Digital Leadership Among Heads of Departments at The Institute of Teacher Education Malaysia

Kepimpinan Digital dalam Kalangan Ketua Jabatan di Institut Pendidikan Guru Malaysia

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Abstract

The growing integration of digital technologies into educational paradigms requires a shift in leadership approaches, especially in digital leadership. This descriptive survey was conducted to assess the state of digital leadership among Heads of Departments (HoDs) at an Institut Pendidikan Guru (IPG) campus in Malaysia. Answering the data in a structured questionnaire across all 14 Head of Departments showed a high level of agreement on why digital leadership is significant, with predominantly positive views (M=4.81). Despite the above, the belief-practice gap can be recognised: strong beliefs were not realised well in practice due to substantial systemic hurdles (M=4.24). The chief challenges mentioned were a shortage of time to prepare for digital upskilling (M=4.00), a lack of technological infrastructure (M=3.57), and staff reluctance to change (M=3.57). The Heads of Departments prioritised strategic interventions for improvement, specifically increased funding for digital technology (M=4.64), the creation of a clear institutional digital policy (M=4.43), and repeated hands-on training (M=4.36). The results of this study are significant to IPG and the Ministry of Education, as they provide research-driven insights to support the development of focused professional development, targeted policy initiatives, and the rational allocation of resources. Through this research, we emphasise that while middle-line leaders possess capabilities, they also face institutional challenges related to time, infrastructure and support.

Keywords: *Digital Leadership, Heads of Departments, Institut Pendidikan Guru, Descriptive Study.*

Abstrak

Pengintegrasian teknologi digital yang semakin meluas dalam paradigma pendidikan menuntut perubahan dalam pendekatan kepimpinan, khususnya berkaitan kepimpinan digital. Kajian tinjauan deskriptif ini dijalankan untuk menilai tahap kepimpinan digital dalam kalangan Ketua Jabatan (HoD) di sebuah kampus Institut Pendidikan Guru (IPG) di Malaysia. Dapatan daripada soal selidik berstruktur yang dijawab oleh kesemua 14 Ketua Jabatan menunjukkan tahap persetujuan yang tinggi terhadap kepentingan kepimpinan digital, dengan pandangan yang dominannya positif (M = 4.81). Walau bagaimanapun, wujud jurang kepercayaan–amalan yang jelas, iaitu kepercayaan yang kuat tidak diterjemahkan dengan baik dalam amalan akibat kekangan sistemik yang ketara (M = 4.24). Cabaran utama yang dikenal pasti ialah kekurangan masa untuk membuat persediaan peningkatan kemahiran digital (M= 4.00), kekurangan infrastruktur teknologi (Min

= 3.57), serta keengganan staf untuk berubah (M= 3.57). Bagi penambahbaikan, Ketua Jabatan mengutamakan intervensi strategik, khususnya peningkatan peruntukan kewangan bagi teknologi digital (M = 4.64), pewujudan dasar digital institusi yang jelas (M = 4.43), serta pelaksanaan latihan berulang yang bersifat hands-on (M = 4.36). Dapatan kajian ini signifikan kepada IPG dan Kementerian Pendidikan Malaysia kerana menyediakan input berasaskan bukti untuk menyokong pembangunan latihan profesional yang lebih fokus, inisiatif dasar yang disasarkan, serta peruntukan sumber yang lebih rasional. Melalui kajian ini, ditegaskan bahawa walaupun pemimpin pertengahan memiliki keupayaan, mereka tetap berhadapan cabaran institusi yang berkait rapat dengan kekangan masa, infrastruktur dan sokongan organisasi.

Kata kunci: *Kepimpinan Digital, Ketua Jabatan, Institut Pendidikan Guru, Kajian Deskriptif.*

INTRODUCTION

The educational landscape around the world is transforming at an incredible pace: the acceleration of digital technologies will only accelerate it further. This transition also means a corresponding transformation of leadership in an educational setting, shifting from administrative leadership to digital leadership. Digital leadership is strategically and practically utilising technology to improve teaching and learning, streamline administration, and drive the culture of innovation and continuous improvement. For example, in the Malaysian context, the national education authorities have explicitly named fluency and integration in digital technologies as core objectives, with these objectives highlighted in the Malaysia Education Blueprint (2013-2025). As the institution for preparing the teachers of the future in our country, the Institut Pendidikan Guru (IPG) campuses have a significant responsibility to exercise digital leadership.

Heads of Departments (HoDs) in this campus have a vital middle-level leadership role. They are the critical link between institutional policy and classroom implementation, translating broader digital transformation goals into practical initiatives in the departments where they teach. The attitudes, competencies, and actions of staff directly impact their adoption of technology. However, there is still a noticeable gap in the empirical literature on the reality of digital leadership in this line of work across IPG campuses. Digital leadership is important and often discussed, but a clear and accurate understanding of the extant assumptions, known practices, observed difficulties and strategies of choice among HoDs is needed.

Thus, this study was created to fill the knowledge gap. This research aims to provide some background on the situation of digital leadership among IPG HoDs, by performing a systematic descriptive survey. These findings will provide a foundation of evidence-based principles on which to build a strategy that leverages strengths and identifies areas requiring assistance, and, as a result, are essential for strategic and capacity development planning at the institutional and national levels.

LITERATURE REVIEW

The notion of digital leadership has been co-opted in response to other research on educational leadership and technology integration. More recently, scholars have contended that competent leadership in the digital age goes beyond being tech-literate and requires a reorientation in approach and practice. Sheninger (2019) conceptualises digital leadership as the strategic use of technology to enhance performance and drive school change. This is the establishment of a shared vision, the provision of appropriate resources, the development of capacity through professional learning, and the establishment of a culture in which risk-taking and innovation are valued equally.

Middle role leaders (Heads of Departments) also figure heavily in this. "They can impact the teaching practices and organisational culture at the departmental level. According to Bennett (2018), departmental heads can be seen as key champions for new initiatives, supporters and allocators of resources for technological adoption and disruption. Personal beliefs regarding the value of technology play a critical role in shaping technology adoption in their fields.

The pathway to digital leadership is full of hurdles though. The literature frequently identifies several common barriers. These encompass resistance to change among staff, such as poor confidence, a sense that they do not matter, or fear of increased workload (Ertmer & Ottenbreit-Leftwich, 2010). In addition, weak technology infrastructure, including intermittent internet connectivity or antiquated equipment, poses significant pragmatic challenges (Hew & Brush, 2007). One of the core and recurring obstacles is the lack of sustained, meaningful professional development that transcends the basics of technical training and addresses pedagogical cohesion and leadership strategies (Tourón et al., 2018).

Though these challenges are global, their manifestation and intensity are profoundly context-specific, shaped by local institutional policies, resource availability, and cultural factors. Although there are several studies on technology integration in Malaysia, most studies have primarily been designed for classroom teachers or university lecturers which has not particularly explored IPG HoDs in the specific population. Thus, this study will add to this knowledge base by addressing one of the contextual and demographic gaps.This study aims to provide a comprehensive descriptive analysis of digital leadership among Heads of Departments (HoDs) by addressing the following primary research questions:

1) What are the beliefs of HoDs regarding the importance of digital leadership in their roles?
2) How do HoDs implement digital tools in their departmental management and leadership practices?
3) What are the principal challenges HoDs encounter in executing digital leadership?
4) What strategies do HoDs perceive as most effective for overcoming barriers and enhancing their digital leadership?

METHODOLOGY

This study employed a descriptive survey design as a quantitative, non-experimental research design. This methodological approach has been used to systematically document and explain the current state of digital leadership among Heads of Departments (HoDs) at a chosen Institut Pendidikan Guru (IPG) campus in Malaysia.

The study used a census sampling technique, inviting all 20 HoDs to participate. This method guaranteed full representation of the identified population in the selected institution. 14 HoDs completed the survey, representing 70% of the total population. Data were collected using an organised, self-administered questionnaire with the following six themes: (A) demographic characteristics, (B) beliefs in digital leadership, (C) existing digital practices, (D) perceived challenges, (E) strategies for implementation, and (F) qualitative optional feedback. To establish content and face validity, the instrument had rigorous validation by a panel of experts in educational technology and leadership. Internal consistency was verified in a pilot study, as all scaled sections exhibited acceptable reliability coefficients (Cronbach's $\alpha \geq 0.70$).

The survey was conducted electronically via Google Forms after approval from the institutional ethics review board. Each participant was invited to receive a formal letter outlining the aim of the study, an assurance of their privacy, and the option to opt in voluntarily. A follow-up reminder was distributed at two weeks to improve response rates. The data collection phase spanned four weeks. Descriptive statistical analyses were performed on the data using SPSS software (Version 28). Responses were cleaned, coded, and synthesised to prepare frequencies, percentages, and measures of central tendency (means). Findings were presented in tabular and graphical form to facilitate clear interpretation of the results.

RESULT

This section describes a full research and report on data collected from the 14 HoDs. The results are presented in order according to the four research questions, and descriptive statistics are used to describe the central patterns, distributions, and tendencies of the collected data. A narrative, a table and a brief description of the key findings precede each subsection.

The first research question sought to investigate HoDs' beliefs about the importance of digital leadership. The analysis reveals an overwhelming consensus and strongly positive attitudes among all respondents (Table 1).

Table 1
Descriptive Statistics for Beliefs about Digital Leadership (N=14)

Statement	Strongly Agree	Agree	Mean	Std. Deviation
B1. Crucial for departmental success.	71.4% (10)	28.6% (4)	4.71	0.47
B2. Improves teaching & learning.	85.7% (12)	14.3% (2)	4.86	0.36
B3. Should model digital tools for staff.	71.4% (10)	28.6% (4)	4.71	0.47
B4. Enhances administrative efficiency.	85.7% (12)	14.3% (2)	4.86	0.36
B5. IPG should prioritize investment.	92.9% (13)	7.1% (1)	4.93	0.27
Composite Mean			**4.81**	**0.19**

The data reveals strong agreement among HoDs on each aspect of digital leadership beliefs, with composite scores nearly reaching the maximum value of 5. A remarkably high mean of belief in institutional prioritisation (B5, M=4.93) with no neutral or negative responses indicates a strong sense of collective and powerful position that digital transformation is not only beneficial but a must for the institution's future. The low standard deviations also confirm that these perspectives are held consistently among participants.

The second research question examined how HoDs currently practice digital leadership. The results reveal a high level of engagement, though there is some minor deviation from the near-perfect belief scores (Table 2).

Table 2
Descriptive Statistics for Current Digital Practices (N=14)

Practices	Always	Often	Sometimes	Rarely	Mean	Std. Deviation
C1. Digital communication with staff.	21.4% (3)	50.0% (7)	21.4% (3)	7.1% (1)	4.14	0.86
C2. Encourage staff technology use.	71.4% (10)	28.6% (4)	0% (0)	0% (0)	4.71	0.47
C3. Data-driven decision-making.	28.6% (4)	57.1% (8)	14.3% (2)	0% (0)	4.14	0.66
C4. Participate/organise training.	42.9% (6)	42.9% (6)	14.3% (2)	0% (0)	4.29	0.73
C5. Promote digital innovation.	35.7% (5)	50.0% (7)	14.3% (2)	0% (0)	4.21	0.70
Composite Mean					**4.24**	**0.40**

HoDs are said to have often engaged in digital practices, with a composite mean of 4.24. Most commonly, lecturers' active use of technology (C2, M=4.71) strongly complements their beliefs. However, the frequency and quality of use of digital tools for routine communication (C1) differ more widely. Although data-driven decision-making (C3) is widespread (85.7% do it often/always), it is not yet a common standard, possibly indicating an area where more analytical leadership could grow.

The third research question focused on identifying the principal challenges hindering effective digital leadership. The findings point to significant systemic and human resource barriers (Table 3).

Table 3
Descriptive Statistics for Perceived Challenges (N=14)

Challenges	Major	Significant	Moderate	Slight	Not a	Mean	Std. Deviation
D1. Staff resistance to change.	21.4% (3)	35.7% (5)	42.9% (6)	0% (0)	0% (0)	3.57	0.85
D2. Lack of training.	7.1% (1)	42.9% (6)	50.0% (7)	0% (0)	0% (0)	3.50	0.65
D3. Inadequate infrastructure.	28.6% (4)	21.4% (3)	21.4% (3)	21.4% (3)	7.1% (1)	3.57	1.34
D4. Limited institutional support.	7.1% (1)	28.6% (4)	50.0% (7)	14.3% (2)	0% (0)	3.29	0.83
D5. Inadequate time.	28.6% (4)	50.0% (7)	21.4% (3)	0% (0)	0% (0)	4.00	0.78
Composite Mean						**3.59**	**0.69**

Insufficient time (D5) emerges as the single most formidable challenge (M=4.00), with 78.6% of HoDs rating it as a primary or significant barrier. Staff resistance (D1) and insufficient infrastructure (D3) are also substantial hurdles, with means of 3.57. The high standard deviation for infrastructure (SD=1.34) indicates considerable disparity in experiences among HoDs, suggesting inconsistent access to reliable technology across departments. These challenges collectively represent the critical impediments that mediate the transition from strong belief to optimal practice.

The final research question explored the strategies HoDs perceive as most effective for enhancing their digital leadership. The responses indicate a clear desire for institutional-level intervention and support (Table 4).

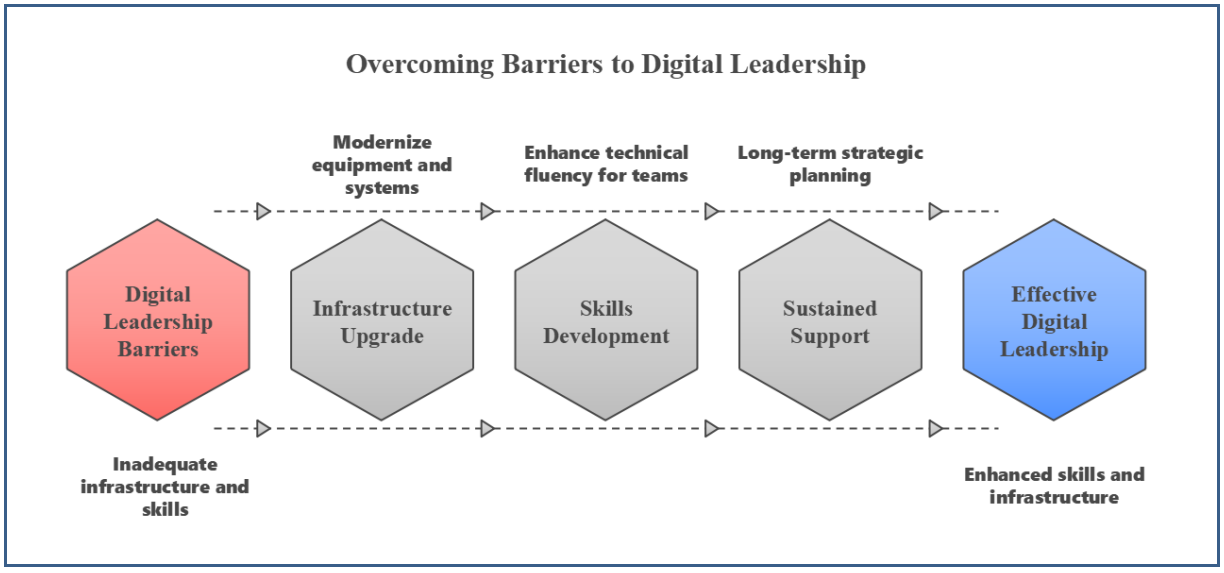
Table 4
Descriptive Statistics for Perceived Effectiveness of Strategies (N=14)

Strategies	Extremely Effective	Very Effective	Moderately Effective	Mean	Std. Deviation
E1. Regular hands-on training.	42.9% (6)	50.0% (7)	7.1% (1)	4.36	0.63
E2. Partnerships with tech experts.	42.9% (6)	42.9% (6)	14.3% (2)	4.29	0.73
E3. Increasing budget allocation.	64.3% (9)	35.7% (5)	0% (0)	4.64	0.50
E4. Recognizing innovation.	35.7% (5)	50.0% (7)	14.3% (2)	4.21	0.70
E5. Developing a clear policy.	50.0% (7)	42.9% (6)	7.1% (1)	4.43	0.65
Composite Mean				**4.39**	**0.44**

Each proposed strategy yields firm agreement on its effectiveness (Composite M=4.39). Increasing budget allocation (E3) is considered the most vital strategy, with 100% of the HoDs rating it as very or extremely effective (M=4.64). This directly confronts the problems of inadequate infrastructure (D3)—the high scores for developing a clear policy. (E5, M=4.43) and providing training (E1, M=4.36) indicate that HoDs need an explicit institutional mandate and appropriate capacity-building support to overcome barriers related to unclear direction and skill gaps.

The thematic exploration of the open-ended responses delivered deep, contextual insights that effectively corroborate and describe our quantitative findings. We use the emergent themes to verbalise the emotional and structural context beneath the numerical realities, and to suggest three essential obstacles to digital leadership efficacy, illustrated in Figure 1.

Figure 1
Thematic Analysis from Open-Ended Questions



Respondents cited inadequate technological infrastructure as a primary barrier to digital integration. “Infrastructure is the main hindrance to effective digitalisation,” one HoD explicitly observed. This sentiment was reinforced by the declaration that outdated equipment

and slow systems actively erode staff morale: "Staff become demotivated when the system lags with out-of-date digital equipment." This concept also specifically quantifies the problem being measured in D3 (Insufficient technological infrastructure) to give voice to the frustration behind the mean score of 3.57.

One prevailing theme that emerged was the disconnection between leadership vision and frontline delivery. One feedback succinctly illustrated this conundrum: "Leaders may have a clear vision, but teams often lack the technical fluency to execute it." That perspective shows that even access to tools is not an issue — a key skills gap needs to be addressed at scale. This theme adds a qualitative layer to the quantitative issues facing staff resistance (D1) and inadequate training (D2), indicating that resistance may stem from a lack of confidence and competence rather than outright opposition to change.

The responses unanimously demanded stronger, systemic institutional supports. That need evolved from simple training requests to a demand for "better training and resources to support effective and sustainable use of technology." The term "sustainable" reads especially revealing, suggesting a need for long-term strategic planning rather than ad hoc solutions. This theme ties in nicely with the quantitative results for RQ4, which confirm that strategies such as increased budgeting (E3) and clear policy frameworks (E5) were considered highly effective, as they are seen as prerequisites for meaningful and lasting change.

DISCUSSION

The findings indicate a critical paradox: despite widespread consensus on the value of digital leadership, Heads of Departments (HoDs) are strongly constrained by specific systemic barriers, resulting in a significant gap between beliefs and practice. The outcomes align with but expand the current international literature on digital leadership in teacher education, identifying specific systemic factors that may make leadership effective in the Malaysian context.

All evidence indicates overwhelmingly positive beliefs held by HoDs (Composite M=4.81) and is supported by broader studies, which position digital leadership as central to modern education (Sheninger, 2019; El-Masri & Tarhini, 2021). Like their counterparts in international teacher training institutes (Prestridge, 2019), Malaysian HoDs also recognise the transformative potential of technology. However, the practice gap we observed (Composite M=4.24) mirrors processes in both Global North and South where vision supersedes implementation capacity (Adedoyin & Soykan, 2023). Moreover, this lack of engagement with data-driven decision-making (C3), a common challenge observed in recent studies, reflects the fact that, in most cases, leadership digital literacy prioritises basic operational mastery over analytical capability (Van der Spoel et al., 2020; Pettersson, 2021). The belief-practice gap indicates a need for strategic development in evidence-based digital leadership, not merely a technical constraint.

The challenges identified help demonstrate how systemic factors establish leadership constraints that reflect both international patterns and show contextual manifestations. The most significant barrier, insufficient time (D5, M=4.00), points to the universal observation of time scarcity among educational leaders and the increased expectations they bear with only limited support (DeCoito & Estaiteyeh, 2022). Similar to school leaders in broader global contexts, IPG HoDs have faced challenges in mainstreaming digital leadership in their current work. This convergence of infrastructure deficits (D3) and staff resistance (D1) illustrates how first-order barriers (resource constraints) create second-order barriers (cultural resistance), both evident in the educational systems of developing economies (Adedoyin & Soykan, 2023; Almazova et al., 2020). The qualitative effect of old equipment on staff motivation replicates findings across many international educational settings, where a lack of

technology impedes digital adoption efforts (Pettersson, 2021). However, the Malaysian case tells a different story: resistance originates not only in the person, but also in reasoned reactions to unreliable technological systems. The findings further the theoretical considerations made by Ertmer and Ottenbreit-Leftwich (2010) around how resource constraints can manifest as cultural barriers in particular institutional contexts.

The suggested measures represent both universal and context-dependent requirements in global educational development. The demand for budget allocation (E3, M=4.64) reflects funding trends considered important for the digital transformation of institutions of learning (UNESCO, 2021; El-Masri & Tarhini, 2021). As seen with their overseas counterparts, the Malaysian HoDs are also aware that long-term investment is what enables successful integration. The focus on policy framework development (E5, M=4.43) aligns with the literature on European tertiary education, which indicates that strategic clarity is key to the effectiveness of digital leadership measures (Van der Spoel et al., 2020). However, the Malaysian emphasis on policy as empowerment tools rather than compliance mechanisms can provide a nuanced view on how institutional support behaves in developing environments. Such a request for practical training (E1, M=4.36) is consistent with global consensus on the value of professional development, though with an emphasis on what practitioners actually know rather than on how academics work. Such a practice-oriented approach is consistent with successful models in teacher education institutions, where experiential learning has driven the development of digital leadership skills (Prestridge, 2019; DeCoito & Estaiteyeh, 2022).

CONCLUSION

This study aims to map the digital leadership landscape for Heads of Departments at the IPG campus and, based on the results, develop an image of motivated leaders who navigate the rugged terrain of both opportunity and constraint. The findings demonstrate clear consensus among research audiences: HoDs hold a very high positive perception of the transformative potential of digital leadership for teaching, learning, and administration. Moreover, they are not hesitant trailblazers but rather eager champions of transformation — actively participating in practices of nudging IT into practice and fostering innovation in their departments. However, this powerful belief is clouded by the harsh reality. There is a meaningful "belief-practice gap", and it is not due to imagination, but a massive system-wide obstacle. A triad of issues hamstrings HoDs: They have little time available for digital initiatives; a lack of technological infrastructure to support their work, which dampens motivation; and a lack of technical fluency that manifests as resistance to change. They redirect attention from individual competency to institutional failure and indicate that the main impediments are organisational and resource-related.

The way forward, articulated by the HoDs themselves, has enabled systemic institutional empowerment. Pragmatic and direct solutions have been suggested: wise investment in infrastructure, continued and practical training programmes, and a clear digital policy framework. These recommendations provide a collective action plan for IPG leadership to turn the aspiration to become a digital leader for IPG from a one-size-fits-all aspiration to an institutional one. Ultimately, the HoDs at this campus represent a powerful, underexploited resource to spearhead digital transformation; they have the vision and the will, and it is the institution's responsibility to equip them, invest the time they need, and provide the strategic direction required for success. Drawing on the lessons from this study, IPG can equip its middle leaders to address the digital divide, thereby improving departmental management and strengthening the teacher education pipeline to meet the needs

of developing Malaysia in the 21st Century. Transitioning to a digitally fluent education culture is a collective effort that starts with investing in change-makers.

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