate a virtual ecosystem and to give a space for psychological protection. The change in this conceptual model is in line with the Social Cognitive Theory, where teachers' self-resilience is improved when leaders are role models of digital resilience (Ridwan et al., 2024).

This research proposes practical, high-value actions for the education environment, based on a constellation of key findings: Firstly, school principals should swiftly shift bureaucratic supervision methods from rigid inspection frameworks to community-based collegial mentoring programs as RQ3 shows that the delegation of authority to middle-level leadership drastically reduces the anxiety of beginner staff (Ridwan et al., 2024). Second, the Ministry of Education, Culture, Research and Technology together with the regional offices need to revise the School Operational Assistance regulations not only to focus on funding the procurement of physical hardware because RQ2 indicates that the availability

of premium software licenses is important (Ridwan et al., 2024). Thirdly, teacher training institutions (LPTK) and higher education institutions that produce teachers need to inject a technology anxiety management curriculum into their incubation syllabus since RQ1 indicates that a sudden digital transition is likely to escalate social trauma among educators (Xu & Guo, 2024).

The limitations of this research and the future of this systematic literature review still have three basic methodological constraints that need to be carefully validated in relation to the scope of its generalization conclusions. Second, the pure literature search only takes advantage of the dominance of Scopus, Web of Science, and ERIC databases, which is most likely to omit high-caliber empirical articles of some regional indexing repositories. Secondly, the researchers purposely employed exclusion criteria to eliminate academic publications that are written in a language other than English, which in itself creates a linguistic bias and may exclude indigenous instructional leadership methods in non-Western areas (Shihui et al., 2025). Third, the high level of methodological heterogeneity and differences in primary sample instruments limit researchers to perform functional effect size assessments by absolute meta-analysis approaches.

To fill up all the crevices and gaps in those restrictions, a succession of future research objectives have been methodically drawn out. First, the next generation of academic scholars needs to do a literature review that goes trough national publications of high quality to weave together a lot more authentic range of structural data. Second, educational administration scholars have called for quasi-longitudinal experimental investigations that directly evaluate changes in teachers' competency before and after school principals' precision leadership interventions (Guo et al., 2025). Third, comparative studies exploring the intensity of teachers' demographic characteristics and the level of adoption of artificial intelligence tools will contribute significantly to the future worldwide literature canon (Zhao et al., 2025).

E. Conclusion

Based on the synthesized literature in this systematic review, instructional leadership practices are positively associated with the self-efficacy of EFL teachers in designing technology-based learning environments (RQ1). The reviewed studies indicate that this relationship is often mediated by enhanced digital literacy capacity, which appears to play a key role in minimizing educators' pedagogical anxiety. Regarding the challenges of technology integration (RQ2), the data synthesis reveals that the primary administrative and psychological barriers include physical infrastructure deficits, institutional financial constraints, and psychological resistance, notably in the form of technophobia and administrative job fatigue syndrome among educators.

To address these challenges, the literature highlights several effective instructional leadership strategies for fostering and maintaining teachers' digital pedagogical resilience (RQ3). These synthesized strategies include providing systematic professional training, establishing virtual professional learning communities through the delegation of middle-tier authority, and adapting policies to be culturally sensitive.

Theoretically, this systematic review advances the Technology Acceptance Model (TAM) and the traditional instructional leadership framework by highlighting the synthesized importance of managerial support as a critical facilitating condition

and suggesting the inclusion of teacher psychological protection in conceptual models of school development. Pragmatically, these synthesized findings offer a foundation for policy-makers to consider shifting bureaucratic inspection procedures toward collegial mentoring plans and reorienting financial priorities toward the provision of premium software licenses and the recruitment of internal IT professionals.

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