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Headmasters' Practices, Challenges and Strategies in Implementing the Digital Education Policy in Primary Schools

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Abstract

This research study aims to analyse leadership practices, identify challenges and develop effective intervention strategies for headmasters in implementing the Digital Education Policy (Dasar Pendidikan Digital, DPD) in primary schools. The DPD calls for a transformation in leadership to achieve comprehensive technology integration. A preliminary review indicates a gap between policy and the realities of implementation, characterised by variations in digital leadership practices and challenges such as infrastructure constraints, competency issues and teacher change fatigue. The study adopts a cyclical action research approach, engaging headmasters in adapting their leadership styles based on Hersey and Blanchard's Situational Leadership Model. The intervention focuses on developing adaptive strategies for managing infrastructure logistics and building teachers' digital capacity. The anticipated outcome is a practical digital leadership strategy model specifically designed for primary school headmasters. The model is significant because it is expected to enhance the effectiveness of DPD integration holistically, from school management to classroom practice.

Keywords: Digital leadership, Digital Education Policy (DPD), headmasters, Situational Leadership Model, Primary Schools

Introduction

Rapid developments in information and communication technology (ICT) have fundamentally transformed the social, economic and educational landscape. Educational institutions worldwide are under pressure to transform in order to develop digitally literate and competent generations (Tondeur et al., 2017). In Malaysia, this pressure is addressed through the Digital Education Policy (Dasar Pendidikan Digital, DPD), which aims to foster a digital culture and enhance digital competence among pupils and educators (KPM, 2023). The success of the DPD depends directly on leadership at the grassroots level, particularly the role of headmasters in primary schools. The central concept underpinning this study is therefore digital leadership.

According to Sheninger (2014), digital leadership extends beyond the ability to use technology. It involves a leader's capacity to formulate a vision, build a culture and manage a digital ecosystem that supports twenty-first-century learning. This includes using social media

for communication, harnessing big data for decision-making and promoting innovation in digital pedagogy. Similarly, Scott (2020) defines digital leadership as school leaders' ability to integrate technology strategically across all school functions, from administration and the curriculum to teachers' professional development. Headmasters must therefore move beyond being ICT managers to become architects of their schools' digital transformation (Fullan & Quinn, 2016).

The primary school context presents unique challenges because it involves pupils in the early stages of cognitive development, alongside critical issues concerning cybersecurity and the ethical use of technology (Livingstone & Smith, 2021). At this level, headmasters' digital leadership must therefore be sensitive to age-appropriate pedagogy while ensuring full compliance with cybersecurity policies. Theoretically, headmasters' leadership practices in implementing the DPD can be analysed through the lens of transformational leadership proposed by Bass and Avolio (1994). In the digital context, transformational leadership involves inspiring and motivating teachers to embrace and integrate new technologies, transcending their individual interests to realise the vision of a digitally literate school.

Hallinger's (2003) concept of instructional leadership is also relevant, as headmasters must be directly involved in guiding teachers to use technology as a tool for improving the quality of teaching and learning. Internationally, the Digital Education Leadership Standards of the International Society for Technology in Education (ISTE-DEL) serve as a key guide. The ISTE-DEL standards (2018) outline six domains that digital leaders must master, including being a visionary planner, an empowering leader and a systemic improvement agent. These standards provide a robust framework for evaluating headmasters' practices in implementing the DPD because they emphasise the development of a comprehensive and sustainable digital ecosystem.

Effective digital leadership encompasses dimensions that extend beyond equipment management to include instructional practices, cultural transformation and human resource management (Sheninger, 2014, as cited in Hasmadi & Yusof, 2024). However, a preliminary review indicates that these practices vary among headmasters. Some have taken transformative steps by developing 'Guru Jauhari Digital' teachers as digital experts and resource persons (Azman Adnan, 2024), while others may continue to encounter difficulties, particularly in remote schools facing demographic and access-related challenges (Robit, 2024). These differences highlight the need to identify the factors that facilitate or hinder headmasters' effectiveness in leading digital initiatives in primary schools.

At the national level, the DPD serves as the overarching policy guiding these leadership practices. It establishes a strategic direction that directly requires headmasters to plan implementation strategies, manage infrastructure challenges and ensure that the teachers under their supervision possess optimal levels of digital competence. Examining headmasters' practices, challenges and strategies in implementing the DPD is significant because it contributes to expanding the body of knowledge on educational leadership by incorporating its digital dimension. Traditionally, school leadership has been assessed through instructional and transformational dimensions; however, success in the twenty-first century depends increasingly on the extent to which leaders master digital leadership (Scott, 2020).

Existing studies on headmasters' digital leadership have concentrated on three areas. The first describes the leadership practices and roles expected of headmasters. International frameworks such as the ISTE standards (2018), together with conceptual work by Sheninger (2014) and Scott (2020), define what digital leaders should do, while local studies examine how headmasters' practices relate to teachers' digital competence (Hasmadi & Yusof, 2024) and vary across school contexts (Robit, 2024). The second area concerns the challenges that arise during implementation, namely infrastructure constraints (Lim et al., 2023), uneven teacher competence (Tee & Loh, 2024) and resistance to change (Zainuddin & Salleh, 2023). The third area concerns support mechanisms, such as focused professional development (Kamarudin & Lim, 2021) and situational leadership training (Kamarudin & Muhammad, 2021).

These studies establish what headmasters are expected to do and what obstacles they face, but three limitations remain. First, practices, challenges and strategies are usually examined separately. Studies of challenges seldom show how particular leadership responses address them, while leadership frameworks seldom account for the specific constraints that primary schools face under the DPD, such as device shortages, unstable connectivity and the digital divide among pupils' families (Zaki & Kamsin, 2025). Second, the literature often relies on headmasters' perceptions alone, and the direct link between digital leadership and pupils' outcomes has not been firmly established (Tan & Lim, 2023). Third, the intervention strategies proposed to address these challenges, such as coaching-based professional development, delegation and distributed leadership, are largely derived from general leadership theory and appear to have been tested only to a limited extent in primary schools implementing the DPD. Even where a training intervention has been examined (Kamarudin & Muhammad, 2021), less attention has been paid to how headmasters adapt their own leadership in response to specific DPD challenges over time.

The gap addressed by this study is therefore not a lack of knowledge about what headmasters should do, nor a lack of awareness that DPD implementation is difficult. It concerns the limited understanding of how headmasters can convert their leadership roles into tested intervention strategies that address infrastructure logistics and teachers' digital capacity together, under the actual conditions of primary schools. The descriptions of practices and challenges therefore serve as the context that justifies the intervention, while the absence of effective and contextualised intervention strategies is the primary gap this study seeks to fill.

This study is necessary for three reasons. First, the DPD sets clear expectations of headmasters but offers limited practical guidance on how to meet them in schools with different resources. Second, practices vary considerably and the challenges are most acute in rural and remote schools (Robit, 2024; Zaki & Kamsin, 2025), so a generic leadership model is unlikely to serve all schools equally well. Third, professional development and leadership training risk being designed without evidence of what works in primary schools, leaving headmasters to address the challenges largely through trial and error.

This study is original in three respects. First, it brings together perspectives that are usually examined separately: transformational and instructional leadership (Bass & Avolio, 1994; Hallinger, 2003), situational leadership (Hersey & Blanchard, 1969) and the infrastructure and capacity challenges of the DPD. Second, it adopts a cyclical action research design in which

headmasters test and refine their leadership responses over successive cycles, instead of reporting perceptions at a single point in time. Third, it aims to produce a practical strategy model for primary school headmasters. Theoretically, the study extends school leadership theory by incorporating the digital dimension set out in the ISTE standards (2018). Practically, the model can inform the training modules of the Aminuddin Baki Institute (Institut Aminuddin Baki, IAB) and the support programmes of District Education Offices (Pejabat Pendidikan Daerah, PPD) and State Education Departments (Jabatan Pendidikan Negeri, JPN).

Accordingly, this study addresses the following research questions:
RQ1: What leadership practices do primary school headmasters adopt in implementing the DPD?
RQ2: What challenges do they encounter in carrying out these practices, particularly in infrastructure logistics and teachers' digital pedagogical competence?
RQ3: What intervention strategies, developed through cyclical action research grounded in the Situational Leadership Model, are effective in addressing these challenges?

Practices and Roles Required of Headmasters

The role of headmasters in the era of the DPD has evolved significantly beyond conventional administrative management. They are now expected to serve as change leaders and architects of their schools' digital transformation (Lim, 2023; Ng, 2021). These expectations require a paradigm shift from traditional leadership towards a digital leadership model encompassing strategic, instructional and cultural dimensions. This shift is critical because the quality of school leadership has been shown to be a key enabler of successful technological innovation and educational policy implementation (Zainal Abidin et al., 2022). Accordingly, headmasters' leadership practices in implementing the DPD can be classified into several key roles informed by recent literature.

One of the most important roles required of headmasters is that of digital instructional leader. This role involves active engagement in curriculum and pedagogy to ensure that technology integration in teaching and learning is meaningful, pupil-centred and evidence-based (Adnan et al., 2023). The literature emphasises that teachers' confidence and competence in using technology are closely correlated with the instructional support they receive from school leaders (Tee & Loh, 2024). Headmasters need to lead curriculum evaluation, provide access to high-quality digital resources, and monitor and offer constructive feedback on teachers' application of appropriate digital pedagogical frameworks, such as the SAMR or TPACK models, in primary school classrooms (Muhammad et al., 2022).

Headmasters also act as agents of transformational leadership by developing a positive digital vision and culture within their schools. In the context of the DPD, transformational leadership focuses on inspiration, intellectual stimulation and individualised consideration to motivate the school community to embrace and drive digital innovation (Syed Ahmad & Mohd Noor, 2021). These practices include establishing a school climate that encourages technological experimentation and treats unsuccessful digital trials as learning opportunities (Abdul Rahman et al., 2024). This role is important in addressing resistance to change and change fatigue among teachers (Zainuddin & Salleh, 2023). Leaders should establish coherence between the DPD, the school's vision and everyday practices to ensure that the entire school community works towards aligned digital goals.

Effective digital leadership requires headmasters to act as competent managers of human resources for digital transformation through the strategic planning and implementation of professional development (PD). Headmasters are responsible for identifying teachers' specific digital competency gaps and providing targeted training (Lee, 2025). Sustained and focused PD support is central to the success of digital initiatives (Kamarudin & Lim, 2021). These responsibilities include establishing technology-focused professional learning communities (PLCs) or appointing 'Digital Ambassadors' or 'Digital Mentors' as in-house experts to guide their colleagues (Azman Adnan, 2024). Through delegation and capacity building, headmasters not only enhance individual skills but also promote distributed leadership within the school's digital ecosystem (Ong & Tan, 2023).

Beyond pedagogy, headmasters are also expected to act as strategic infrastructure and data managers. This role involves the efficient management, procurement and maintenance of digital infrastructure, including devices, software and stable Internet connectivity, to ensure uninterrupted DPD implementation (Zaki & Kamsin, 2025). Contemporary digital leadership also requires the ability to collect, analyse and use big data to make meaningful, evidence-based decisions (Sheninger, 2024). Digital leaders should possess strong data literacy to monitor the effectiveness of digital interventions and adjust curriculum strategies and resource allocation on the basis of collected evidence rather than assumptions alone (Wong & Hassan, 2023).

Another distinctive expectation of primary school headmasters is to lead in ensuring full compliance with ethical and cybersecurity requirements. As primary school pupils are exposed to various online risks, headmasters are responsible for developing, enforcing and communicating an Acceptable Use Policy (AUP) for technology in school (Mohd Fazli & Siti Fatimah, 2022). This includes providing ongoing training for teachers and pupils on responsible digital footprints, data privacy and positive online behaviour. This role is particularly critical because it protects the digital wellbeing of the school community and ensures that the DPD is implemented safely and ethically (Livingstone & Smith, 2021).

An additional important role is that of innovation leader and advocate for experimentation. This requires headmasters to provide sufficient space and resources for teachers and pupils to experiment with new digital tools and approaches without fear of failure (Hashim et al., 2023). Headmasters need to act as 'risk absorbers', shielding teachers from premature criticism during the innovation process and providing flexible time for developing digital content. These practices, which contribute to a culture of continuous learning, are essential for ensuring that technology integration remains relevant and dynamic rather than merely complying with existing policies.

In summary, the practices and roles required of headmasters in implementing the DPD are multidimensional, encompassing instructional leadership (teaching and learning), transformational leadership (culture), human resource management (PD) and operational management (infrastructure and ethics). Effective DPD leaders are those who can strategically balance and integrate all these roles, lead from the front with a clear digital vision and continuously build teachers' capacity to achieve the DPD's goals in primary schools (Hashim et al., 2023).

Challenges in Implementing the Digital Education Policy

Headmasters' implementation of the DPD in primary schools is often overshadowed by critical challenges spanning infrastructure, pedagogy and culture. These challenges directly hinder headmasters' ability to fulfil their digital leadership roles effectively, as outlined in Section 2.0.

Infrastructure and Resource Logistics Challenges (Hindering the Role of Strategic Infrastructure Manager)

The most prominent challenges faced by headmasters concern digital infrastructure and resource availability. Although the DPD aims to provide a comprehensive digital ecosystem, infrastructure gaps remain substantial, particularly in rural and remote areas that frequently experience unstable Internet access or connectivity 'dead spots' (Zaki & Kamsin, 2025). Insufficient devices to achieve an ideal pupil-to-device ratio, complex hardware maintenance issues and high software subscription costs directly impede headmasters' ability to fulfil their role as strategic infrastructure managers (Lim et al., 2023). When basic infrastructure fails, it not only disrupts teaching and learning but also undermines headmasters' efforts to establish a digital culture in their schools.

Challenges in Teachers' Digital Pedagogical Competence (Hindering the Role of Digital Instructional Leader)

A further challenge concerns teachers' competence and capacity to integrate technology effectively, which impedes headmasters' fulfilment of their role as digital instructional leaders (2.1). There are considerable differences in digital literacy among teachers, with many experienced teachers potentially remaining more comfortable with conventional teaching methods (Tee & Loh, 2024). This challenge extends beyond technical skills to include teachers' ability to adapt their pedagogy, using the TPACK model, so that technology genuinely enhances pupils' learning rather than merely replacing printed materials (Adnan et al., 2023). This places a substantial burden on headmasters to plan effective, targeted professional development, which is frequently constrained by limited time and insufficient in-house expertise for ongoing guidance (Kamarudin & Lim, 2021).

School Culture and Resistance to Change (Hindering the Role of Digital Transformational Leadership Agent)

From the perspective of transformational leadership (2.2), headmasters frequently encounter cultural challenges and resistance to change among teachers and the wider school community. Although headmasters strive to develop a progressive digital vision, some members of the school community may remain sceptical or resist change, particularly when they do not perceive technology's added value or feel threatened by the need to acquire new skills (Zainuddin & Salleh, 2023). These challenges require headmasters not only to motivate others but also to overcome deeply entrenched cultural inertia (Syed Ahmad & Mohd Noor, 2021). Failure to establish a culture that supports technological experimentation and innovation will leave DPD projects as ad hoc initiatives rather than an integral part of the school's DNA (Abdul Rahman et al., 2024).

Challenges in Managing Competing Responsibilities and Sustainability (Hindering Comprehensive Strategic Management)

Headmasters also face serious challenges in managing their time and competing workloads. Their role as leaders of DPD implementation requires involvement in strategic planning, data management and the development of a digital culture (Sheninger, 2024). However, conventional responsibilities such as financial management, pupil discipline and numerous administrative meetings must still be fulfilled. These competing demands make it difficult for headmasters to allocate sufficient time to closely monitor and guide digital integration, thereby compromising their transformational and instructional leadership roles (Hashim et al., 2023). Without effective delegation and time-management strategies, the quality of DPD implementation is likely to suffer from fragmented attention.

Ethical, Cybersecurity and Digital Wellbeing Challenges (Hindering the Role of Ethics and Cybersecurity Manager)

Cybersecurity and digital wellbeing present distinctive challenges at the primary school level and complicate headmasters' role as managers of ethical practice. Although primary school pupils need exposure to technology, they are also vulnerable to online risks such as cyberbullying, grooming and inappropriate content (Livingstone & Smith, 2021). Headmasters are responsible for enforcing a strict Acceptable Use Policy (AUP) (Mohd Fazli & Siti Fatimah, 2022). The challenge lies in balancing the promotion of technology use, as required by the DPD, with the management of constantly evolving security risks. This risk-management process requires ongoing monitoring and continuous education for teachers, pupils and parents, further increasing the complexity of headmasters' responsibilities.

Challenges in Parental Involvement and Community Support for Digital Learning

An often-overlooked challenge is uneven parental involvement and community support for digital learning, which complicates headmasters' responsibilities for ethics and cybersecurity (3.5). In primary schools, the success of the DPD depends heavily on the continuity of digital learning at home. However, headmasters frequently encounter parents with low levels of digital literacy or those unable to provide supporting infrastructure at home, such as devices or Internet access, creating a socioeconomic digital divide among pupils (Livingstone & Smith, 2021). This challenge requires headmasters to develop parent-specific communication and training strategies, adding complexity to their role and placing further demands on already limited resources.

Strategies for Addressing Challenges in Implementing the Digital Education Policy

Effective intervention strategies for headmasters implementing the DPD require an adaptive and focused approach that addresses the underlying causes of the challenges encountered (Hashim et al., 2023). These strategies must not only address logistics but also build human capacity and transform school culture. The following six key strategies are required to enhance the effectiveness of DPD implementation.

Adaptive and Flexible Infrastructure Management Strategies

To address critical infrastructure and resource logistics challenges (3.1), headmasters need to adopt adaptive and creative infrastructure management strategies. These include implementing a planned device-rotation system to optimise the existing pupil-to-device ratio and developing an Offline Action Plan for teaching and learning when Internet access is

limited (Zaki & Kamsin, 2025). Headmasters should also encourage structured Bring Your Own Device (BYOD) practices and establish an in-house maintenance committee comprising technologically skilled teachers and pupils. These strategies enable headmasters to move from complete dependence on ideal infrastructure towards flexible and sustainable resource use (Lim et al., 2023).

Coaching-Centred Digital Capacity-Building Strategies

To address gaps in teachers' digital pedagogical competence (3.2), headmasters need to move beyond generic in-service training towards capacity-building strategies centred on coaching and ongoing guidance. This involves using teachers' self-assessment data to design targeted professional development programmes tailored to individual teachers' needs, particularly in integrating pedagogy and technology through TPACK (Kamarudin & Lim, 2021). Headmasters should encourage the establishment of technology-focused PLCs led by in-house 'Guru Jauhari Digital' teachers, enabling immediate support and the collective sharing of best practices in digital teaching and learning (Tee & Loh, 2024).

Situational Leadership and Task Delegation Strategies

To address competing responsibilities and teacher fatigue (3.4), headmasters need to adopt situational leadership strategies. This model enables headmasters to adapt their leadership styles, such as directing, coaching, supporting or delegating, according to individual teachers' readiness and competence in managing digital initiatives (Hashim et al., 2023). Headmasters must also strengthen distributed leadership by delegating DPD-related responsibilities to highly skilled teachers. This not only reduces headmasters' workload but also strengthens teachers' sense of ownership and accountability for the successful implementation of the DPD.

Cultural Intervention Strategies Based on Communication and Vision

To address school culture and resistance to change (3.3), headmasters should implement cultural intervention strategies through effective communication and the development of a shared vision. This requires headmasters to act as agents of transformation who consistently communicate the rationale and added value of the DPD rather than merely issuing instructions (Syed Ahmad & Mohd Noor, 2021). Headmasters need to involve teachers in DPD planning through a bottom-up approach, establish a psychologically safe environment for technological experimentation and publicly celebrate small digital innovation successes, or 'quick wins', to encourage intrinsic motivation and overcome cultural inertia (Zainuddin & Salleh, 2023).

Ethical Risk Management and Stakeholder Collaboration Strategies

To address ethical, cybersecurity and digital wellbeing challenges (3.5), headmasters need to implement proactive risk-management strategies through comprehensive collaboration. They must actively collaborate with parents and external agencies to provide ongoing education on data literacy, cybersecurity and responsible digital footprints, particularly given the age of primary school pupils (Mohd Fazli & Siti Fatimah, 2022). This strategy involves enforcing a clear AUP and implementing digital wellbeing programmes to ensure that the DPD is implemented in a balanced and ethical manner, protecting pupils from risks while sustaining healthy digital practices (Livingstone & Smith, 2021).

Integrated Communication and Collaboration Strategies for Parental Engagement in Digital Learning

Addressing uneven parental involvement and community support for digital learning (3.6) requires headmasters to implement inclusive, integrated communication and collaboration strategies. This involves providing targeted digital literacy programmes for parents that are concise and practical, designed to bridge skills gaps and build parents' confidence in supporting their children at home (Mohd Fazli & Siti Fatimah, 2022). Headmasters should also establish hybrid communication channels that combine digital platforms with physical or low-technology channels to ensure that all parents, regardless of socioeconomic status or device access, receive important information about the DPD. Furthermore, headmasters need to lead efforts to strengthen networks with the community and private sector to facilitate device-sharing programmes or Internet access assistance for pupils in need, thereby sustaining equitable and inclusive digital learning (Livingstone & Smith, 2021). This strategy ensures continuity in the digital ecosystem between school and home.

Recommendations for Future Research

This action research study proposes an intervention strategy model to support headmasters in managing DPD implementation. The model is yet to be empirically tested; its effectiveness is to be examined through the cyclical action research design outlined in this study. Nevertheless, it opens several avenues for further research to extend and strengthen the effectiveness of digital leadership at the school level. Given the general nature of the model developed, contextualising strategies according to geographical setting remains a critical research gap (Ali & Hassan, 2024). Future research should therefore compare primary schools in urban, suburban and rural locations to assess the effectiveness of the proposed strategies in different environments, particularly in managing infrastructure logistics.

Another major gap concerns evidence of the direct impact of headmasters' digital leadership on pupils' digital learning outcomes. Although school leadership quality is emphasised as a determinant of successful innovation, evidence of a direct correlation between digital leadership practices and primary school pupils' academic achievement and digital literacy remains limited (Tan & Lim, 2023). Future research should therefore adopt quantitative approaches or large-scale correlational designs. These methodologies would enable the analysis of big data, including digital platform usage records, classroom assessment data (Pentaksiran Bilik Darjah, PBD) and pupils' digital literacy data, to determine which leadership dimensions are the most significant predictors of improvements in twenty-first-century skills (Wong & Hassan, 2023).

The study also considers distributed leadership as a strategy for mitigating headmasters' workload (3.4). Future research should conduct more in-depth qualitative case studies to explore the process of building distributed digital leadership capacity among subject panel heads or 'Guru Jauhari Digital' teachers (Ong & Tan, 2023). Such research should focus on how headmasters can delegate their role as digital instructional leaders (2.1) to expert teachers. These findings would provide a richer understanding of the challenges, support mechanisms and outcomes associated with successful digital leadership delegation in schools. As fatigue and work-related stress are significant human resource management (HRM) challenges, future research should examine the long-term effects of DPD intervention strategies on teachers' wellbeing and resilience (Syed Ahmad & Mohd Noor, 2021).

Longitudinal methods are recommended to assess changes in teachers' stress levels, motivation and job satisfaction following the implementation of the proposed strategy model over an extended period, such as one to two years. Such analyses would help ensure that the DPD is implemented sustainably without compromising teachers' digital and professional wellbeing, in line with ethical expectations in education.

A common methodological limitation is reliance solely on headmasters' perceptions. Future research could therefore adopt a multi-source approach, collecting data on strategy effectiveness not only from headmasters but also from teachers, pupils and parents (Mohd Fazli & Siti Fatimah, 2022). This approach would provide a more holistic and balanced understanding of the actual challenges encountered, particularly in relation to ethical practices and cybersecurity (3.5), and allow intervention strategies to be tailored to the needs of all stakeholders in the school's digital ecosystem.

Funding and the sustainability of digital initiatives (3.5) frequently become obstacles once initial allocations have been exhausted. Future research should therefore explore the creative financial management strategies used by exemplary headmasters to maintain digital infrastructure and sustain subscriptions to high-quality educational software over the long term (Zaki & Kamsin, 2025). Such research could focus on fundraising practices, smart partnerships with communities or industry, and efficient digital asset management to ensure the continuity of the DPD.

Overall, future research should move beyond implementation issues to examine the impact and sustainability of digital leadership strategies in primary schools. The proposed studies would help education authorities, particularly KPM, formulate more holistic support policies encompassing leadership, pedagogy and HRM. This would ensure that the DPD is not only implemented successfully but also produces significant improvements in educational quality and the wellbeing of the entire school community (Hashim et al., 2023).

Conclusion

Implementing the DPD in primary schools requires a paradigm shift that positions headmasters as the principal drivers and digital leaders responsible for educational transformation (Zainal Abidin et al., 2022). This study emphasises that headmasters' roles have expanded well beyond administration. They are now expected to serve as digital instructional leaders who drive pedagogical innovation and as agents of transformational leadership who cultivate a school culture supportive of technology. Without clear commitment and vision from school leadership, DPD initiatives risk remaining ad hoc efforts that fail to become meaningfully integrated into teaching and learning (Lim, 2023).

However, headmasters face several critical challenges that impede successful DPD implementation. The most prominent arise from gaps in digital infrastructure, particularly in rural areas, and insufficient digital pedagogical competence among teachers (Zaki & Kamsin, 2025). In addition, HRM issues such as heavy workloads and resistance to cultural change contribute to teacher fatigue, undermining headmasters' roles as strategic resource managers and transformational leaders (Hashim et al., 2023).

To overcome these barriers, the study outlines a set of adaptive intervention strategies focused on capacity building and risk management. A key strategy is the shift towards targeted coaching- and mentoring-centred professional development that uses in-house expertise to address gaps in teachers' digital competence (Kamarudin & Lim, 2021). In addition, applying the Situational Leadership Model enables headmasters to manage a diverse workforce more effectively by adapting their support to teachers' levels of readiness for technology (Tee & Loh, 2024).

These intervention strategies also emphasise the importance of headmasters acting as leaders in ethics and cybersecurity, especially at the primary school level. Headmasters are expected to develop and enforce a clear AUP while involving parents and the community in digital wellbeing education (Mohd Fazli & Siti Fatimah, 2022). This role is critical to ensuring that the benefits of the DPD can be fully realised without exposing pupils to online risks, thereby guaranteeing a safe and responsible digital learning environment.

Theoretically, this action research study is expected to produce a practical digital leadership strategy model specifically designed for primary school headmasters, holistically integrating instructional leadership, transformational leadership and resource management. The model will guide headmasters in balancing DPD requirements with school realities, facilitating the delegation of digital responsibilities and leading from the front with a clear digital vision (Syed Ahmad & Mohd Noor, 2021).

In conclusion, the success of the DPD in primary schools depends not merely on hardware availability but also on headmasters' ability to lead cultural change, manage HRM challenges strategically and continuously build teachers' digital capacity. Implementing the proposed intervention strategies is expected to significantly enhance the effectiveness of DPD integration, enabling primary schools to develop pupils who are not only digitally literate but also prepared for future challenges. Future research should explore the direct effects of this leadership on pupil achievement and the sustainability of the proposed model (Wong & Hassan, 2023).

Finally, a major practical contribution of this study is the provision of a ready-to-use intervention tool for District Education Offices (Pejabat Pendidikan Daerah, PPD) and State Education Departments (Jabatan Pendidikan Negeri, JPN). The resulting strategy model can serve as the basis for training modules and focused leadership professional development programmes. This would enable PPD and JPN to provide structured and sustained support to headmasters in mastering their new roles under the DPD, thereby ensuring the sustainability of positive digital practices across the school network.

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