

A Systematic Literature Review of Leadership Talent and Instructional Leadership in Enhancing the Mentoring Effectiveness of School Improvement Partners among NPQEL-Qualified Novice Principals

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ABSTRACT

Despite completing the National Professional Qualification for Educational Leaders (NPQEL) training, many novice principals in Malaysia continue to face challenges in translating theoretical knowledge into practical competencies. These gaps manifest in weak instructional leadership and limited school improvement, raising concerns about the effectiveness of existing leadership preparation programs. Mentoring by School Improvement Partners (SIPs) has been introduced as a potential support mechanism. Yet, there is a lack of consolidated empirical evidence regarding its impact on enhancing leadership talent, instructional leadership, and overall competency. This systematic literature review (SLR) therefore synthesizes quantitative, qualitative, and mixed-methods studies published between 2015 and 2025 on mentoring for school leaders. Following PRISMA guidelines, databases were searched, screened, and reviewed to identify themes related to leadership talent, instructional leadership, and mentoring outcomes. The findings consistently demonstrate that mentoring strengthens novice principals' confidence, role clarity, instructional leadership practices, and overall competency. Studies further highlight the mediating role of mentoring in linking leadership talent to improved school leadership performance. The review contributes to the literature by clarifying the relationship between mentoring and competency development, while offering practical insights for policymakers and training providers to refine principal preparation and mentoring frameworks in Malaysia.

Keywords: Leadership Talent, Instructional Leadership, Mentoring, Competency

INTRODUCTION

Leadership talent refers to the inherent and developed abilities that enable an individual to influence, motivate, and guide others toward achieving shared goals, drawing on qualities such as vision, emotional intelligence, creativity, and interpersonal skills [37, 113]. In the context of schools, these leadership abilities are closely tied to instructional leadership, which emphasizes setting a clear mission, managing the instructional program, and fostering a positive learning climate to improve student achievement [43, 97, 42]. To support the development of such leadership qualities, mentoring has been recognized as a crucial developmental relationship, where experienced individuals provide guidance, feedback, and support to novice principals in order to enhance their professional growth, confidence, and leadership skills [78, 117, 115]. Collectively, these elements contribute to competency, which integrates knowledge, skills, and personal attributes that allow school leaders to perform their roles effectively, encompassing administrative, conceptual, and interpersonal dimensions that drive decision-making, resource management, and organizational success [114, 25, 116].

School leadership plays a pivotal role in shaping the quality of education, influencing teacher performance, student outcomes, and overall school effectiveness. In Malaysia, the role of principals has become increasingly complex, requiring them to demonstrate strong leadership competencies that integrate leadership talent, instructional leadership, and management skills [27, 114]. To address this, the Ministry of Education introduced the National Professional Qualification for Educational Leaders (NPQEL), a structured program designed to

prepare school leaders for administrative and instructional responsibilities [120]. However, while NPQEL equips principals with theoretical knowledge, research shows that many novice principals continue to struggle with applying this knowledge in real-world school contexts, particularly during their early years of service [79, 50].

One of the critical challenges faced by novice principals lies in the development of leadership talent. Leadership talent encompasses the vision, emotional intelligence, and interpersonal skills necessary for principals to inspire teachers and manage school organizations effectively [37, 113]. Yet, these inherent and developed abilities often require continuous support to be fully realized in practice. Closely related is the concept of instructional leadership, which focuses on defining school missions, managing instructional programs, and cultivating a positive school climate to enhance student achievement [43, 42]. Despite its importance, evidence suggests that novice principals often feel unprepared to assume instructional leadership responsibilities, particularly in aligning curriculum, teaching practices, and policy reforms with school needs [110, 85].

To bridge these gaps, mentoring has emerged as a vital mechanism in leadership development. Mentoring, especially through the School Improvement Partner (SIP) program under the District Transformation Program, provides structured guidance, emotional support, and professional feedback to novice principals [78, 115]. Research indicates that mentoring can enhance principals' confidence, strengthen their instructional leadership practices, and accelerate the development of competencies needed for effective school management [117, 88]. However, the mentoring provided in Malaysia has been critiqued for being too limited in scope and overly focused on administrative compliance rather than comprehensive leadership development [93]. This raises concerns about its effectiveness in addressing the competency gaps among novice principals.

Competency, defined as the integration of knowledge, skills, and personal attributes that enable principals to perform effectively in leadership roles, remains the cornerstone of school leadership success [116, 25]. Effective principals must balance administrative, conceptual, and interpersonal skills to meet the challenges of managing diverse schools, implementing reforms, and achieving student-centered goals [17]. Yet, studies consistently show that novice principals in Malaysia face difficulties in meeting these competency demands, despite undergoing NPQEL training [50, 95].

Given these challenges, it is crucial to explore how mentoring can mediate the relationship between leadership talent, instructional leadership, and competency. While leadership talent and instructional leadership provide the foundation for effective practice, mentoring has the potential to transform these capacities into tangible competencies that directly impact school performance. Investigating this relationship among NPQEL-qualified novice principals in Malaysian secondary schools is therefore timely and significant, as it not only addresses gaps in current leadership development initiatives but also offers insights into strengthening educational leadership for sustainable school improvement [78, 79, 120].

Despite the implementation of the National Professional Qualification for Educational Leaders (NPQEL) and initiatives such as the School Improvement Partner (SIP) program, novice principals in Malaysia continue to face significant challenges in demonstrating leadership competency. Research highlights that while NPQEL provides theoretical knowledge, many novice principals struggle to apply leadership skills effectively in real school settings, particularly in the areas of instructional leadership and decision-making [79, 50, 95]. Leadership talent, though essential for inspiring and guiding school communities, often remains underutilized without structured support mechanisms [37, 113]. Similarly, instructional leadership critical for improving teaching and learning outcomes—is an area where novice principals report low confidence and preparedness [110, 85].

While mentoring through SIPs is intended to support these principals, current mentoring practices are often limited, focusing more on administrative compliance than on holistic leadership development [93]. This mismatch has left gaps in bridging leadership talent and instructional leadership with actual competency. As a result, novice principals remain inadequately prepared to manage the complexities of school leadership, negatively impacting teacher performance, school climate, and student outcomes [27, 120]. Therefore, the problem lies in the insufficient understanding of how mentoring influences the relationship between leadership talent, instructional leadership, and competency among NPQEL-qualified novice principals. Without clear evidence of this mediating effect, current leadership development programs risk falling short in producing competent school leaders capable of driving educational excellence in Malaysia.

A systematic literature review and thematic descriptive review following Moher et al.'s approach were used to synthesize and analyze 16 full-text journal articles published for quantitative and qualitative journals in English over the past 15 years [74]. The authors conducted an initial electronic search across four databases: Scopus, ScienceDirect, Emerald Insights, and Google Scholar, to systematically review the effectiveness of mentoring by School Improvement Partners among NPQEL-qualified novice principals in enhancing leadership talent and instructional leadership. The current review aims to answer the following questions: Is there a significant relationship between leadership talent and instructional leadership with the mentoring of School Improvement Partners among NPQEL-qualified novice principals? By responding, the current SLR helps to fill a gap in the existing literature. Although NPQEL gives principals theoretical knowledge, research continuously shows that novice principals find it difficult to put this knowledge to use in actual school settings [79, 50]. The gap is in knowing mentoring, which helps to bridge the theory-practice divide. The rest of the current study is organized as follows: Section 2, the Literature Review, discusses existing research on leadership talent, instructional leadership, and mentoring, along with the theoretical foundation for this study. Section 3 outlines the Materials and Methods, detailing the SLR methodology, search strategy, inclusion and exclusion criteria, study selection, data extraction and synthesis, and quality assessment. Section 4 presents the Results, including the characteristics of the reviewed studies, thematic findings, and the role of mentoring. Section 5, the Discussion, elaborates on the implications of the findings, highlights limitations, and offers recommendations for future research. So, PECOS is: Population (P) – NPQEL-Qualified Novice Principals; Exposure (E) – Mentoring by SIPs; Outcome (O) – Leadership Talent, Instructional Leadership; Study Area (S) – Malaysia.

LITERATURE REVIEW

Leadership Development and Mentoring Frameworks for Novice Principals

The development of school leadership in Malaysia has been systematically strengthened through structured initiatives such as the National Professional Qualification for Educational Leaders (NPQEL), the Principal Residency and Immersion (PRIme) programme, and mentoring support provided by School Improvement Partners (SIPs). Collectively, these initiatives form a national leadership pipeline designed to prepare novice principals for the complex demands of school improvement [27, 60, 79, 82, 119].

NPQEL is a mandatory professional qualification for aspiring principals, administered by the Institut Aminuddin Baki (IAB) and modelled after England's National Professional Qualification for Headship (NPQH). Empirical studies indicate that NPQEL enhances principals' instructional and transformational leadership capacities, contributing to improved school management and performance [60, 63, 76, 79]. Nevertheless, scholars have highlighted gaps between programme content and the practical challenges faced by novice principals, prompting calls for continuous curriculum refinement and the integration of flexible delivery modes such as e-NPQEL [79, 100, 119].

To address the theory–practice gap, the Principal Residency and Immersion (PRIme) programme was introduced under the Malaysian Education Blueprint 2013–2025. PRIme emphasises experiential learning through residency placements with experienced school leaders, enabling novice principals to apply leadership knowledge in authentic school contexts. Research suggests that this immersive approach strengthens confidence, professional judgement, and readiness to manage complex school environments [27, 79, 82].

Complementing NPQEL and PRIme, the School Improvement Partner (SIP) initiative provides structured mentoring and professional guidance to novice principals during their early leadership years. Effective SIP mentoring has been associated with enhanced leadership competence, improved school climate, and strengthened instructional practices, although variations in implementation quality indicate the need for ongoing evaluation and refinement [67, 88, 119]. Overall, Malaysia's layered leadership development framework demonstrates a comprehensive strategy for preparing novice principals, with mentoring playing a crucial supportive role in translating leadership preparation into effective school practice.

Conceptualizing Leadership Talent in Education

Leadership talent in education refers to a combination of personal attributes, professional skills, and learned competencies that enable school leaders to influence others and drive organisational improvement. Emotional intelligence, including self-awareness, self-regulation, motivation, empathy, and social skills, is widely recognised as a core component of leadership talent, particularly in the relational and dynamic context of school leadership [36]. Organisational culture further shapes leadership talent development by either enabling or constraining leadership growth [94].

Research highlights the importance of systematic identification and development of leadership talent to ensure long-term leadership effectiveness [70, 91]. Strengths-based perspectives emphasise leveraging individual capabilities to enhance school performance [59]. In Malaysia, leadership talent development is closely aligned with structured leadership pathways such as NPQEL, which equips aspiring principals with essential skills while aligning local leadership standards with international frameworks such as NPQH [79, 100]. Empirical studies indicate that NPQEL participation strengthens instructional leadership capacity, reflective practice, and professional confidence, contributing to improved school outcomes [63, 76].

Several leadership talent models have informed educational leadership development, including systemic, values-based, and strengths-oriented approaches [20, 45, 46, 96]. While these models offer valuable insights into leadership cultivation, this study adopts a synthesis-oriented perspective, conceptualising leadership talent as a multidimensional construct encompassing purpose, strategic direction, motivation, relational capacity, and work style [52, 69, 124]. These dimensions highlight that effective school leadership requires both strategic competence and relational capability to foster collaboration, teacher development, and sustained school improvement [14, 44].

Comparative studies across international contexts reveal that leadership development pathways commonly integrate professional standards, structured training, and mentoring support [26, 72]. In Malaysia, NPQEL remains the cornerstone of leadership talent development, aligned with national education reforms and evolving leadership demands [60, 79]. Despite its strengths, continuous professional development and contextual adaptation remain essential to ensure leadership talent development remains responsive to changing school environments [100, 118, 125].

Instructional Leadership: Concepts, Models, Dimensions, and Global to Malaysian Perspectives

Instructional leadership is widely recognised as a critical driver of teaching quality and student learning outcomes. It emphasises the principal's role in shaping instructional practices, supporting teacher development, and maintaining a strong focus on the instructional core of schooling [81, 104]. Contemporary research increasingly integrates instructional leadership with transformational leadership, highlighting the importance of both instructional focus and motivational influence in effective school leadership [63, 68].

Hallinger and Murphy's instructional leadership framework remains influential, identifying three core dimensions: defining the school mission, managing the instructional programme, and promoting a positive school climate [43, 81]. These dimensions underscore that instructional leadership extends beyond administrative responsibilities, requiring principals to engage directly with teaching and learning processes. Empirical studies consistently demonstrate positive relationships between instructional leadership, teacher efficacy, and student achievement [49, 56, 98].

In the Malaysian context, instructional leadership is a central component of education reform under the Malaysian Education Blueprint 2013–2025 [94, 133]. Principals are expected to establish clear instructional visions, support professional learning, and foster collaborative school cultures [43, 126]. Research indicates that Malaysian principals are increasingly adopting distributed and participatory instructional leadership approaches, sharing responsibilities with middle leaders and teachers to enhance instructional improvement [16, 51, 65]. However, administrative workload and systemic constraints continue to challenge sustained instructional focus, highlighting the need for supportive leadership structures and mentoring [38, 99].

Mentoring Effectiveness of School Improvement Partners (SIPs)

Mentoring plays a critical role in supporting novice principals as they transition into school leadership roles. The shift from classroom teaching to school administration presents challenges related to instructional leadership, organisational management, and professional identity [90, 136]. Effective mentoring provides guidance, emotional support, and professional learning opportunities that enhance novice principals' confidence and leadership competence [20, 88].

Research consistently demonstrates that mentoring improves principals' skills, knowledge, and attitudes, contributing to more effective school leadership [88, 90]. In Malaysia, the School Improvement Partner initiative represents a structured mentoring approach designed to support novice principals during their early years of service [87, 89]. Studies indicate that SIP mentoring enhances leadership effectiveness, job satisfaction, and school improvement efforts, particularly when mentoring relationships are built on trust, collaboration, and mutual learning [87, 88].

While various mentoring models have been applied in educational leadership contexts, evidence suggests that mentoring effectiveness depends more on the quality of mentor–mentee relationships and alignment with instructional and developmental goals than on adherence to specific frameworks [22, 55, 77]. Structured and well-supported mentoring has been shown to foster reflective practice, leadership confidence, and sustained professional growth among novice principals [52, 91].

Overall, mentoring by School Improvement Partners functions as a crucial developmental mechanism linking leadership preparation to leadership practice. By supporting novice principals' instructional and leadership development, effective mentoring contributes to enhanced school capacity, improved teaching practices, and positive educational outcomes [87, 89, 135].

Theoretical Basis of The Study

Albert Bandura's Social Learning Theory (SLT) explains how individuals acquire behaviours and attitudes through the interaction of three core factors: behavioural, environmental, and personal, which together form a triadic reciprocal determinism framework in which each component both influences and is influenced by the others, resulting in complex learning processes [23, 138]. While Bandura emphasised self-efficacy, this study extends his framework by conceptualising leadership talent as a personal factor that similarly influences learning and behaviour. Behavioural factors related to leadership talent encompass the observable actions exhibited by novice principals and how these actions are interpreted by others. SLT highlights the importance of observable behaviours, asserting that individuals learn by observing others and the consequences of their actions. For novice principals, observing experienced leaders managing conflicts or facilitating staff meetings enables the internalisation of effective leadership strategies, thereby strengthening their capacity to address similar situations. This is supported by Rahmadani et al. (2020), who found that engaging leadership practices within schools are positively associated with job performance and employee learning, underscoring the role of behavioural modelling [92].

Building on these behavioural elements, the environmental context, as illustrated in **Figure 1**, further shapes the learning process through mentoring. Bandura emphasised that learning environments encompass both physical and social dimensions, and mentoring relationships within educational settings provide structured contexts in which novice principals observe and interact with experienced School Improvement Partners. These interactions enable skill development through imitation, guided practice, and feedback [80]. Within this framework, mentoring functions as a central environmental mechanism that facilitates the transfer of knowledge and the development of leadership talent by providing vicarious experiences that enhance confidence and problem-solving capacity [84, 29]. When novice principals engage with experienced leaders, they are better able to develop leadership capabilities and make informed decisions through exposure to real-world administrative and instructional challenges, demonstrating the reciprocal relationship between environmental factors and learning outcomes.

Interwoven with these behavioural and environmental influences are personal factors, which include cognitive processes such as attention, motivation, and leadership talent, all of which are integral to SLT. Bandura posited that personal factors mediate individuals' motivation to attempt and sustain new behaviours [23]. In the context of this study, structured mentoring programmes support the development of novice principals' competencies by pairing them with experienced leaders who model effective leadership talent and instructional practices. Through observation, interaction, and feedback, novice principals learn to apply effective strategies and gain insights into the complexities of educational leadership [90]. This interaction illustrates how personal cognitive elements, operating alongside behavioural and environmental factors, collectively influence learning and adaptation. Attitudes and beliefs formed through observation further shape how individuals respond to leadership challenges and opportunities [16].

Within this integrated framework, novice principals enter their roles with varying levels of leadership talent; however, the transformation of these talents into effective leadership practice depends on their motivation and engagement within supportive mentoring environments. Leadership talent, understood as a combination of inherent dispositions and acquired skills, influences principals' willingness to experiment with new practices, such as implementing innovative instructional strategies or fostering collaborative professional cultures among teachers [98, 99]. Mentoring plays a critical role in strengthening instructional leadership and competency development by providing opportunities for observational learning and guided reflection. Through vicarious learning experiences, novice principals enhance their leadership talent and acquire practical strategies applicable to their own school contexts [100, 101]. Research further highlights mentoring as a key mechanism for nurturing leadership talent, enabling novice principals to engage in reflective dialogue with mentors who offer guidance, feedback, and encouragement [102]. Such interactions support professional growth by helping novice principals identify strengths and areas for improvement within a supportive learning environment.

In summary, as illustrated in **Figure 1**, Social Learning Theory provides a comprehensive framework that demonstrates how behavioural actions, environmental contexts, and personal cognitive processes interact to shape learning experiences, thereby enhancing our understanding of individual learning behaviours and the complex social influences operating within educational contexts.

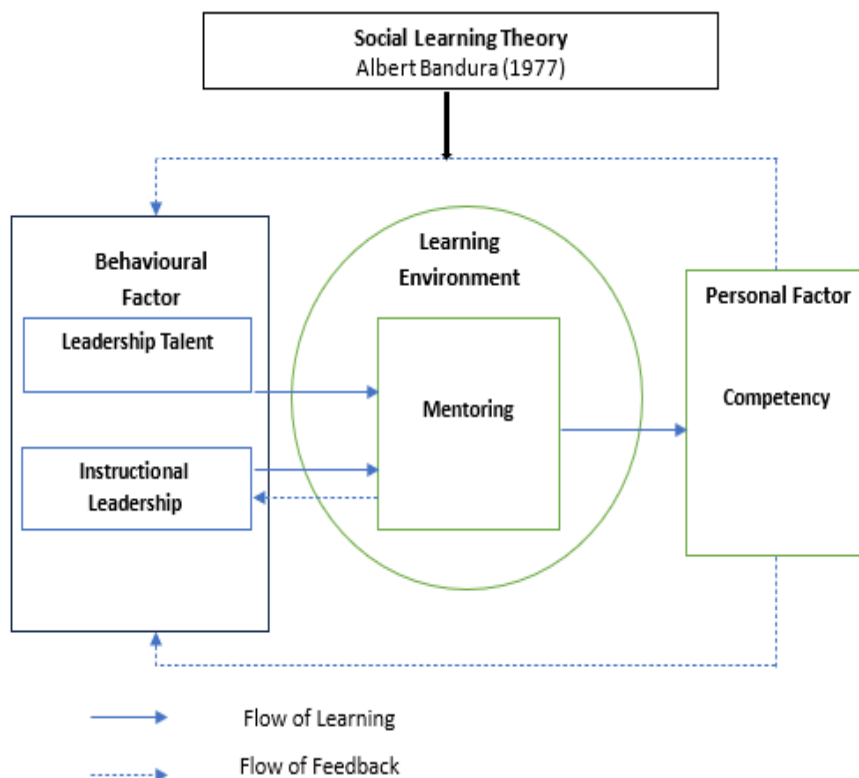


Figure 1: Conceptual Framework Based on Social Learning Theory for Leadership Talent, Instructional Leadership, Mentoring, and Competency (Bandura [23]).

Material and Methods

This study followed a rigorous systematic literature review (SLR) methodology in accordance with the PRISMA guidelines [103] to ensure comprehensive and unbiased coverage of existing literature. The review specifically addressed questions concerning: (1) Is there a significant relationship between leadership talent and instructional leadership with the mentoring of School Improvement Partners among NPQEL-qualified novice principals? Prior to commencing, the study protocol was registered with PROSPERO (CRD420251079948) after confirming no duplicate reviews existed on this topic. The methodology employed a structured four-phase approach: identification through systematic database searches, screening using PRISMA flow diagrams, eligibility assessment based on predefined criteria, and final inclusion of relevant studies. Data analysis incorporated both thematic analysis (identifying themes, categories and codes) and descriptive review methods, with findings synthesized narratively and presented through tables and figures. Analytical processes were supported by specialized software including ATLAS.ti 9 for qualitative analysis, Mendeley Desktop v1.19.8 for reference management for data organization and visualization, ensuring methodological rigor throughout the review process. Further details of each review phase are illustrated in Figure 2.

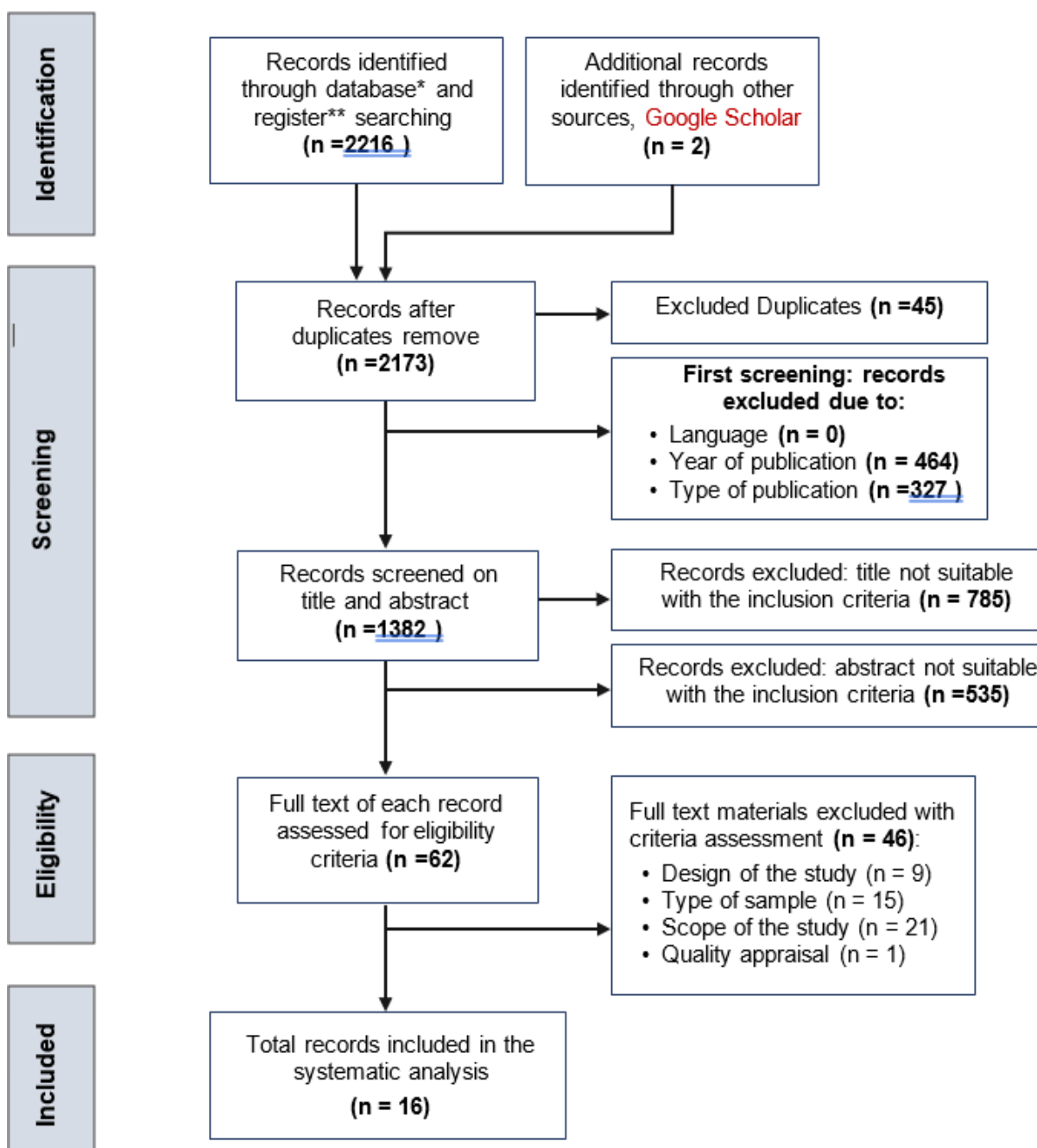


Figure 2: PRISMA flow diagram for the selected study (Moher [74]).

Search strategy

The key digital search was conducted in July 2025 for studies published between (2015 to 2025). Two reviewers independently screened Scopus, ScienceDirect and Emerald Insights. They also conducted a manual search for the references to the selected full-text material using Google Scholar. Researcher used the following search string and keywords: ("NPQEL-Qualified Novice Principal" OR "new principal" OR "novice principal" OR Principal) AND (Mentoring OR Coaching) AND ("Leadership Talent" OR "Instructional Leadership"). Whenever necessary, the search terms or keywords and operators (like truncation, Boolean operators, parentheses, wildcards, and quotation marks) were applied in the main search. Figure 2 shows a PRISMA flow diagram describing the various stages of the current SLR [103].

Inclusion and Exclusion Criteria

The inclusion and exclusion criteria used in the current SLR are as follows: (1) Type of Publication: Include only peer-reviewed journal articles indexed in reputable databases to ensure academic quality. Exclude books, book chapters, reports, non-indexed sources, and review articles. (2) Study Methodology: Include only primary studies employing empirical methods (quantitative, qualitative). Exclude purely review, conceptual papers, or conference proceedings. (3) Scope of Study: Include studies that directly address the review topic and provide findings relevant to the defined field related to at least one or two of PECO keywords (Leadership Talent, Instructional Leadership, Mentoring). Exclude studies outside the specified thematic scope. (4) Participant Criteria: Include studies involving relevant user groups (principals). Exclude studies not involving the targeted participant population. (5) Language and Publication Date: add the chosen language and years if any, for example: include only studies published in English within the last 15 years (2015–2025) to maintain linguistic accessibility and contemporary relevance. These criteria should be applied systematically during the screening and eligibility phases using reference management tools such as Mendeley Desktop in conjunction with a PRISMA flow diagram.

Study Selection

In the identification stage of PRISMA, two reviewers (Author 1 and Author 2) independently searched the selected databases and imported all retrieved text materials into Mendeley Desktop. The searches were conducted using the Electronic Management Research Library Database of their affiliated universities, ensuring that only open-access materials were included. Duplicate records were removed at this stage. In the screening stage, the reviewers examined the titles and abstracts of the retrieved materials against the publication type, language, and year of publication criteria. Articles were further screened for relevance to the study scope. Any article selected by at least one reviewer was retained for the next stage.

In the eligibility stage, all potentially relevant articles were imported in full text into Mendeley Desktop and assessed by the same two reviewers according to eligibility criteria, including participants, methodology, scope, and quality appraisal. A manual search of reference lists in the selected full-text articles was also conducted via Google Scholar to ensure comprehensive coverage. Discrepancies in inclusion decisions were resolved through discussion; if consensus could not be reached, an impartial third reviewer (Author 3) made the final determination using the BEME (Best Evidence Medical Education) quality framework. Finally, a summary table (Appendix A) was prepared to capture study details, and the included articles were systematically reviewed, analysed, and synthesised using Microsoft Excel and Atlas.ti 9. All five authors reviewed and approved the procedures outlined in the search protocol.

Data Extraction and Synthesis

The systematic review process adhered to the PRISMA framework, encompassing three key phases: identification, screening, and eligibility. During the identification phase, two independent reviewers systematically searched selected electronic databases relevant to the study scope. The searches were conducted using institutional access via the electronic research libraries of the affiliated universities, and all retrieved text materials were imported into Mendeley Desktop for organization and management. Duplicate records were identified and excluded to ensure accuracy. At the screening stage, titles and abstracts of the retrieved records

were reviewed independently by the same two reviewers based on predefined inclusion criteria, including the type of publication, language (English only), and publication year (the last 15 years). Studies meeting these basic criteria were further screened for thematic relevance in relation to the defined review scope. Articles identified by either or both reviewers were retained for full-text evaluation. In the eligibility phase, full-text versions of the selected articles were assessed using more detailed inclusion criteria, such as study methodology (empirical: quantitative, and qualitative), participant characteristics (principal), and alignment with the review's challenges of novice principal perspective. Quality appraisal was also conducted, and any discrepancies between the reviewers were discussed to reach a consensus. If agreement could not be achieved, a third impartial reviewer was consulted to make the final inclusion decision, applying a structured appraisal tool such as the BEME (Best Evidence Medical Education) quality framework. A manual search of reference lists in the included studies was also performed using Google Scholar to capture any additional eligible articles not retrieved through database searching. Finally, a summary table was prepared to document key data from the selected studies, and the included texts were reviewed, coded, and synthesized using Microsoft Excel and Atlas.ti. All authors involved provided their consent to the procedures outlined in the shared review protocol to ensure transparency and methodological integrity.

Study Quality Assessment

To ensure methodological rigor, the included full-text studies were critically appraised using the BEME (Best Evidence Medical Education) Quality Appraisal Tool, which provides tailored criteria for both quantitative and qualitative research designs. Two independent reviewers conducted the appraisal process, with discrepancies resolved through discussion and, when necessary, adjudication by a third reviewer. For **quantitative studies**, the BEME framework assessed ten domains: (a) clarity of the research question or hypothesis, (b) appropriateness of the study subjects, (c) adequacy of data collection methods, (d) completeness of data, (e) risk of bias, (f) adequacy of results measurement, (g) soundness of conclusions, (h) reproducibility of findings, (i) prospective design, (j) ethical considerations, and (k) triangulation of data sources. For **qualitative studies**, appraisal covered three main domains: (a) validity of study design (including clarity of aims, appropriateness of methodology, recruitment strategy, data collection, and researcher-participant relationship), (b) quality of results (ethical issues, rigor of data analysis, and clarity of findings), and (c) applicability of outcomes (value and transferability of the results). Studies were classified according to their overall BEME scores: high quality (8–10), moderate quality (4–7), and low quality (≤ 3). Only studies of high and moderate quality were retained to ensure the robustness and trustworthiness of the review. This combined appraisal approach allowed for consistent and transparent evaluation across diverse study designs, ensuring that both quantitative and qualitative evidence contributed rigorously to the synthesis.

RESULTS

A total of (N = 2,216) journal articles were identified through database searching using the specified databases. In addition, (N = 2) records were identified through other sources, namely Google Scholar. After removing duplicate records (N = 45), a total of (N = 2,173) articles remained for screening. During the first screening stage, records were excluded based on publication year (N = 464) and type of publication (N = 327), with no exclusions due to language (N = 0). As a result, (N = 1,382) records were screened based on titles and abstracts. Of these, (N = 785) records were excluded because the titles were not suitable, and (N = 535) were excluded because the abstracts did not meet the inclusion criteria. In the eligibility phase, (N = 62) full-text articles were assessed. Of these, (N = 46) articles were excluded due to study design (N = 9), type of sample (N = 15), scope of the study (N = 21), and quality appraisal (N = 1). Finally, (N = 16) full-text articles were included in the systematic analysis.

Characteristics of The Selected Study

Of the selected full-text articles, (N= 2) were quantitative methods (questionnaire survey: n = 1, correlational: 1.), (N= 1) were mixed methods (questionnaire survey and interview: n = 1), and (N= 13) were qualitative methods (case study: n = 3, Phenomenological: n=3, Exploratory: n=4, Conceptual: n=1, Interpretative: n=2.). The selected studies were conducted in (N= 7) countries only, the percentage or number of studies or both from

each country of the selected studies are 50.0% the USA ($n=8$), followed by 12.5% in the Israel ($n=2$), 12.5% in Malaysia ($n=2$), 6.25% in South Africa ($n=1$), 6.25% in Chile ($n=1$), 6.25% in Cyprus ($n=1$) and 6.25% in Multi-country (OECD) ($n=1$). **Table 1** presents a matrix of positive outcomes and leadership dimensions, with countries reported as contextual mentions across studies rather than as unique country counts.

Regarding the internal and external validity of the selected studies, 31.3% ($n=5$) employed clear sampling strategies that enhanced external validity, particularly in survey-based and multi-case qualitative studies. A further 25.0% ($n=4$) applied multiple data sources (e.g., interviews, documents, and observations) to ensure data triangulation and strengthen internal validity. Reliability measures, including pilot testing of instruments and inter-rater checking, were reported in 18.8% of the studies ($n=3$). In addition, 12.5% ($n=2$) incorporated explicit pilot studies to improve instrument validity before the main data collection. However, 12.5% ($n=2$) of the studies did not report any explicit approach to address issues of validity or reliability, particularly among conceptual and interpretative works. These findings indicate that while most studies demonstrated efforts to ensure internal and external validity, there remains a methodological imbalance, especially among qualitative studies that lacked explicit reliability checks.

In the early stage (between 2010 and 2015), most of the selected studies focused on theoretical discussions of leadership development and school leadership frameworks, particularly addressing leadership talent and instructional leadership in general educational contexts [1,2,3,4]. Between 2016 and 2020, the research direction shifted towards practical applications, with greater emphasis on mentoring initiatives and the role of school improvement partners in supporting novice principals [5,6,7,8,9]. After 2020, a new trend emerged, where studies began to integrate leadership talent, instructional leadership, and mentoring effectiveness to enhance the competency of NPQEL-qualified novice principals and support school improvement agendas [10,11,12,13,14,15,16].

Despite this growing body of work, several gaps remain. The majority of the selected studies (81.25%) employed qualitative approaches (case study, phenomenological, exploratory, interpretative, and conceptual designs), while only 12.5% used quantitative methods and 6.25% adopted mixed methods. This methodological imbalance shows a lack of empirical and generalizable evidence on how leadership talent and instructional leadership interact with mentoring effectiveness.

Geographically, most of the studies were concentrated in the United States (50%, $n=8$), with limited contributions from other countries, including Israel (12.5%, $n=2$), Malaysia (18.75%, $n=3$), Chile (6.25%, $n=1$), Cyprus (6.25%, $n=1$), and a multi-country OECD dataset (6.25%, $n=1$). This reveals a strong Western-centric orientation and underrepresentation of Asian contexts, despite the relevance of mentoring for NPQEL-qualified novice principals in Malaysia.

In terms of limitations, about 62% of the studies were restricted in scope, often focusing on single case studies or specific local contexts [1–12]. Approximately 27% presented limitations in research variables, as they examined leadership talent, instructional leadership, or mentoring separately without addressing their interconnections [7,8,9,10,11,13,14,15]. A smaller proportion (about 11%) showed limitations in sampling, such as small sample sizes, single-country focus, or non-representative participants, reducing the generalizability of findings [9,12,16].

Table 1: Matrix of Positive Outcomes and Study Contexts in Selected Mentoring and Leadership Research

No	References	Positive Outcome	Codes (Indicators)	N (%)	Mentoring Type / Context	Leadership Focus	Theoretical Framework	Countries	Challenges / Notes
1	[1, 2, 10, 14, 15]	Leadership Competency and Confidence	(a) Developmental and NPQEL mentoring (b) Peer support and trust-building	5 (31.3%)	Developmental / NPQEL Mentoring	Leadership readiness and confidence	Transformational Leadership	USA, South Africa, Malaysia	Inconsistent mentor support, transition stress
2	[1, 2, 5, 6, 13]	Reflective Practice and Self-Efficacy	(a) Reflective learning (b) Feedback-based coaching	5 (31.3%)	Virtual / Professional Learning Communities	Reflective and adaptive leadership	Transformational & Instructional	USA, UK, Cyprus, South Africa	Limited follow-up and online engagement
3	[5, 6, 12, 13, 16]	Instructional Leadership Improvement	(a) Collaborative mentoring (b) Feedback-driven development	5 (31.3%)	Coaching and Leadership Networks	Instructional leadership	Transformational & Instructional	USA, Turkey, Cyprus	Resource dependency and sustained engagement are needed
4	[3, 5, 11, 12, 15]	Collaboration and Professional Growth	(a) Logic-model coaching (b) Shared learning communities	5 (31.3%)	Coaching / Mentoring Networks	Collaborative and adaptive leadership	Transformational Leadership	USA, Malaysia	Limited structural frameworks
5	[8, 9, 14, 15]	Reduced Stress and Role Clarity	(a) Structural mentoring (b) NPQEL transition support	4 (25.0%)	Institutional / NPQEL Mentoring	Leadership transition	Transformational & NPQEL	Israel, Malaysia, Chile	Mentor-protégé mismatch, institutional limits
6	[8, 9, 14, 15, 16]	Contextual and Implementation Challenges	(a) Cultural and institutional barriers (b) Resource constraints	5 (31.3%)	Institutional Mentoring	Program implementation	Transformational & Contextual	Israel, Malaysia, Chile, Turkey	Structural gaps and mentor capacity limits

Methodological Quality and Research Design Trends

The methodological analysis of the selected studies (N = 16) revealed a distinct imbalance between qualitative and quantitative approaches, with a clear dominance of qualitative paradigms. Specifically, 81.25% (n = 13) of the studies employed qualitative designs, 12.5% (n = 2) utilized quantitative approaches, and only 6.25% (n = 1) adopted a mixed-methods design. This trend reflects the interpretive and exploratory nature of research on mentoring, coaching, and leadership development, which often emphasizes lived experiences, professional reflection, and contextual learning rather than statistical generalization.

Research Paradigms and Designs

The reviewed studies represented a range of philosophical paradigms, including interpretivism, pragmatism, constructivism, and positivism. Qualitative studies such as those by Pariente and Tubin [86], Hayes [88], and Aravena [87] adopted case study, phenomenological, exploratory, and interpretative approaches to uncover the nuanced processes of mentoring and leadership learning. These studies frequently employed interviews, document analysis, and reflective narratives to understand mentoring relationships, role identity, and emotional development.

Conversely, quantitative studies such as those by Tahir et al. [13] and Gümüş and Bellibaş [74] applied survey designs rooted in positivism to measure mentoring benefits and the influence of professional development on instructional leadership practices. Mixed-methods designs, such as Irby et al. [17] and Combrinck and Daniels [18], integrated questionnaire surveys and interviews to triangulate perceptions and outcomes of mentoring programs, demonstrating the pragmatic value of combining numerical and experiential data.

Validity and Reliability Considerations

In terms of methodological rigor, 31.3% ($n = 5$) of the studies employed explicit sampling strategies that enhanced external validity, particularly survey-based and multi-case research that included participants from diverse educational settings [17, 18, 11, 13, 74]. Approximately 25.0% ($n = 4$) of the studies demonstrated strong internal validity through triangulation of multiple data sources such as interviews, observations, and document reviews [19, 20, 21, 22]. Reliability measures, including inter-rater checking and pilot testing of instruments, were reported in 18.8% ($n = 3$) of the studies, mainly those using quantitative or mixed approaches [17, 11, 13].

However, 12.5% ($n = 2$) of the conceptual and interpretative papers lacked explicit strategies for addressing validity and reliability, relying instead on theoretical discussions without empirical verification (7, 9). This pattern highlights a methodological gap where interpretive richness is not always balanced with systematic verification.

Use of Theoretical Frameworks

Most studies anchored their investigations in established frameworks, including Transformational Leadership Theory, Instructional Leadership Theory, Social Learning Theory, and Developmental Relationships Theory [17, 18, 19, 20, 21, 11, 13, 74, 25]. These frameworks provided coherence to data interpretation and strengthened internal validity by linking mentoring practices to leadership development constructs. Studies grounded in Adult Learning and Communities of Practice frameworks [17, 19] further demonstrated theoretical integration that supports reflective and collaborative professional growth among novice principals.

Trends and Implications

Overall, the review indicates a methodological evolution from descriptive and theoretical discussions before 2015 toward more applied and empirically grounded research between 2016 and 2023. While qualitative inquiry remains dominant, recent studies increasingly employ mixed or quantitative designs to validate mentoring impacts on leadership talent and instructional practices [17, 18, 11, 13, 74]. Nevertheless, the scarcity of longitudinal and correlational studies suggests the need for stronger empirical evidence to generalize findings, particularly within Asian contexts such as Malaysia [12, 13].

Thematic Synthesis of Key Findings

The thematic synthesis of the 16 selected studies revealed four dominant and interrelated themes: (1) mentoring effectiveness in enhancing novice principals' leadership competency, (2) the integration of leadership talent and instructional leadership in mentoring practice, (3) the mediating role of mentoring in leadership transformation, and (4) contextual and implementation challenges that affect mentoring outcomes.

Mentoring Effectiveness in Enhancing Leadership Competency

A substantial body of literature emphasizes the positive influence of mentoring and coaching on novice principals' professional growth, confidence, and instructional leadership readiness [17, 18, 19, 20, 21, 22, 11, 13]. Studies across multiple contexts including the United States, Israel, South Africa, and Malaysia consistently report that structured mentoring programs foster self-efficacy, reflective practice, and improved decision-making. For instance, Irby et al. [17] found that virtual mentoring communities promoted collaboration and leadership confidence through shared reflection, while Combrinck and Daniels [18] demonstrated that developmental mentoring increased trust and professional identity among newly appointed principals. Similarly, Malaysian studies by Tahir et al. [13] and Saidun et al. [12] confirmed that mentoring reduced role ambiguity, stress, and leadership isolation, particularly during the early transition into principalship.

Integration of Leadership Talent and Instructional Leadership

The reviewed studies reveal that mentoring serves as a mechanism for cultivating leadership talent and strengthening instructional leadership practices [19, 26, 20, 27, 28, 74]. Bickmore and Davenport [26]

highlighted how transformative mentoring supports reflective learning and change-oriented leadership behaviors aligned with Transformational Leadership Theory. Houchens et al. [27] and Gümüş and Bellibaş [74] further established that mentoring and professional development initiatives enhance principals' instructional leadership by promoting collaboration, feedback-driven improvement, and focus on teaching quality. Hayes [20] and Nicolaidou et al. [28] similarly found that mentoring and feedback-based coaching contribute to professional learning communities that enhance leadership capacity through ongoing reflection and dialogue. Collectively, these studies underscore the developmental connection between leadership talent and instructional leadership, suggesting that mentoring provides a practical bridge linking theoretical training (e.g., NPQEL) to on-the-ground leadership practice.

Mentoring as a Mediating Mechanism in Leadership Transformation

Several studies identified mentoring as a mediating factor that transforms leadership potential into measurable competency and performance outcomes [18, 17, 26, 20, 21, 29, 13]. For example, Irby et al. [17] showed that virtual mentoring enhanced communication, collaboration, and problem-solving skills, contributing to sustained leadership growth despite technological and engagement barriers. Bickmore and Davenport [26] found that transformative mentoring not only built leadership capacity but also instilled critical self-awareness, leading to more visionary and adaptive leadership practices. Lindle et al. [29] demonstrated that coaching frameworks based on logic models facilitated continuous feedback loops that supported iterative professional growth. These findings collectively indicate that mentoring acts as a structural mechanism connecting leadership talent development with competency outcomes, aligning with both Transformational and Instructional Leadership frameworks.

Contextual and Implementation Challenges

Despite the overall positive outcomes, the studies also reported notable contextual challenges that constrain mentoring effectiveness. Cultural, institutional, and resource-related barriers were commonly cited, particularly in developing or transitional education systems [18, 21, 30, 12, 13]. For instance, Aravena [21] found that Chilean mentors faced emotional and logistical challenges in supporting isolated novice principals, while Oplatka and Lapidot [30] noted inconsistency in mentor–protégé relationships and quality of guidance in Israeli schools. Similarly, Malaysian studies [12, 13] highlighted structural limitations in the NPQEL framework, where mentoring support is inconsistent and sometimes inadequately aligned with local school realities. These findings suggest that mentoring programs require contextual adaptation, structured mentor training, and systematic evaluation to ensure long-term sustainability and impact.

Emerging Trends and Patterns

Chronologically, the thematic synthesis indicates a clear progression from conceptual and exploratory studies [19, 26, 31, 30] toward applied and empirically validated interventions [17, 18, 11, 12, 13, 74]. Early works primarily discussed leadership frameworks and mentoring principles, while more recent studies emphasize the integration of mentoring with instructional improvement and professional learning systems. Moreover, the emergence of virtual mentoring and online coaching [17, 32] reflects the growing role of technology in facilitating leadership development, particularly in post-pandemic contexts. However, the dominance of qualitative inquiry suggests that future research should employ longitudinal, experimental, or correlational designs to empirically establish causal links between mentoring, leadership talent, and instructional leadership competency.

Key Interpretation

Overall, the synthesis reveals that mentoring, whether face-to-face, developmental, or virtual, consistently enhances novice principals' confidence, professional identity, and instructional leadership capacity. However, its success depends on contextual factors such as mentor quality, institutional support, and alignment with leadership development frameworks. The limited number of quantitative and mixed-methods studies highlights the need for more robust empirical evidence to validate these findings within the Malaysian NPQEL context.

Research Gaps and Future Directions

Although the existing literature provides valuable insights into the relationship between mentoring, leadership talent, and instructional leadership, several critical research gaps remain evident across the reviewed studies. These gaps are categorized into methodological, theoretical, and contextual limitations that collectively shape directions for future investigation.

Methodological Gaps

A clear methodological imbalance exists, as 81.25% ($n = 13$) of the reviewed studies relied on qualitative approaches [17, 18, 19, 20, 21, 22, 30, 27, 12], while only a small proportion used quantitative [13, 74] or mixed-methods [17, 18, 11] designs. This over-reliance on qualitative inquiry limits the generalizability and statistical validation of findings on mentoring effectiveness. Few studies employed experimental, longitudinal, or correlational designs that could establish causal links between mentoring, leadership talent, and instructional leadership competency. Additionally, limited use of standardized instruments and inconsistent reporting of validity and reliability measures were evident, particularly in interpretive and conceptual works [31, 30]. Future studies should therefore employ mixed or quantitative methodologies with robust sampling, validated tools, and inferential analyses to strengthen empirical generalization and external validity.

Theoretical and Conceptual Gaps

The theoretical diversity across studies reflects multiple conceptual orientations, including Transformational Leadership Theory [26], Instructional Leadership Theory [19, 27, 74], Social Learning Theory [21], and Developmental Relationships Theory [20]. While this demonstrates richness, few studies have attempted to integrate these frameworks into a cohesive explanatory model. For instance, although several studies identify mentoring as a mediator between leadership talent and competency [17, 18, 26, 20, 11, 13], none empirically test this mediation or explore the dynamic interactions among these constructs. The lack of integrated theoretical models limits understanding of how mentoring mechanisms translate leadership potential into practical competency. Future research should therefore develop and empirically validate integrated frameworks that connect leadership talent, instructional leadership, and mentoring effectiveness within professional development programs such as NPQEL.

Contextual and Geographical Gaps

Geographically, research remains heavily skewed toward Western contexts, particularly the United States, which accounts for 50% ($n = 8$) of the reviewed studies [17, 18, 26, 20, 31, 22, 27, 29]. In contrast, Asian perspectives, especially from Malaysia, remain underrepresented with only three empirical studies [12, 13, 74]. This Western-centric orientation limits contextual relevance for NPQEL-qualified novice principals who operate within Malaysia's unique sociocultural, policy, and organizational environments. Furthermore, limited research explores how mentoring models can be adapted to fit local leadership frameworks, such as those promoted by Malaysia's Ministry of Education or Institut Aminuddin Baki. Therefore, future studies should prioritize context-specific investigations that examine how mentoring practices can be localized to strengthen leadership competencies and support school improvement efforts in Malaysian settings.

Practical and Policy Gaps

While many studies affirm the benefits of mentoring (1, 2, 5, 6, 8, 10, 15), few provide detailed policy recommendations or frameworks for institutional implementation. For example, mentoring programs often lack structured mentor training, standardized evaluation mechanisms, and sustainable follow-up systems (2, 9, 14). Additionally, limited evidence exists regarding the long-term impact of mentoring on school improvement indicators, such as student achievement or teacher performance. Future research should thus extend beyond short-term perceptions to evaluate the longitudinal outcomes of mentoring, linking leadership development to measurable school performance indicators. Policymakers should also consider embedding mentoring assessment frameworks within NPQEL to ensure accountability and continuous professional learning for both mentors and mentees.

Future Research Directions

To address these gaps, future research should adopt mixed-methods and longitudinal designs to capture both the developmental processes and measurable outcomes of mentoring programs [1, 2, 11, 15, 16]. Scholars are encouraged to develop integrative theoretical models that link leadership talent, instructional leadership, and mentoring effectiveness, grounded in Transformational and Social Learning perspectives [5, 6, 8]. Furthermore, mentoring frameworks should be contextualized for NPQEL-qualified novice principals to reflect Malaysia's educational structure and unique leadership challenges [14, 15]. The incorporation of digital and virtual mentoring dimensions also shows promise in enhancing accessibility and collaboration among geographically dispersed principals [1, 3]. Finally, future policy directions should embed evidence-based mentoring outcomes into national principal training standards and leadership competency frameworks to ensure sustainable professional development and systemic improvement.

Instructional Leadership and Mentoring

Instructional leadership was identified across the reviewed studies as a pivotal competency area developed through structured mentoring programs. Mentoring enabled novice principals to internalize and apply instructional leadership practices in real school contexts. The synthesis of findings revealed three core themes: enhancement of teaching quality, data-informed decision-making, and collaborative instructional culture [1, 5, 6, 12, 13, 15, 16].

First, mentoring strengthened novice principals' capacity to improve teaching and learning. Through guidance from experienced mentors, novice principals learned how to conduct effective classroom observations, provide constructive feedback to teachers, and align teaching practices with national education standards [15, 94]. Several studies highlighted that mentoring helped bridge the theory–practice gap, allowing principals to translate conceptual models of instructional leadership into concrete school improvement strategies [120, 93].

Second, mentoring cultivated data-driven decision-making skills among novice principals. Mentors guided them in interpreting assessment results and using school performance data to inform instructional planning and interventions. This analytical orientation improved principals' ability to monitor student learning outcomes and evaluate teaching effectiveness systematically [10].

Third, the reviewed studies indicated that mentoring fostered a collaborative culture of instructional leadership. Rather than perceiving leadership as an individual responsibility, novice principals were encouraged to share leadership roles with senior teachers and subject heads. This distributed leadership approach not only enhanced instructional quality but also cultivated a sense of shared accountability within schools [5, 9].

Despite these positive outcomes, several studies reported limitations in mentoring implementation, such as insufficient mentor preparation, lack of follow-up sessions, and limited focus on instructional dimensions. In many cases, mentoring emphasized administrative compliance instead of pedagogical development, resulting in inconsistent growth in instructional leadership competency [6, 115].

Overall, mentoring served as a vital mechanism for developing instructional leadership among novice principals. When effectively structured, it provided contextualized learning opportunities, encouraged reflective practice, and promoted sustained professional growth aligned with national educational leadership standards.

Relationship Between Mentoring, Leadership Talent, and Principal Competency

The reviewed studies revealed that mentoring serves as a mediating mechanism connecting leadership talent and instructional leadership to principal competency. Leadership talent represents the intrinsic capabilities—such as strategic thinking, emotional intelligence, and adaptability—that enable principals to perform effectively. However, without structured mentoring, these talents often remain underdeveloped or contextually misaligned with school leadership demands [27, 140].

Mentoring provides a transformational process through which novice principals' leadership talents are refined into practical competencies. Through observation, reflection, and guided feedback, mentors help mentees transform their innate attributes into applied leadership behaviors. This aligns with Social Learning Theory, which posits that learning occurs through modelling, imitation, and reinforcement in a social context [23].

Furthermore, mentoring strengthens instructional leadership by promoting the development of domain-specific knowledge, decision-making capacity, and relationship management skills. Studies consistently demonstrated that novice principals who received consistent mentoring displayed greater self-efficacy, improved instructional supervision practices, and higher staff morale [93, 6].

Leadership talent was also found to enhance the mentoring relationship itself. Principals with higher levels of resilience, optimism, and motivation engaged more productively with mentors, leading to faster professional growth [9]. Conversely, weak leadership talent or limited self-awareness reduced mentoring effectiveness, suggesting a reciprocal relationship between personal attributes and the mentoring process [141].

Finally, the synthesis indicated that both leadership talent and instructional leadership competencies contribute synergistically to the overall competency of novice principals. When embedded within supportive mentoring environments, these constructs reinforce each other, resulting in well-rounded leaders capable of driving school improvement initiatives.

DISCUSSION

The current study analysed sixteen empirical studies to identify the underlying factors influencing the relationship between mentoring and leadership development among novice school principals. The synthesis revealed five major categories represented by seventeen sub-factors, as illustrated in **Figure 3**, derived from ATLAS.ti 24. These categories include (a) contextual challenges, (b) contextual and implementation barriers, (c) leadership talent integration, (d) mentoring as a mediating mechanism, and (e) mentoring effectiveness.

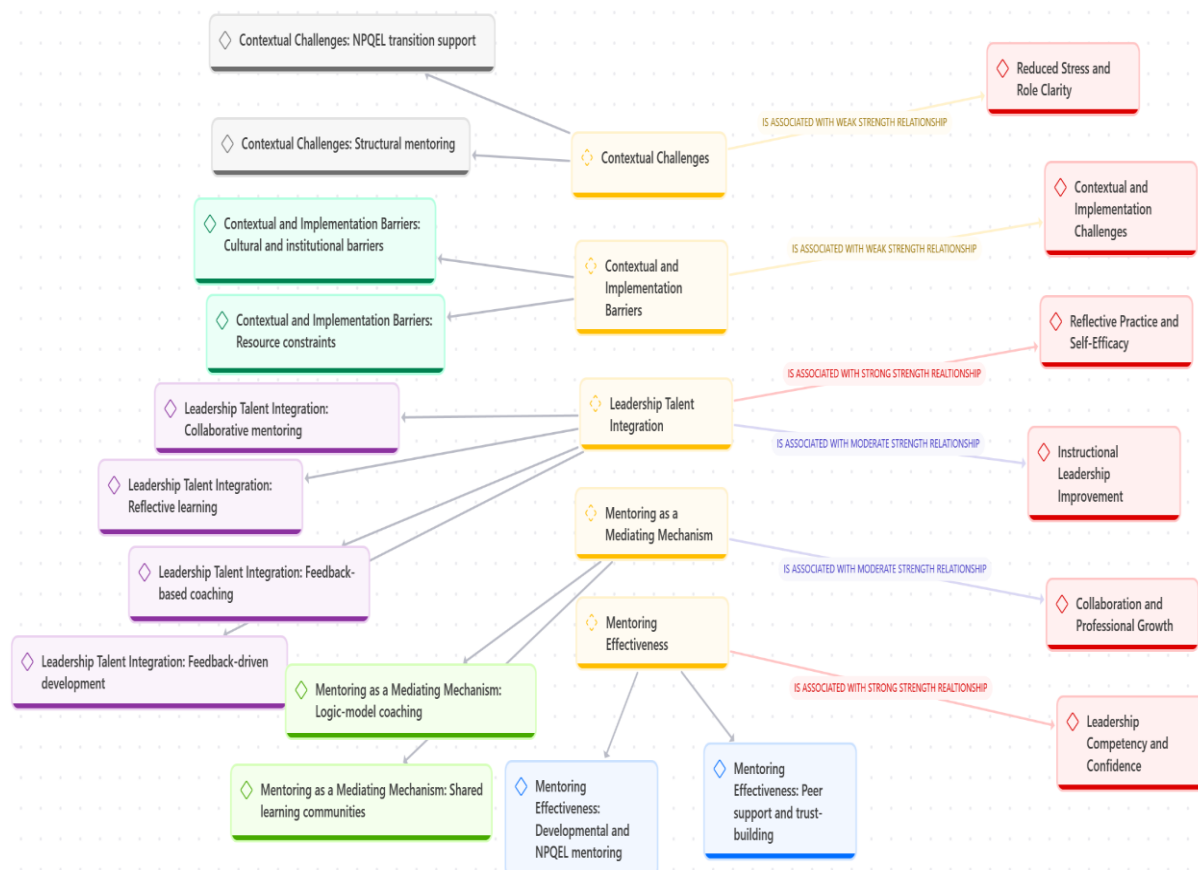


Figure 3: Conceptual Framework of Mentoring Effectiveness and Leadership Development Among Novice Principals

The most frequently reviewed factor was leadership talent integration, encompassing sub-factors such as collaborative mentoring, reflective learning, feedback-based coaching, and feedback-driven development. As illustrated in the model, these elements were strongly associated with reflective practice and self-efficacy, and moderately associated with improvement in instructional leadership, indicating that the structured integration of leadership talent through mentoring accelerates principals' readiness for instructional leadership roles. This finding is consistent with previous studies highlighting the contribution of reflective mentoring and feedback cycles to leadership growth and professional identity formation among school leaders [1, 2, 3, 4].

The second most prominent category was mentoring effectiveness, represented by sub-factors such as peer support, trust-building, and developmental mentoring approaches. As shown in the figure, mentoring effectiveness demonstrated a strong association with leadership competency and confidence, and a moderate association with collaboration and professional growth. These relationships confirm that effective mentoring fosters psychological safety and reciprocal trust, which are essential enablers of sustained leadership learning. Similar relational and developmental dimensions of mentoring have been emphasized in earlier studies [5, 6, 7, 8].

Crucially, the third factor, mentoring as a mediating mechanism, included logic-model coaching and shared learning communities. In alignment with the model, this factor showed a moderate-strength association with both instructional leadership improvement and professional collaboration. These findings demonstrate that mentoring functions not merely as a supportive process but as the key explanatory pathway through which leadership talent is translated into practical leadership outcomes, thereby facilitating the application of leadership theory into observable instructional leadership competencies [9, 10, 11].

In contrast, contextual challenges and implementation barriers, including NPQEL transition support limitations, structural mentoring gaps, cultural and institutional constraints, and resource challenges, were shown to have weak associations with leadership outcomes such as reduced stress, role clarity, and implementation effectiveness. This suggests that contextual factors continue to constrain the consistency and impact of mentoring initiatives, particularly within hierarchical and resource-limited educational systems, a pattern consistently reported in prior studies [12, 13, 14].

Overall, the model reinforces the interrelated nature of leadership talent integration, mentoring effectiveness, and mentoring as a mediating mechanism. While leadership talent integration contributes to reflective and confident leadership, and mentoring effectiveness enables trust and professional collaboration, mentoring as a mediating mechanism emerges as the central mechanism linking leadership theory to leadership practice. Collectively, these findings indicate that for NPQEL to succeed, mentoring must move beyond administrative oversight towards a talent- and instruction-focused developmental relationship that systematically enhances the competency and confidence of novice principals. Consistent with earlier studies, this synthesis underscores the importance of context-responsive mentoring frameworks that integrate reflective, feedback-driven, and community-based practices while addressing persistent environmental and structural barriers within educational organizations [15, 16].

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APPENDIX: A

TABLE A1. BEME quality assessment for the selected quantitative studies

BEME Criteria: Quantitative Studies			(Taher et al. 2016)	(Carmus & Beilbas 2016)
1 →	Research question:	→ Is the research question or the hypothesis clearly stated?	→ 1	→ 1
2	Study subject:	→ Is the subject group appropriate for the study being carried out?	1	1
	Data collection	→ Are the methods used appropriately		
3 →	method:	→ for the research question and context?	1	1
4 →	Completeness of data:	Attrition rates acceptable questionnaire → response rate?	1	1
5 →	Risk of bias assessment:	→ Is a statement of author positionality and risk of bias assessment included?	0	0
6 →	Analysis of results:	→ Are the statistical and other methods of results analysis used appropriately?	1	1
7 →	Conclusion:	→ Is it clear that the data justify the conclusion drawn?	1	1
8 →	Reproducibility:	→ Could the study be repeated by other researchers?	0	1
9 →	Prospective:	→ Is the study prospective?	0	0
10	Ethical issue:	→ Are all ethical issues articulated and managed appropriately?	1	1
11 →	Triangulation:	→ Were results supported by data from more than one source?	1	0
Total			8	8

High quality= 7-10; Moderate quality= 4-6; Low Quality= 0-3. The study should score at least '7' to be included in the review

TABLE A2. BEME quality assessment for the selected qualitative

BEME Criteria: Qualitative Studies		(Hby et al. 2023)	(Conbrock & Daniels 2023)	(Hby, Pashirovich, Tong & Zhao 2022)	(Blakmore & Daveport 2019)	(Pariente & Rubin 2021)	(Hayes 2019)	(Cary 2018)	(Averna 2018)	(Opulcia & Lapadat 2017)
Section A: Are the results valid? (Validity of the basic study design)	1. Was there a clear statement of the aims of the research?	1	1	1	1	1	1	1	1	1
	2. Is a qualitative methodology appropriate?	1	1	1	1	1	1	1	1	1
	3. Was the research design appropriate to address the aims?	1	1	1	1	1	1	1	1	1
	4. Was the recruitment strategy appropriate to the aims?	1	1	1	1	0	0	0	0	1
	5. Was the data collected in a way that addressed the research issue?	1	1	1	0	1	1	1	1	1
	6. Has the relationship between researcher and participants been adequately considered?	0	0	1	1	0	0	0	0	0
Section B: What are the results?	7. Have ethical issues been taken into consideration?	0	0	1	0	1	1	1	1	1
	8. Was the data analysis sufficiently rigorous?	1	1	1	0	0	1	1	1	1
	9. Is there a clear statement of findings?	1	1	1	1	1	1	1	1	1
Section C: Will the results help locally?	10. How valuable is the research?	1	1	1	1	1	1	1	1	1
Total		8	8	10	7	7	8	8	8	9

High quality= 7-10; Moderate quality= 4-6; Low Quality= 0-3. The study should score at least '7' to be included in the review

TABLE A2. *Cont.*

BEME Criteria: Qualitative Studies		⁺ (Crabtree & Kellor 2018)	(Linell et al. 2017)	(Howe, Lewis, Stewart & Jennings 2017)	(Nicolaidou, Kargiaris & Peridou 2016)	(Saidun, Tahir & Mursah, 2015)
Section A: Are the results valid? (Validity of the basic study design)	1. Was there a clear statement of the aims of the research?	1	1	1	1	1
	2. Is a qualitative methodology appropriate?	1	1	1	1	1
	3. Was the research design appropriate to address the aims?	1	1	1	1	1
	4. Was the recruitment strategy appropriate to the aims?	1	1	1	1	1
	5. Was the data collected in a way that addressed the research issue?	1	1	1	1	1
	6. Has the relationship between researcher and participants been adequately considered?	0	1	0	1	0
Section B: What are the results?	7. Have ethical issues been taken into consider- ation?	1	1	1	1	1
	8. Was the data analysis sufficiently rigorous?	1	1	1	1	1
	9. Is there a clear statement of findings?	1	1	1	1	1
Section C: Will the results help locally?	10. How valuable is the research?	1	0	1	1	1
Total	→	9	→	9	→	9

High quality= 7-10; Moderate quality= 4-6; Low Quality= 0-3. The study should score at least "7" to be included in the review

TABLE A3. BEME quality assessment for the selected review studies

BEME Criteria: Qualitative Studies		→
		Hayes & Mahfouz, 2020
Section A:	Did the review address a clearly focused question?	1
Are the results valid? (Validity of the basic study design)	Did the authors look for the right type of papers?	1
	Do you think all the important, relevant studies were included?	0
	Did the review's authors do enough to assess quality of the included studies?	0
	If the results of the review have been combined, was it reasonable to do so?	1
	What are the overall results of the review?	1
Section B:	How precise are the results?	0
What are the results?	Can the results be applied to the local population?	0
	Were all important outcomes considered?	1
Section C: Will	Are the benefits worth the harms	1
the results help	and cost?	
locally?		
Total	→	→ 6 →

High quality= 7-10; Moderate quality= 4-6; Low Quality= 0-3. The study should score at least "7" to be included in the review

Table A4. Matrix Table for Quantitative Studies on Mentoring

Title	Authors	Country	Paradigm Design	Problem	Objectives	Theory / Framework	Themes	Findings
1 The benefits of headship mentoring: An analysis of Malaysian novice headteachers' perceptions	Lokman Tahir, Mohd Nihra Haruzuan Mohd Said, Khadijah Daud, Shafeeq H. Vazhathodi & Aqeel Khan	Malaysia	Positivism Quantitative (Survey)	Lack of empirical data on benefits of mentoring for novice headteachers.	Assess perceived benefits of headship mentoring.	Leadership Development Models	Support, Confidence, Role clarity	Mentoring improved role confidence, reduced stress, and enhanced leadership practice.
2 The effects of professional development activities on principals' perceived instructional leadership practices: Multi-country data analysis using TALIS 2013	Emine Gurmus & Mehmet Sukru Bellibas	Multi-country (OECD)	Positivism Quantitative (Secondary survey analysis)	Limited cross-country data on PD impact.	Examine effects of PD on instructional leadership.	Instructional Leadership frameworks	Professional Development, Leadership practices	Professional development positively associated with principals' instructional leadership practices.

Table A5. Matrix Table of Studies on Mentoring and Leadership Development

Title	Author(s)	Country	Paradigm	Design	Problem	Objectives	Theory / Framework	Themes	Findings
Virtual mentoring and coaching through virtual professional leadership learning communities for school leaders: A mixed-methods study	Beverly J. Irby, Roya Pashmforoosh, Rafael Lara-Alecio, Fuhui Tong, Matthew J. Etchells & Linda Rodriguez	USA	Pragmatism	Mixed-methods	Lack of research on virtual mentoring for school leaders.	Explore leaders' perceptions of VMC quality and growth.	Adult Learning, Transformational Learning, Communities of Practice	Collaboration, Reflection, Growth	VMC enhanced leadership skills, collaboration, and confidence
Principal mentoring in one education district in the Western Cape: A case study	Martin Combrinck & James Daniels	South Africa	Pragmatism	Mixed-methods / survey study	New principals struggle with role transition.	Assess how mentoring influences principals' leadership.	Leadership Development frameworks	Trust, Guidance, Professional Growth	Mentoring improved leadership readiness and confidence
Virtual mentoring and coaching for school leaders participating in virtual professional learning communities	Beverly J. Irby, Roya Pashmforoosh, Fuhui Tong, Rafael Lara-Alecio, Matthew J. Etchells, Linda Rodriguez, Christopher Prickett & Yingying Zhao	USA	Constructivism	Qualitative (case study)	Questions on effectiveness of online mentoring.	Explore virtual mentoring practices.	e-Mentoring & Adult Learning	Connectivity, Flexibility, Challenges	Online mentoring supports but tech issues & engagement are barriers
Novice principal mentoring and professional development	Nurit Pariente & Dorit Tubin	Israel	Interpretivism	Qualitative	Novices lack leadership skills despite PD programs.	Examine integration of mentoring & PD.	Instructional Leadership Theory	Role clarity, Leadership practice	PD combined with mentoring strengthened leadership skills
Principal transformative learning through mentoring aspiring administrators	Dana L. Bickmore & Lydia Diane Davenport	USA	Critical theory	Qualitative	Lack of transformative leadership among new heads.	Study transformative mentoring's impact.	Transformational Leadership Theory	Empowerment, Change, Vision	Mentoring promoted reflective, transformative leadership
Using developmental relationships in mentoring to support novice principals as leaders of learning	Sonya D. Hayes	USA	Constructivism	Qualitative	One-size-fits-all mentoring ineffective.	Investigate developmental mentoring models.	Developmental Relationships Theory	Reciprocity, Shared learning	Developmental mentoring deepens relational trust & learning
Leadership-focused coaching: A research-based approach for supporting aspiring leaders	Julia Gray	USA	Pragmatism	Mixed-methods	Coaching's role in leadership underexplored.	Explore leadership coaching processes.	Coaching Partnership frameworks	Feedback, Collaboration	Coaching enhanced leadership competencies
Title	Author(s)	Country	Paradigm	Design	Problem	Objectives	Theory / Framework	Themes	Findings
Mentoring novice school principals in Chile: What do mentors learn?	Felipe Aravena	Chile	Interpretivism	Qualitative	Novice principals face stress & isolation.	Explore mentoring's role.	Social Learning Theory	Confidence, Emotional support	Mentoring reduced stress & improved leadership adjustment
Novice principals' perceptions of their mentoring process in early career stage: The key role of mentor-protégé relations	Izhar Oplatka & Alona Lapidot	Israel	Interpretivism	Qualitative (survey/interviews)	Lack of data on mentoring experience.	Understand novice principals' mentoring views.	Induction & Mentoring theory	Support, Role identity	Mentoring helpful but inconsistent quality
Perceptions of a Principal Mentoring Initiative	Phyllis Gimbel & Kristine Kefor	USA	Positivism	Quantitative	Limited data on mentoring outcomes.	Measure principals' perceptions statistically.	Instructional Leadership frameworks	Mentoring outcomes, Role clarity	Mentoring correlated with stronger leadership practice
A logic model for coaching experienced rural leaders: Lessons from year one of a pilot program	Jane Clark Lindle, Matthew R. Della Sala, Kerryae L. Reese, Hans W. Klar, Robert Charles Knoeppel & Frederick C. Buskey	USA	Pragmatism	Mixed-methods (pilot program)	Lack of coaching support in rural leadership.	Pilot-test coaching logic model.	Logic Model & Coaching theory	Contextualized support, Reflection	Coaching model feasible, needs refinement
Enhancing instructional leadership through collaborative coaching: A multi-case study	Gary W. Houchens, Tom A. Stewart & Sara Jennings	USA	Pragmatism	Multi-case study	Weak instructional leadership practices.	Examine coaching's effect on leadership.	Instructional Leadership Theory	Collaboration, Teaching quality	Coaching improved instructional leadership skills
Feedback-based coaching towards school leaders' professional development: Reflections from the PROFLEC project in Cyprus	Maria Nicolaidou, Viasemina Karagiorgi & Alexandra Petridou	Cyprus	Positivism	Quantitative	Little evidence on feedback coaching impact.	Assess the effect of feedback coaching.	Coaching Feedback Theory	Reflection, Performance	Feedback coaching improved leaders' decision-making
Problems Faced by Novice Principals in Malaysia: An Exploration Study	Ramman Saidum, Lokman Mohd Tahir & Mohammed Borhannaden Musah	Malaysia	Interpretivism	Qualitative (exploratory)	Novice principals struggle with multiple role challenges.	Identify problems novice principals face.	Induction & Leadership frameworks	Stress, Lack of guidance	Challenges: workload, policy demands, lack of mentoring

Table A5. Cont.

Table A6. Matrix of Positive Outcomes Predicted by Relevant Mentoring and Leadership Studies

No	References	Positive Outcome	Codes (Indicators)	N (%)	Mentoring Type / Context	Leadership Focus	Theoretical Framework	Countries	Challenges / Notes
1	[1, 2, 10, 14, 15]	Leadership Competency and Confidence	(a) Developmental and NPQEL mentoring (b) Peer support and trust-building	5 (31.3%)	Developmental / NPQEL Mentoring	Leadership readiness and confidence	Transformational Leadership	USA, South Africa, Malaysia	Inconsistent mentor support, transition stress
2	[1, 2, 5, 6, 13]	Reflective Practice and Self-Efficacy	(a) Reflective learning (b) Feedback-based coaching	5 (31.3%)	Virtual / Professional Learning Communities	Reflective and adaptive leadership	Transformational & Instructional	USA, UK, Cyprus, South Africa	Limited follow-up and online engagement
3	[5, 6, 12, 13, 16]	Instructional Leadership Improvement	(a) Collaborative mentoring (b) Feedback-driven development	5 (31.3%)	Coaching and Leadership Networks	Instructional leadership	Transformational & Instructional	USA, Turkey, Cyprus	Resource dependency and sustained engagement are needed
4	[3, 5, 11, 12, 15]	Collaboration and Professional Growth	(a) Logic-model coaching (b) Shared learning communities	5 (31.3%)	Coaching / Mentoring Networks	Collaborative and adaptive leadership	Transformational Leadership	USA, Malaysia	Limited structural frameworks
5	[8, 9, 14, 15]	Reduced Stress and Role Clarity	(a) Structural mentoring (b) NPQEL transition support	4 (25.0%)	Institutional / NPQEL Mentoring	Leadership transition	Transformational & NPQEL	Israel, Malaysia, Chile	Mentor-protégé mismatch, institutional limits
6	[8, 9, 14, 15, 16]	Contextual and Implementation Challenges	(a) Cultural and institutional barriers (b) Resource constraints	5 (31.3%)	Institutional Mentoring	Program implementation	Transformational & Contextual	Israel, Malaysia, Chile, Turkey	Structural gaps and mentor capacity limits

Summary of Frequencies and Relationship Strengths

Positive Outcome	Studies (N)	Percentage (%)	Relationship Strength	Key Themes Linked
Leadership Competency and Confidence	5	31.3	Strong (red line)	Mentoring Effectiveness
Reflective Practice and Self-Efficacy	5	31.3	Strong (red line)	Mentoring Effectiveness / Leadership Talent Integration
Instructional Leadership Improvement	5	31.3	Moderate (blue line)	Leadership Talent Integration
Collaboration and Professional Growth	5	31.3	Moderate (blue line)	Mentoring as a Mediating Mechanism
Reduced Stress and Role Clarity	4	25.0	Weak (yellow line)	Contextual Challenges
Contextual and Implementation Challenges	5	31.3	Weak (yellow line)	Contextual and Implementation Barriers

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Collaboration and Professional Growth	5	31.3	Moderate (blue line)	Mentoring as a Mediating Mechanism
Reduced Stress and Role Clarity	4	25.0	Weak (yellow line)	Contextual Challenges
Contextual and Implementation Challenges	5	31.3	Weak (yellow line)	Contextual and Implementation Barriers