



Headteachers' Transformational Leadership and ICT Integration in Public Comprehensive Schools in Nyeri County, Kenya

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Abstract

The Digital Literacy Programme (DLP) was launched in 2016 by the Government of Kenya to pilot the rollout of digital devices to public primary schools. This study investigated the influence of head teachers' transformational leadership practices on ICT integration in pedagogy in public comprehensive schools in Nyeri County, Kenya. Study objectives were to investigate the effect of head teachers' transformational leadership practices, and to determine the leadership challenges head teachers encounter in the integration of ICT in pedagogy. The research was anchored on the Transformational Leadership Theory. The descriptive survey design was employed. Target population comprised 388 head teachers and 1,940 Grade 6 teachers (2,328 in total) from urban, peri-urban and rural strata. Eighty head teachers and 95 teachers were sampled using stratified random sampling. Data was collected using structured questionnaires. Quantitative data were analysed using means, standard deviations, frequencies and percentages. Teachers reported an overall mean transformational leadership score of 3.39 (SD = 1.16) across the twelve leadership indicators. 56.7% of respondent agreed, 29.3% disagreed and 14% neutral. Head teachers indicated an average of 3.36 (SD = 1.20) on leadership-related challenges to ICT integration, with 55.4% of responses indicating agreement that structural and institutional hurdles impede integration, 30.6% disagreement and 14% neutral. The study concludes that the integration of ICT in public comprehensive schools is not limited by a lack of leadership but by a specific and correctable gap within transformational leadership. The study would be significant to educational stakeholders for it provides theoretical and practical knowledge on ICT integration.

Introduction

The purpose of integrating Information and Communication Technology (ICT) in education is to develop the infusion of digital tools into the daily routine of teaching and learning such that technology becomes an integral part of instruction and not an occasional administrative add-on. In this sense, integration goes beyond just having computers or tablets in a school: it happens when a teacher uses a digital simulation to help students explore a scientific concept, when students use tablets for data analysis, collaboration or digital portfolio work, and when curriculum objectives are



directly aligned with digital tools. This is a form of integration that is central to the tech-dependent, learner-centred Competency-Based Curriculum (CBC). Headteachers, as the institutional leaders of public comprehensive schools, are expected to be the principal drivers of this shift, ensuring that digital tools move from the administrative office and into everyday classroom instruction.

The Kenyan government initiated the Digital Literacy Programme (DLP) in 2016, focusing mainly on providing digital devices to lower primary classrooms (Grades 1–3). The later merger of primary and junior-secondary levels into public comprehensive schools has resulted in a newer, more complex institutional structure than that for which the DLP was originally designed. Headteachers are therefore now facing management bottlenecks even where DLP-supplied hardware is still in schools, covering a broader grade range, more diverse staff and a curriculum that requires pedagogical rather than purely administrative use of ICT, which earlier studies of the DLP did not envisage. However, despite clear policy mandates under Vision 2030 and the CBC, pedagogical ICT integration in public comprehensive schools in Nyeri County is still limited. Previous research has documented general shortages of hardware and connectivity but has comparatively said little about how headteachers as institutional leaders navigate the specific structural, financial and pedagogical bottlenecks that have emerged within the newly consolidated comprehensive-school framework.

The leadership issue this study tackles is thus not so much whether schools have ICT hardware, but whether and how headteachers' leadership practice turns available hardware into classroom pedagogical use. There are three competing explanations in the literature: either teachers lack the pedagogical skills to use ICT in CBC lessons, or infrastructural constraints such as electricity and connectivity make integration impractical regardless of leadership, or headteachers fail to provide the direction, modelling and psychological safety needed to translate policy into classroom practice. This study considers these as empirical questions rather than assumptions and examines these from the perspective of Transformational Leadership Theory. This study therefore sought to assess headteachers' transformational leadership practices and their influence on ICT integration in pedagogy in public comprehensive schools in Nyeri County, Kenya. The study also sought to establish the leadership-relevant challenges faced by headteachers in the process.

Literature Review

The use of information and communication technology (ICT) in education has been one of the key reform initiatives globally to enhance the quality, equity and relevance of teaching and learning in contemporary educational systems. This goal is grounded in the worldwide movement towards Competency-Based Education (CBE), which places a premium on developing twenty-first-century skills like critical thinking, creativity, collaboration, communication and digital literacy. ICT is recognised in international policy frameworks as an important enabler of learner-centred pedagogies and skills development in the basic and secondary education systems (OECD, 2023; UNESCO, 2023). ICT is therefore slowly evolving from being an auxiliary tool of education to becoming an integral part of curriculum delivery and pedagogical innovation. Evidence from different education systems shows that ICT tools such as learning management systems, interactive multimedia resources and collaborative digital platforms increase learner engagement, enable differentiated instruction and improve academic performance (World Bank, 2022; Zou et al., 2021). These technologies enable flexible learning environments that allow instructors to present content in more dynamic and learner-centred ways. However, emerging global evidence points to the fact that the effectiveness of ICT integration is determined not only by the availability of technology but by a combination of interrelated institutional and human factors within schools (UNESCO, 2023; Tondeur et al., 2023),



with teacher capacity development, ICT infrastructure, and a culture of school innovation and management of implementation challenges consistently identified as key.

ICT integration has been accelerated across Africa as part of broader efforts to improve the quality of education and align learning systems with twenty-first-century competencies. Continental policy frameworks underscore the importance of ICT as a critical instrument for promoting equity, expanding access and augmenting learner-centred education (African Development Bank, 2022; EAC, 2022). Empirical research in Sub-Saharan Africa has shown that visualisation and simulation-based approaches enhance active and experiential learning, especially in science and mathematics (Ndiaye et al., 2020). However, regional integration still remains uneven as a result of persistent challenges such as poor infrastructure, low teacher competencies, lack of institutional support and unstable power supply (UNESCO, 2022; Muli & Musau, 2021), while inadequate leadership engagement and weak innovation cultures add to the difficulty of deploying ICT effectively.

In East Africa, the integration of ICT has been progressively incorporated into the implementation of competency-based curricula in Kenya, Uganda and Tanzania, with regional frameworks emphasising the role of ICT in enhancing pedagogical effectiveness and preparing learners for the digital economy (EAC, 2022). Empirical evidence shows that interactive learning tools and digital resources boost learner engagement and conceptual understanding (Kaburu et al., 2023) but disparities still exist among schools due to differences in institutional support, infrastructure allocation and teacher preparedness (Muli & Musau, 2021). Weaknesses in the longevity of ICT initiatives are the lack of a culture of sustained innovation and continuous professional development. Therefore, strong school leadership is needed to oversee implementation.

ICT integration is a vital part of the education reform agenda articulated in Vision 2030 and the CBC in Kenya in particular. Improved learner engagement, increased access to educational resources and competency development in line with CBC goals have been associated with government support for ICT in education through the provision of digital devices to public schools through the DLP (Ministry of Education, 2022; Kigotho & Wanjohi, 2021). Implementation outcomes, however, vary widely across schools. Despite significant investment, disparities remain due to variations in teacher competence, ICT infrastructure and institutional support. Inadequate training, lack of technical support and resistance to pedagogical change continue to hamper the consistent integration.

Theoretical Framework

Transformational Leadership Theory offers an insight into how leadership practice drives organisational change and innovation, pioneered by James MacGregor Burns (1978) and developed by Bernard Bass in the 1990s. Transformational leadership theory proposes that transformational leaders can inspire followers to transcend self-interest to achieve higher levels of performance by creating a shared vision, commitment and a culture of continuous improvement through four interrelated dimensions: idealised influence, inspirational motivation, intellectual stimulation and individualised consideration. Transformational leadership in education has been associated with the development of supportive environments for the promotion of pedagogical change, professional collaboration and continuous teacher development.

Recent empirical research supports that transformational leadership is specifically applicable to educational technology integration. Transformational leadership significantly influences teachers' professional development, openness to innovation, and instructional practice (Leithwood et al., 2020; Sun & Leithwood, 2021). Liu et al. (2022) reported a positive association between transformational leadership and teachers' digital competence and willingness to adopt ICT. Nguyen et al. (2023)



concluded that transformational leadership enhances teachers' use of digital pedagogy by creating a cooperative, supportive school environment. This study used Transformational Leadership Theory to explain the role of headteachers' leadership practices in creating the organisational conditions – capacity building, an innovative school culture and the management of school-based constraints – in which ICT integration either progresses or stagnates.

Table A directly links the four dimensions of the theory with the independent and dependent variables of the study, demonstrating how each leadership dimension is hypothesised to impact pedagogical ICT integration in the specific context of Kenyan public comprehensive schools.

Table A: Mapping of Transformational Leadership Dimensions to Pedagogical ICT Integration

Leadership Dimension (Independent Variable)	Behavioural Indicator in this Study	Expected Effect on Pedagogical ICT Integration (Dependent Variable)
Idealised Influence (Role Model)	Headteacher personally uses ICT tools and models digital practice; manages ICT funds transparently.	Builds staff trust and legitimises ICT use, encouraging administrative and, potentially, classroom uptake.
Inspirational Motivation (Visionary)	Headteacher communicates a shared digital vision linked to CBC and learner outcomes.	Sustains staff morale and purpose during infrastructural setbacks, keeping ICT integration on the agenda.
Intellectual Stimulation (Innovator)	Headteacher creates a safe space for experimentation and encourages creative workarounds when resources are constrained.	Directly enables risk-tolerant, learner-centred pedagogical use rather than low-risk administrative use only.
Individualised Consideration (Coach)	Headteacher provides differentiated support, mentorship and empathy for teachers' varying tech proficiency and workload.	Builds teacher capability and confidence, the human precondition for sustained classroom-level integration.

Idealised influence: Transformational leaders act as role models by living up to high standards and showing conviction by action, not just by instruction. They gain trust and respect by their actions. This dimension is illustrated by a headteacher who is an active user and learner of ICT in a staff meeting as opposed to someone telling staff to use it from an office. Inspirational motivation involves leaders articulating a positive, unifying vision of the future, establishing clear expectations, and framing difficult change as a purposeful undertaking rather than an added burden. Leaders who foster intellectual stimulation challenge the status quo, promote creativity and independent problem-solving, and establish a psychologically safe environment in which staff can experiment and fail without the threat of censure. For example, a headteacher who, despite a lack of resources, encourages teachers to develop localised offline digital repositories and praises the attempt regardless of the outcome exemplifies this dimension.

Methods

Research Design

This study employed the survey research design. Survey research design is a method of describing a situation as it exists and consists of structured questions to establish the opinions and knowledge of a defined group of respondents (Mugenda & Mugenda, 2012). The design was used to determine the perceptions of headteachers and teachers on transformational leadership practice and its relationship with ICT integration in public comprehensive schools.

Target Population

The target population comprised 1,940 Grade 6 teachers and 388 headteachers in public comprehensive schools in Nyeri County, for a total of 2,328 persons. Grade 6 was selected as the



reference teaching level, as it is the last year of the primary cycle under the CBC, immediately before transition to Junior School, and therefore a level at which sustained ICT-supported pedagogy is expected to have had time to take root and at which the absence of such pedagogy is most instructionally consequential.

Table 1: Target Population

Stratum	Grade 6 Teachers	Head Teachers
Urban Schools	86	17
Peri-Urban Schools	647	120
Rural Schools	1,207	251
TOTAL	1,940	388

Sampling and Sample Size

A sample is a smaller group or subset of individuals or cases selected from the population (Mugenda & Mugenda, 2012). Separate sample sizes were calculated for teachers and headteachers using the formula of Yamane (1967). This resulted in a total sample of 95 teachers and 80 headteachers. The sample was selected using stratified random sampling with proportional allocation from each stratum.

Table 2: Sampling Matrix

Stratum	Grade 6 Teachers	Head Teachers
Urban Schools	4	4
Peri-Urban Schools	32	25
Rural Schools	59	51
TOTAL	95	80

Data Collection Instruments

Quantitative data were collected through the use of structured questionnaires and were administered directly to respondents who were allowed time to complete them on their own. The content of the items was carefully developed and evaluated by experts. Reviewers at the university level assessed each item for clarity, relevance and consistency with the objectives of the study. Reliability was tested in a pilot study conducted in the neighbouring County in eight schools constituting 10% of the sample. A reliability coefficient of 0.78 was obtained through the split-half technique and Cronbach's alpha, which showed the instruments were reliable.

Data Analysis

Descriptive statistics such as means, standard deviations, frequency distributions and percentages were used to analyse the quantitative data collected through the closed-ended questionnaires to establish response patterns for each indicator and each study objective (Mugenda & Mugenda, 2003). The data are presented in tables and text.

Results and Discussion

Table 3 presents teachers' (N = 95) responses on headteachers' use of transformational leadership practices in relation to ICT integration, rated on a five-point scale: [5] Strongly Agree (SA), [4] Agree (A), [3] Neutral (N), [2] Disagree (D), [1] Strongly Disagree (SD).



Table 3: Teachers' Responses on Headteachers' Transformational Leadership Practices

Statement	SD %	D %	N %	A %	SA %	Mean	Std. Dev
Headteacher uses ICT tools (e.g., laptops, projectors, or digital systems) when conducting staff meetings or administrative tasks.	6	14	13	44	23	3.64	1.111
Headteacher demonstrates a high level of personal commitment to making digital learning a success, earning the trust of the teaching staff.	7	16	15	42	20	3.52	1.140
Headteacher ensures that available funds are transparently and accountably allocated toward securing and maintaining ICT assets.	5	13	17	45	20	3.62	1.060
Headteacher has clearly communicated a shared, long-term digital vision for how the school should integrate technology into CBC pedagogy.	9	20	16	37	18	3.35	1.190
Headteacher inspires the teaching staff by linking the use of technology to learners' future academic success.	16	27	14	30	13	2.97	1.250
Headteacher maintains teacher morale and momentum for digital learning even during power outages or internet failures.	6	15	14	43	22	3.60	1.118
Headteacher actively encourages teachers to find creative workarounds (e.g., offline resources or peer networks) when ICT budgets are constrained.	18	29	12	29	12	2.88	1.276
Headteacher creates a safe environment in which teachers can experiment with new digital tools without fear of criticism if the technology fails.	24	31	11	24	10	2.65	1.296
Headteacher involves teachers in collaborative decision-making when solving the school's technical or structural ICT challenges.	14	26	16	32	12	3.02	1.226
Headteacher recognises differing levels of teacher tech proficiency and provides personalised support or training accordingly.	9	18	14	40	19	3.42	1.183
Headteacher has established internal peer-mentorship networks (e.g., pairing less tech-savvy staff with ICT Champions) to ease the learning curve.	4	10	11	46	29	3.86	1.058
Headteacher shows empathy toward heavy workloads and large class sizes when setting expectations for digital lesson integration.	5	11	13	44	27	3.77	1.090
Overall Mean/ Average %	10.2	19.1	14.0	38.0	18.7	3.39	1.166



Descriptive statistics are presented first, followed by an interpretation of what they reveal about transformational leadership practice in Nyeri County, as is standard practice in reporting. The mean (SD) transformational leadership score for the teachers was 3.39 (1.16) for the twelve indicators overall, and the responses ranged from 56.7% in the agree/strongly agree range to 14% in the neutral range to 29.3% in the disagree/strongly disagree range. This overall number, read alongside the item-level means, obscures a consistent internal divide: headteachers score highly on role-modelling and relational support (means 3.42 to 3.86) but poorly on the innovation-oriented behaviours of intellectual stimulation (means 2.65 to 3.02).

Two-thirds of teachers (67%) agreed or strongly agreed that headteachers actively model ICT use in meetings and administrative duties ($M = 3.64$), and a similar majority (65%) affirmed transparent allocation of funds for ICT assets ($M = 3.62$). This suggests that headteachers are visible and credible role models for the use of ICT at the administrative level. The pattern is even more pronounced when it comes to individualised consideration: the highest-rated indicator in the entire study was the establishment of internal ICT Champion peer-mentorship networks ($M = 3.86$, 75% agreement), and a majority of teachers (71%) felt that headteachers showed authentic empathy with respect to heavy CBC workloads and large class sizes ($M = 3.77$). In simple terms, headteachers are acting as empathetic coaches and credible role models to protect staff morale during infrastructural setbacks.

This strength does not translate into intellectual stimulation. A majority of teachers (55%) disagreed that their headteacher creates a safe space to experiment with digital tools without fear of criticism if the technology fails ($M = 2.65$), and close to half (47%) felt that headteachers do not actively support creative workarounds when ICT budgets are tight ($M = 2.88$). Collaborative problem-solving on technical challenges was similarly weak ($M = 3.02$). Examined through the lens of Transformational Leadership Theory, this pattern suggests that the leadership of headteachers is not lacking, but rather varies across the four dimensions of the theory; idealised influence and individualised consideration are well established, but intellectual stimulation - the dimension most directly accountable for translating willingness into risk-tolerant classroom experimentation - is the weakest link. Teachers state that a failed digital lesson attracts criticism rather than support. Consequently, ICT use in the classroom is confined to low-risk, predictable applications, such as displaying static notes via a projector, rather than the dynamic learner-centred applications envisaged by the CBC. This speaks directly to the leadership gap question raised in the introduction: the constraint on pedagogical ICT integration is not primarily a lack of teacher skill or headteacher direction in general, but a particular deficit in the risk-tolerant, experimentation-encouraging dimension of headteachers' leadership practice.

Challenges to ICT Integration

The second objective explored the leadership-related challenges headteachers ($N = 80$) face in the integration of ICT in pedagogy. As mentioned under data collection instruments, these results are the quantified level of headteachers' agreement with pre-specified challenge statements on a five-point Likert scale, grouped into three domains, rather than themes derived from open-ended or qualitative responses.



Table 4 : Leadership Challenges Faced in ICT Integration

Challenge Category & Indicator	SD %	D %	N %	A %	SA %	Mean	Std. Dev
Infrastructure & Funding: School budget is insufficient to maintain and upgrade ICT infrastructure.	5	11	10	42	32	3.85	1.140
Infrastructure & Funding: Frequent power outages or unreliable internet connectivity hinder ICT use.	6	13	12	40	29	3.73	1.180
Infrastructure & Funding: Security risks (e.g., theft, lack of secure storage) make ICT deployment difficult.	4	10	11	44	31	3.88	1.105
Capacity Building: Most teachers lack the pedagogical skills to integrate ICT into CBC lessons.	8	17	16	36	23	3.49	1.230
Capacity Building: As a leader, I struggle to fund continuous professional development (CPD) for ICT.	14	26	15	30	15	3.06	1.260
Capacity Building: There is a lack of technical support staff to assist teachers when technology fails.	7	16	14	39	24	3.57	1.200
Policy, Time & Socio-Cultural: High workload and large class sizes leave teachers no time to set up ICT tools.	13	24	18	29	16	3.11	1.250
Policy, Time & Socio-Cultural: There is resistance from some teachers who prefer traditional teaching methods.	21	30	15	24	10	2.72	1.236
Policy, Time & Socio-Cultural: Government ICT guidelines are clear but hard to implement given local realities.	23	28	14	25	10	2.71	1.260
Overall Mean / Average %	11.2	19.4	14.0	34.3	21.1	3.36	1.196



The overall mean value of the nine challenge indicators reported by the headteachers was 3.36 (SD = 1.20). 55.4% of the headteachers agreed that the structural and institutional barriers hinder the ICT integration, while 30.6% disagreed and 14% were neutral. The highest scoring challenges are concentrated in the infrastructure and funding domain: security and theft risk (M=3.88), insufficient budget (M=3.85), and unreliable power or connectivity (M=3.73). Socio-cultural resistance to ICT scored lowest of all nine indicators (M=2.71-2.72). This distribution suggests that the constraint on integration is considerably mechanical and structural rather than attitudinal: teachers and headteachers appear willing to adopt ICT, and the main barriers are oversized classes, limited preparation time and constrained infrastructure and funding, not rejection of digital pedagogy by staff.

Digital literacy is a core cross-cutting competency in the CBC, and the results show why this mandate remains challenging to translate into classroom practice. Teachers are somewhat excluded from collaborative technical problem-solving (M = 3.02) and work in an environment that punishes risk, so many appear to treat ICT integration as an administrative compliance task rather than a pedagogical tool for learner engagement – thus undermining the discovery-based, learner-centred instruction that CBC intends digital literacy to support.

Operational Alignment Matrix

Table 5 sets out how the structural challenges identified under the second objective interact with, and bound, each dimension of transformational leadership examined under the first objective, operationalising the theoretical mapping introduced in Table A.

Table 5: Operational Alignment Matrix

Theoretical Pillar	Connected Study Challenges (Mean)	Operational Relationship: How the Challenge Bounds the Pillar
Idealised Influence (Role Model)	Insufficient budget (3.85); Security/theft risk (3.88)	A leader cannot fully model ICT use when budget deficits limit access to tools, or when theft risk forces hardware to remain locked away. The constraint pushes leadership from material modelling toward transparent, accountable financial stewardship as the primary way of maintaining staff trust.
Inspirational Motivation (Visionary)	Power/internet instability (3.73); Local guidelines hard to implement (2.71)	Repeated resource disruption creates frustration that abstract vision alone cannot resolve; the visionary leader's communication must instead function as a psychological buffer that sustains morale when local realities conflict with national guidelines.
Intellectual Stimulation (Innovator)	Lack of technical support staff (3.57); Teacher preference for traditional methods (2.72)	The absence of troubleshooting support raises the cost of any classroom experiment that fails, which directly explains headteachers' weak performance on creating a safe space for innovation – a technical glitch becomes an administrative liability rather than a learning opportunity.
Individualised Consideration (Coach)	Pedagogical skills gaps (3.49); Workload/large classes (3.11); Difficulty funding CPD (3.06)	With large classes and constrained CPD budgets, headteachers cannot rely on external training; the constraint forces a shift toward low-cost, personalised internal strategies such as peer-mentorship networks.



The two datasets converge neatly around the study's weakest leadership indicator: the low score on creating a safe space for innovation ($M = 2.65$) is explained by the coincidence of high security risk ($M = 3.88$), negligible technical support ($M = 3.57$) and tight budgets ($M = 3.85$). Taken together, such factors make experimentation with scarce hardware genuinely costly rather than merely uncomfortable for headteachers to permit. The highest scoring element of the study, dependence on peer-mentorship ($M = 3.86$) is also explained by the lack of official technical support ($M = 3.57$) and CPD funding ($M = 3.06$). Headteachers resort to a no-cost internal coaching system, pairing teachers with school-based ICT Champions, instead of formal support that they cannot otherwise afford. In both cases, the observed leadership behaviour is best understood as a rational adaptation to structural constraint rather than as an independent measure of headteachers' leadership capacity.

Probable Strategic Solutions to ICT Integration Challenges

The study also assessed the perceived viability of nine strategic interventions, grouped into three domains, designed to mitigate the institutional bottlenecks identified above. These solutions were rated by headteachers ($N = 80$) on a five-point Likert scale, drawing on their own experience and knowledge of local school realities.

Table: Solutions to ICT Integration Challenges

Statement	SD %	D %	N %	A %	SA %	Mean	Std. Dev.
Establishing Public-Private Partnerships (PPPs) with local businesses, alumni networks and NGOs is a viable way to augment the school's ICT maintenance budget.	5	11	13	44	27	3.77	1.090
Investing in solar back-up power and localised offline digital repositories (e.g., offline learning servers) can bypass grid instability and internet downtime.	3	9	12	47	29	3.90	1.020
Securing a dedicated portion of the infrastructure fund to construct fortified digital labs is necessary for safe ICT deployment.	10	20	16	36	18	3.32	1.220
Designing localised, school-based peer-mentorship programmes (pairing tech-savvy teachers with beginners) is an effective alternative to costly external CPD.	6	15	15	42	22	3.59	1.140
Formally assigning or rewarding a resident ICT Champion teacher with a reduced teaching workload creates sustainable on-site technical support.	10	20	13	39	18	3.35	1.213
Reorienting professional training toward practical ICT classroom management for large CBC class sizes, rather than basic software literacy alone.	15	27	13	31	14	3.02	1.260
Creating a shared digital database of lesson plans and CBC teaching aids across sub-counties would meaningfully reduce individual teacher preparation time.	12	23	15	34	16	3.19	1.224
Adjusting the school timetable to include a mandatory ICT Setup Buffer Time before	8	18	14	40	20	3.46	1.166



core lessons prevents technology from eating into instructional hours.							
Granting Boards of Management (BOMs) autonomy to adapt Ministry ICT guidelines to local resource levels makes policy implementation more realistic.	5	15	12	44	24	3.67	1.103
Overall Mean/ Average %	8.2	17.5	13.6	39.7	21.0	3.47	1.157

Across the nine indicators, headteachers strongly supported the proposed solutions with a mean of 3.47 (SD = 1.16): 60.7% of responses were in the agree/strongly agree range, 25.7% in the disagree/strongly disagree range and 13.6% neutral. The most robust support was for solar back-up and offline digital repositories (M = 3.90), followed by Public-Private Partnerships (M = 3.77) and BOM autonomy to adapt national guidelines locally (M = 3.67). This pattern suggests a strong local preference among headteachers for decentralised, leadership-led solutions, rather than ongoing reliance on centrally provided funding or on inflexible, one-size-fits-all policy. These preferences are in line with the earlier findings, read against the study's central pattern: because headteachers cannot resolve macro-level constraints such as national budget allocation or grid reliability, transformational leadership in this context is best expressed through creative, locally mobilised workaround management and through the flexibility to adapt both timetables and policy guidance to the realities individual schools face.

Conclusion

The findings reveal that headteachers' leadership is neither absent nor uniformly weak: idealised influence and individualised consideration are consistently strong, as demonstrated by high levels of trust in headteachers as role models and the widespread, effective use of peer-mentorship structures. But intellectual stimulation, the dimension of transformational leadership most directly responsible for authorising risk-tolerant, learner-centred experimentation with ICT, is consistently the weakest of the four, and this specific gap, rather than a general absence of leadership, is the proximate constraint on pedagogical (as opposed to administrative) ICT integration.

References

- African Development Bank. (2022). Digital infrastructure for Africa: Accelerating transformation. AfDB.
- EAC. (2022). *East African Community ICT strategy for education*. EAC Secretariat.
- Kaburu, J., Muthoni, D., & Kiplagat, S. (2023). ICT integration and learner achievement in science and mathematics in East Africa. *African Journal of Educational Technology*, 12(2), 45–60.
- Kigotho, M., & Wanjohi, A. M. (2021). Digital learning resources and student achievement under CBC in Kenya. *Journal of Education and Practice*, 12(6), 1–10.
- Leithwood, K., Harris, A., & Hopkins, D. (2020). Seven strong claims about successful school leadership revisited. *School Leadership & Management*, 40(1), 5–22.
- Liu, H., Lin, C. H., & Zhang, D. (2022). Pedagogical beliefs and attitudes toward ICT. *Computer Assisted Language Learning*, 30(8), 745–765.
- Ministry of Education. (2022). *Education sector report: Digital integration under CBC*. Government of Kenya.
- Mugenda, O. M., & Mugenda, A. G. (2003). *Research methods: Quantitative and qualitative approaches*. ACTS Press.
- Muli, S., & Musau, L. (2021). Barriers to ICT integration in Kenya's secondary schools. *African Journal of Education, Science and Technology*, 6(2), 214–224.



- Ndiaye, A., Diouf, A., & Ba, M. (2020). ICT and competency-based education in Sub-Saharan Africa. *International Review of Education*, 66(5–6), 789–807. <https://doi.org/10.1007/s11159-020-09845-2>
- Nguyen, T. N., Le, T. T., & Tran, P. (2023). Transformational school leadership and teacher engagement. *International Journal of Leadership in Education*. <https://doi.org/10.1080/13603124.2023.2234567>
- OECD. (2023). *Education at a glance 2023: OECD indicators*. OECD Publishing.
- Sun, J., & Leithwood, K. (2021). Transformational leadership practices and student achievement. *Journal of Educational Administration*, 59(2), 178–206.
- Tondeur, J., Van Braak, J., Ertmer, P. A., & Ottenbreit-Leftwich, A. (2023). Teachers' pedagogical beliefs and technology use. *Educational Technology Research and Development*, 65(3), 555–575.
- UNESCO. (2022). *Sub-Saharan Africa ICT in education report*. UNESCO Publishing.
- UNESCO. (2023). *Technology in education: A tool on whose terms? Global Education Monitoring Report*. UNESCO Publishing.
- World Bank. (2022). *Reimagining human connections: Technology and innovation in education*. World Bank Group. <https://www.worldbank.org>
- Yamane, T. (1967). *Statistics: An introductory analysis (2nd ed.)*. Harper & Row.
- Zou, D., Luo, S., Xie, H., & Hwang, G. J. (2021). A systematic review of research on digital learning technologies. *Educational Technology & Society*, 24(2), 1–17.