The Human Side of Digital School Leadership: A Dynamic Digital Leadership Competency Framework for School Leaders

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Abstract: The rapid digitalization of schooling has heightened the emotional, psychological and ethical demands on school leaders, who must now serve as digital change agents while sustaining staff wellbeing and engagement. Existing digital leadership models are often overly technical or tool-oriented and underplay the human side of digital transformation, especially in systems with uneven digital readiness and rising performance pressures. This paper addresses that gap by proposing a dynamic digital leadership competency framework that foregrounds emotional, ethical and instructional dimensions and offers a human-centred lens on digital change. The framework is grounded in an integrative review of research on digital leadership, instructional leadership, emotional intelligence and competency modelling, complemented by insights from an earlier design and development research (DDR) project on digital leadership among Malaysian secondary school principals. It comprises a core domain, Self and Ethical Digital Leadership, and three interrelated outer domains: Visionary and Strategic Digital Leadership, Instructional and Learning-Focused Digital Leadership, and Data-Informed and Innovation-Oriented Digital Leadership. The core domain highlights leaders' self-awareness, emotional regulation, resilience and ethical use of technology and data as foundations for credible and sustainable digital change. Attending to this human core reshapes how digital leadership is enacted at strategic, instructional and innovation levels, with implications for teacher wellbeing, organisational culture and school climate. The framework offers scholars, policymakers and professional development providers a theoretically grounded, practice-oriented tool for strengthening the human side of digital school leadership.

Keywords: Digital school leadership, Emotional intelligence, Wellbeing and resilience, Digital transformation in education, Leadership competency framework

1. Introduction

The digital era has reshaped school leadership in ways that go beyond managing devices, platforms and data systems. School leaders are now expected not only to guide digital adoption, but also to protect trust, sustain wellbeing and preserve the quality of teaching and learning. Digital transformation in schools is therefore not merely a technical process; it is also emotional, relational and ethical work. Principals must respond to technostress, digital fatigue, shifting teacher expectations, responsible data use, online safety and equity of access, all while managing work-life pressures that became more visible during and after the COVID-19 period. In Malaysia, these pressures intersect with national policy agendas such as the Malaysia Education Blueprint 2013-2025 and the Malaysia Digital Economy Blueprint, both of which promote ICT integration, educational quality, equity and secure digital ecosystems (Kementerian Pendidikan Malaysia, 2013; Economic Planning Unit, 2021). Yet policy ambition alone does not guarantee change: improvement depends on teacher professional development, ICT competence, infrastructure and a sense of ownership among teachers (Zainal & Zainuddin, 2020).

In the context of Education 4.0, digital leadership is increasingly seen as a blend of communication, pedagogy, responsiveness to change and readiness to address barriers such as technophobia, limited access and skill gaps (Dasruth & Naicker, 2026). This points to the need to understand digital leadership not only in terms of systems and tools, but also as a form of leadership requiring emotional, relational and resilience-based capacities. Research on emotional intelligence supports this view by linking self-awareness, empathy and relationship management with teacher wellbeing, instructional quality, collective efficacy and school climate (Sasere & Matashu, 2025). These issues are especially significant in systems where digital readiness remains uneven; during COVID-19, students in geographically uneven regions experienced poor connectivity, weak infrastructure and unconducive learning conditions (Jafar et al., 2022). Recent studies link principals' digital leadership and teachers' digital pedagogy with digital citizenship and identify competencies such as digital vision, culture, professional development, safety and resilience (Hamzah et al., 2021; Nubun et al., 2024; Mohd Tahir et al., 2025).

Taken together, this work shows growing recognition of digital school leadership, but also a continuing conceptual gap: existing discussions do not sufficiently integrate ethical, emotional, instructional and

innovation-oriented dimensions into a coherent competency framework. This paper addresses that gap by proposing a Dynamic Digital Leadership Competency Framework that places the human side of leadership at the centre while still recognising strategic and instructional demands. In doing so, the paper contributes by shifting attention from tools to human-centred competencies, offering a practical framework for leadership development and linking digital transformation with wellbeing, ethics, instructional improvement and data-informed innovation in unequal and changing contexts.

2. Literature Review

2.1 Digital School Leadership and Instructional Leadership

Digital school leadership is increasingly understood as the strategic, pedagogical and ethical use of digital technologies to advance organisational and learning goals, rather than as narrow ICT management alone (Zhong, 2017; Sheninger, 2019; Dasruth & Naicker, 2026). The literature shows a gradual shift from seeing principals mainly as infrastructure managers to recognising them as leaders who intentionally integrate digital platforms, data and emerging technologies into teaching, assessment and administration (McLeod & Richardson, 2011; Kafa & Pashiardis, 2019). In the context of Education 4.0, digital leadership increasingly overlaps with instructional leadership because principals are expected to support technology-rich pedagogy, teacher professional learning and evidence-informed classroom improvement (Dasruth & Naicker, 2026). Digital learning cultures remain uneven, shaped by infrastructure, training and teacher readiness, while digital citizenship shapes teachers' digital pedagogy (Hamzah et al., 2021; Okunlola & Naicker, 2025; Kafa & Pashiardis, 2019). Overall, digital school leadership is better understood as a broader, human-centred form of leadership that shapes school vision, pedagogy, culture and organisational learning through technology (McLeod & Richardson, 2011; Dasruth & Naicker, 2026).

2.2 Emotional Intelligence, Wellbeing and the Human Side of Leadership

A recurring weakness in digital leadership literature is the limited treatment of emotional and relational dimensions. Research on emotional intelligence consistently shows that leaders' self-awareness, empathy and relationship management matter for teacher wellbeing, school climate and leadership quality, particularly in environments shaped by rapid technological change (Sasere & Matashu, 2025). Digital transformation often changes not only work processes but also the emotional experience of work: new platforms, data demands and constant adaptation can create strain, especially when teachers differ in confidence, support and readiness. In such settings, emotionally attuned leadership becomes essential, helping leaders recognise pressure, communicate change sensitively and sustain trust while schools adapt.

2.3 Competency Modelling for Digital Leadership

Competency modelling defines competencies as integrated combinations of knowledge, skills, attitudes and values supporting effective practice and professional growth (Spencer & Spencer, 1993; Leithwood et al., 2004). Digital leadership standards commonly emphasise visionary leadership, digital learning culture, professional practice, systemic improvement and digital citizenship (International Society for Technology in Education [ISTE], 2009; Zhong, 2017). In South Africa, Dasruth and Naicker (2026) propose an Education 4.0-oriented framework covering foundational digital practices, digital teaching and communication, and contextual responsiveness, but it still weighs structural and technical practices more heavily than emotional and relational competencies. Malaysian studies similarly identify competencies such as digital vision, culture, professional development, safety and resilience, but many remain strongly ICT-oriented with limited attention to instructional and human-centred dimensions (Hamzah et al., 2021; Nubun et al., 2024; Mohd Tahir et al., 2025).

2.4 Synthesis and Gaps

Taken together, digital school leadership shapes vision, pedagogy, culture and organisational learning through technology (McLeod & Richardson, 2011; Dasruth & Naicker, 2026), yet the human side of leadership remains underdeveloped despite evidence that emotional intelligence and relational capability sustain teacher engagement, instructional quality and school resilience during digital change (Harms & Credé, 2010; Sasere & Matashu, 2025). Current models privilege technical and structural dimensions, give limited treatment to instructional leadership, and insufficiently reflect the context-sensitive nature of digital leadership in systems with uneven readiness (ISTE, 2009; Okunlola & Naicker, 2025; Kafa & Pashiardis, 2019). In Malaysia, there is still no competency framework that explicitly integrates leadership, technology and emotional-relational dimensions while placing the human core at the centre of vision, pedagogy and data-informed innovation

(Hamzah et al., 2021; Nubun et al., 2024). This gap provides the basis for the framework proposed here. Table 1 substantiates the framework's novelty against the three closest models. ISTE (2018) and Malaysian models (Hamzah et al., 2021; Nubun et al., 2024) treat safety or resilience as discrete items rather than as an emotional-ethical core shaping other domains; Dasruth and Naicker (2026) attend more to instructional practice but remain weighted toward technical readiness over inner leader capacities. This confirms that existing frameworks under-integrate emotional-ethical and instructional-strategic dimensions.

Table 1: Framework Comparison

Framework	Core Focus	Human/Ethical Core	Novelty Gap
ISTE (2018)	Vision, culture, citizenship	Implicit only	No structural emotional core
Dasruth & Naicker (2026)	Digital teaching, readiness	Weak; technical bias	No dynamic mechanism
Malaysian models (2021; 2024)	Vision, safety, resilience	Resilience noted only	ICT-oriented; no integration
Proposed framework	Self-Ethical core + 3 domains	Explicit, theory-grounded	Dynamic feedback loop

3. Methodology

This article adopts a conceptual methodology to develop a human-centred framework of dynamic digital leadership competencies for Malaysian secondary school principals. Rather than generating new primary data, it synthesises theoretical and empirical insights from previous scholarship and from an earlier Design and Development Research (DDR) project to produce a framework that is context-sensitive, conceptually coherent and open to future testing.

3.1 Conceptual and Integrative Approach

This review followed a purposive, non-systematic conceptual synthesis approach rather than a systematic literature review, a deliberate choice because the objective was theoretical integration across four distinct fields rather than exhaustive coverage of a single empirical question (Torraco, 2016). Sources were retrieved primarily from Scopus, ERIC and Google Scholar, covering publications from 2009 to 2026, using combinations of the search terms "digital leadership", "instructional leadership", "emotional intelligence", "competency framework", "school principal" and "Malaysia". Priority was given to peer-reviewed articles, established standards (ISTE, 2018) and Malaysian policy documents; sources without direct relevance to school leadership were excluded. Because the paper's contribution is theoretical rather than empirical, the review prioritises conceptual saturation over exhaustiveness: sources were added until no further distinct constructs relevant to the four proposed domains emerged. The study reorganises existing scholarship into a digital leadership competency framework for secondary schools by undertaking an integrative review across digital leadership, instructional leadership, emotional intelligence and wellbeing, and competency modelling (Goleman et al., 2022; ISTE, 2018; Shin et al., 2023), drawing also on adaptive and transformational leadership perspectives and current Malaysian digital education priorities (Heifetz et al., 2009; Kementerian Pendidikan Malaysia, 2023; Lloyd, 2021).

3.2 Design and Development Research Insights

The conceptual was further informed by an earlier DDR project on principals' digital leadership competencies in Malaysia, in which a model was developed and validated through qualitative needs analysis, Fuzzy Delphi expert review and quantitative structural validation (Azman et al., 2022; Richey & Klein, 2007). In this article, those earlier findings are not re-analysed as new data; instead, they function as sensitising concepts that strengthen the relevance of domains such as self-related competencies, visionary leadership, professional and productivity competencies, and ethics and integrity, while grounding the framework in school realities and current policy demands (Kementerian Pendidikan Malaysia, 2023; Nubun et al., 2024; Ahmad et al., 2022). Three distinctions clarify the boundary between the earlier DDR project and the present paper. First, the DDR project produced a validated competency model derived from qualitative needs analysis and Fuzzy Delphi consensus (Azman et al., 2022); this model is treated purely as an empirical anchor, not as the object of new

analysis. Second, four DDR constructs — self-related competencies, visionary leadership, professional and productivity competencies, and ethics and integrity — are carried forward as sensitising concepts because they were empirically grounded in the Malaysian school context. Third, and most importantly, the four-domain structure proposed here, together with its human-centred core and sensing-seizing-transforming dynamic, is original to this conceptual synthesis: it reorganises the DDR constructs alongside literature on emotional intelligence, instructional leadership and digital leadership standards into an architecture the DDR project did not propose. In short, the DDR project supplies contextual raw material, while the architecture, integration logic and human-centred framing presented here are new contributions of this paper.

3.3 Synthesis Process

The synthesis followed three steps. First, definitions, constructs and indicators drawn from the review domains, policy documents and the earlier DDR model were mapped to identify convergence, divergence and overlap (Creswell & Creswell, 2018; Rumeli & Md Rami, 2023). Second, these elements were grouped into core and supporting domains of digital leadership competence. Third, the framework was refined around a human-centred orientation that places the principal's self and ethical core at the centre of digital leadership practice, aligning it with wellbeing, emotional intelligence and current digital policy priorities such as equity, responsible leadership and sustainable school transformation (Van Wart et al., 2019; Goleman et al., 2022; Kementerian Pendidikan Malaysia, 2023; Li et al., 2024). Because the article is conceptual, no statistical analysis is reported; the outcome is a framework intended for future operationalisation and empirical testing (Creswell & Plano Clark, 2018; Richey & Klein, 2007).

4. The Dynamic Human-centred Digital Leadership Competency Framework

This article proposes the Dynamic Human-Centred Digital Leadership Competency Framework as a conceptual response to the need for a more balanced understanding of digital school leadership in Malaysia. The framework starts from the view that effective digital leadership depends not only on technical competence, but also on strategic direction, instructional improvement, emotional intelligence and ethical judgement, such that digital leadership is understood as a dynamic and relational practice in which the principal's human core shapes how technology is interpreted and used in school transformation (Raman et al., 2019; Rumeli & Md Rami, 2023).

4.1 Structure of the Framework

The framework comprises one core domain, Self and Ethical Digital Leadership, and three outer domains: Visionary and Strategic Digital Leadership, Instructional and Learning-Focused Digital Leadership, and Data-Informed and Innovation-Oriented Digital Leadership. Together, these domains reflect the view that digital leadership is not a set of isolated technical tasks, but an interaction between inner capacities and outward practices related to vision, instruction, data and innovation (ISTE, 2018; Van Wart et al., 2019; Ojo & Naicker, 2025). The core domain acts as the human centre of the framework, giving direction, ethical grounding and emotional stability to decisions made in the outer domains (Goleman et al., 2022; Ahmad et al., 2022).

The framework is described as dynamic rather than static because the relationship between the core domain and the three outer domains operates through an ongoing cycle of sensing, seizing and transforming, concepts adapted from dynamic capabilities theory in strategic management (Teece et al., 1997; Teece, 2007). Sensing refers to self-awareness and emotional attunement that allow leaders to detect early signs of staff readiness or strain before these surfaces as visible problems. Seizing refers to the ethically grounded decisions leaders make once a need is sensed, translating awareness into concrete action. Transforming refers to the leader's capacity to regulate emotion and sustain resilience while reconfiguring practices, policies or routines as digital initiatives evolve. Crucially, this cycle is bidirectional: outcomes from the outer domains — strategic strain, instructional setbacks or data-related pressure — feed back into the core domain and reshape the leader's self-understanding and ethical position over time (Helfat & Peteraf, 2015). This reciprocal movement, rather than a fixed hierarchy of domains, constitutes the dynamic character of the framework. Figure 1 presents the framework, showing the sensing-seizing-transforming cycle and the reciprocal feedback pathways linking the human-centred core to the three outer domains.

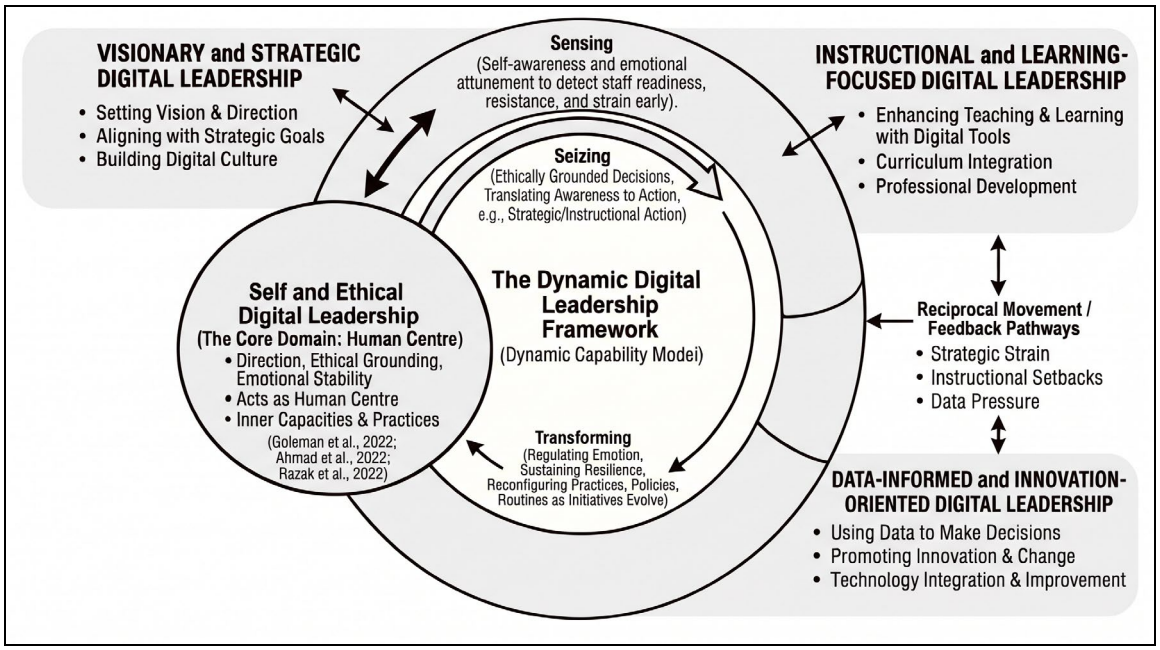


Figure 1: The Dynamic Digital Leadership Framework

4.2 Self and Ethical Digital Leadership

This foundational domain refers to the principal's capacity to recognise personal digital strengths and limitations, regulate emotions under technological pressure, act responsibly in the use of technology and data, and care for personal and collective wellbeing in the school community (Goleman et al., 2022; Batool, 2013). It draws on literature showing that emotional intelligence strengthens relationships, school climate and ethical action by helping leaders perceive, understand and regulate emotions effectively (Mayer & Salovey, 1997; Cherniss, 2000; Venter et al., 2024). In practice, this domain is visible when principals acknowledge stress linked to new systems, create space for honest dialogue and make decisions attentive to morale, inclusion, privacy and digital wellbeing (Aziz & Yusof, 2022; Ertiö et al., 2024; Kementerian Pendidikan Malaysia, 2023).

4.3 Visionary and Strategic Digital Leadership

This domain concerns the principal's ability to build a clear, future-oriented, human-centred digital vision for the school, aligning digital initiatives with policy expectations and local needs while keeping strategic choices educationally meaningful and emotionally sustainable for staff (ISTE, 2018; Kementerian Pendidikan Malaysia, 2023). Principals who communicate a coherent digital vision and connect it to shared goals are more likely to secure staff commitment and support student outcomes (Lim & Tan, 2023). In human-centred terms, strategic leadership also involves co-creating the vision with teachers, responding to concerns through dialogue and keeping ambition grounded in school readiness, teacher confidence and student need (Thannimalai & Raman, 2018; Aziz et al., 2022).

4.4 Instructional and Learning-focused Digital Leadership

This domain links digital leadership directly to teaching, learning and professional development, emphasising the principal's responsibility to ensure technology serves pedagogy and student learning rather than functioning as an administrative or symbolic tool (Raman et al., 2019). Principals' emotional intelligence is positively associated with instructional leadership practices such as supervising teaching, coordinating curriculum and supporting student learning (Venter et al., 2024; Chen & Guo, 2018). Accordingly, this domain includes support for professional learning communities, ongoing training, time for experimentation and realistic expectations during technological change (Thannimalai & Raman, 2020; Ming et al., 2023).

4.5 Data-Informed and Innovation-oriented Digital Leadership

This domain focuses on the principal's use of data, feedback and experimentation to guide school improvement, where data include information about student learning, school operations and stakeholder perceptions that support reflection and decision-making (Schildkamp et al., 2020; Van Wart et al., 2019). Innovation is framed not as constant disruption, but as gradual, context-sensitive improvement through small pilots, reflection and adaptation (Lloyd, 2021; Ming et al., 2023). This domain remains human-centred by

recognising that data-rich environments can create technostress, overload and punitive performance cultures if handled poorly (Ertiö et al., 2024; Salanova et al., 2013), so the framework encourages using data and innovation to support dialogue, learning and improvement rather than pressure or punishment (Pettersson, 2021; Wong et al., 2021). Table 2 summarises the four domains, their focus and illustrative human-centred practices.

Table 2: Human-Centred Domains of the Dynamic Digital Leadership Competency Framework

Domain	Focus	Illustrative human-centred practices
1. Self and Ethical Digital Leadership	Self-awareness, emotional regulation, ethics, responsible use of technology and data	Acknowledges digital stress openly, creates space for honest dialogue, and considers wellbeing, inclusion and privacy when making technology decisions
2. Visionary and Strategic Digital Leadership	Human-centred digital vision, alignment with policy and school needs, realistic priorities	Co-constructs a digital vision with staff, communicates change with empathy, and matches initiatives to school readiness and student needs
3. Instructional and Learning-Focused Digital Leadership	Pedagogically meaningful technology use, teacher development, supportive learning culture	Provides ongoing training, allows time for experimentation, supports PLCs, and avoids undue pressure for immediate results when new tools are introduced
4. Data-Informed and Innovation-Oriented Digital Leadership	Evidence-informed improvement, feedback use, gradual and context-sensitive innovation	Uses data for support rather than punishment, avoids overload, and pilot small innovations before scaling according to school capacity

5. Discussion

The proposed framework advances existing theory in three specific ways rather than simply restating the four domains described above. First, it extends digital leadership standards such as ISTE (2018) by repositioning emotional and ethical self-regulation from an implicit background quality into an explicit structural core governing how vision, instruction and innovation are enacted, addressing a gap the standards themselves do not resolve. Second, it extends instructional leadership theory (Leithwood et al., 2004) by proposing that instructional effectiveness during digital change is contingent on the leader's prior emotional regulation, a contingency relationship existing instructional leadership models do not specify. Third, by adapting the sensing-seizing-transforming logic of dynamic capabilities theory (Teece et al., 1997) to an individual leadership context, the framework offers competency modelling scholarship (Spencer & Spencer, 1993) a way of representing competencies as recursive and adaptive rather than as a fixed inventory of traits a theoretical move with relevance beyond school leadership. These three extensions, rather than the four-domain structure alone, constitute the paper's principal contribution to academic debate. They also carry implications for wellbeing: leaders demonstrating self-awareness, emotional regulation, resilience and ethical judgement are better equipped to handle uncertainty during digital transformation, reducing burnout and strengthening psychological safety. Evaluations of school leaders should therefore consider self-awareness and ethical judgement alongside ICT literacy, and professional development should integrate technical capability with empathy and reflective practice. Because this article is conceptual, the framework requires empirical testing; future studies could develop measures for each domain and examine relationships with teacher wellbeing and school climate.

6. Conclusion

Digital school leadership is often framed in terms of infrastructure, platforms and innovation, but its greatest challenges are human rather than technological. This article responds to that gap by proposing a human-centred and dynamic digital leadership competency framework that connects self and ethical leadership with vision, instruction and adaptive school improvement, offering a more balanced way of understanding how school leaders can guide digital transformation effectively and humanely.

Ethics Declaration: No new primary data were collected or analysed specifically for this conceptual paper. The article is based on conceptual synthesis and selective reference to insights from prior work; therefore, separate ethical clearance for this paper was not required.

AI Declaration: This paper makes use of AI tools, including Consensus for literature retrieval and Copilot for data cleaning, analysis and language refinement. All AI-assisted processes were conducted under human supervision to ensure accuracy and clarity.

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