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ENHANCING TEACHERS' DIGITAL LITERACY: LOCALISED STRATEGIES FOR BRIDGING THE TECHNOLOGICAL GAP IN CAMEROON

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Abstract

Teachers' digital literacy is a critical factor in integrating technology into education, especially in resource-constrained environments. In Cameroon's Fako Division, secondary school teachers struggle with limited digital skills and infrastructure, which undermines effective technology use in pedagogy? This study investigated teachers' access to digital resources, their digital competences, institutional support, perceived challenges, and context-specific strategies to bridge the technological gap. Adopting a descriptive survey design, data were collected from 317 randomly selected teachers using structured questionnaires. Descriptive statistics (means, frequencies, percentages) and the Kruskal-Wallis H test were used for data analysis. Findings showed limited access to digital infrastructure ($\bar{x}$ = 2.64), moderate digital competence ($\bar{x}$ = 3.11), and minimal institutional support ($\bar{x}$ = 2.51). Challenges were rated high ($\bar{x}$ = 3.57), including unreliable electricity, device costs, and insufficient training. Respondents favored school-based strategies ($\bar{x}$ = 3.34), such as peer mentoring, partnerships with ICT vendors, and school innovation teams. Inferential analysis revealed significant differences in digital literacy across age groups ($\chi^2(3) = 11.82$, $p = .008$), teaching experience ($\chi^2(3) = 9.44$, $p = .024$), and qualification level ($\chi^2(3) = 9.76$, $p = .02$), but no significant differences by gender or school type. The study recommends government investment in infrastructure, integrating digital literacy into teacher training, and supporting localized strategies to ensure relevance, sustainability, and equity in educational technology adoption.

Keywords:

Digital Literacy, Secondary School Teachers, Technological gap, Digital Competence, ICT in Education.

Résumé

La maîtrise du numérique par les enseignants est essentielle à l'intégration des technologies dans l'éducation, notamment dans les contextes où les ressources sont limitées. Dans le département de Fako, au Cameroun, les enseignants du secondaire sont confrontés à des difficultés liées à des compétences et des infrastructures numériques insuffisantes, ce qui compromet l'utilisation efficace des technologies dans la pédagogie. Cette étude a examiné l'accès des enseignants aux ressources numériques, leurs compétences numériques, le soutien institutionnel, les difficultés perçues et les stratégies adaptées au contexte pour combler la fracture numérique. Une enquête descriptive a été menée auprès de 317 enseignants sélectionnés aléatoirement, à l'aide de questionnaires structurés. Les données ont été analysées à l'aide de statistiques descriptives (moyennes, fréquences, pourcentages) et du test H de Kruskal-Wallis. Les résultats ont révélé un accès limité aux infrastructures numériques (moyenne = 2,64), des compétences numériques modérées (moyenne = 3,11) et un soutien institutionnel minimal (moyenne = 2,51). Les difficultés rencontrées ont été jugées importantes (moyenne = 3,57), notamment l'irrégularité de l'approvisionnement en électricité, le coût des équipements et l'insuffisance de formation. Les répondants ont privilégié les stratégies mises en œuvre au sein des établissements scolaires (moyenne = 3,34), telles que le mentorat par les pairs, les partenariats avec les fournisseurs de TIC et les équipes d'innovation scolaire. L'analyse inférentielle a révélé des différences significatives en matière de littératie numérique selon les groupes d'âge ($\chi^2(3) = 11,82$, $p = 0,008$), l'expérience d'enseignement ($\chi^2(3) = 9,44$, $p = 0,024$) et le niveau de qualification ($\chi^2(3) = 9,76$, $p = 0,02$), mais aucune différence significative selon le sexe ou le type d'établissement. L'étude recommande un investissement public dans les infrastructures, l'intégration de la littératie numérique dans la formation des enseignants et le soutien aux stratégies locales afin de garantir la pertinence, la pérennité et l'équité de l'adoption des technologies éducatives.

Mots-clés: Littératie numérique, Enseignants du secondaire, Fracture technologique, Compétences numériques, TIC dans l'éducation.

Introduction

The digital age has profoundly reshaped global educational landscapes, demanding new competences from educators and institutions alike. Among the most pressing changes is digital literacy, which encompasses the ability to access, understand, evaluate, and create information using digital technologies ([Ng,] 2012). In education, digital literacy is no longer a luxury, it is an essential competency for effective pedagogy, curriculum delivery, and educational administration (Fraillon et al., 2014). In this context, the digital preparedness of teachers plays a pivotal role in ensuring equitable access to quality education, particularly in sub-Saharan Africa, where digital transformation is uneven. Despite national-level ICT strategies in Cameroon, many divisions, including Fako Division in the Southwest Region, face persistent gaps in teacher digital competence due to infrastructural, institutional, and socio-economic limitations.

In response to the global push toward Education 4.0, Cameroon has adopted policies aimed at integrating Information and Communication Technologies (ICT) in schools, such as the

2001 national ICT policy and more recent initiatives supported by UNESCO and UNICEF (Ministry of Posts and Telecommunications, 2019). These policies are meant to encourage the use of digital tools to foster innovation, critical thinking, and collaborative learning. However, implementation has been fragmented and disproportionately favoring urban centers such as Yaounde and Douala, while many schools in semi-urban and rural areas continue to lag behind. Several studies have documented how the lack of digital literacy among teachers hinders the successful use of ICT in classrooms (Tchombe, 2021; Ndongko & Eboka, 2020). Teachers in these areas often lack not only access to computers and internet connectivity but also localized training and institutional support that align with their contextual realities.

Fako Division, which includes key towns such as Buea, Limbe, Tiko, and Mutengene, presents a unique paradox. On the one hand, it is the home to Cameroon's leading public anglophone university-the University of Buea-and a growing technology hub popularly known as "Silicon Mountain" (Zang & Tamo, 2020). Unfortunately, many primary and secondary school teachers in the region are still unable to effectively use digital tools during the teaching and learning process. Even in schools where digital devices exist, they are often underutilized due to inadequate skills, confidence, or lack of training among staff. Infrastructural constraints such as irregular power supply and poor internet coverage exacerbate the problem. These challenges raise serious questions about the digital readiness of the teaching workforce and the extent to which national ICT policies translate into localized, practical benefits for educators in Fako.

Digital literacy for teachers goes beyond operational competence with devices. According to Belshaw (2012), digital literacy involves a spectrum of literacies, including media, information, cultural, and critical thinking skills. In the classroom, these competences enable teachers not only to use digital tools effectively but also to guide students in navigating digital content responsibly. Teachers' digital competences are therefore the centre to bridging the digital divide and achieving inclusive, quality education, particularly in under-resourced regions. When teachers lack digital skills, the potential of ICT to enhance learning remains untapped, further widening the equity gap between schools in more developed areas and those in areas like Fako Division.

One of the limitations of existing digital literacy programs is their generic nature. Many training modules adopted from international organizations do not consider the socio-cultural, infrastructural, and pedagogical contexts of the areas where they are implemented (Unwin, 2008). This study responds to that gap by exploring localized strategies that are specifically tailored to the needs and challenges of teachers in Fako Division. Localization in this context refers to the design and delivery of digital literacy programs that take into account the local infrastructure, available technology, language preferences, pedagogical practices, and policy frameworks. Understanding how localized strategies can enhance digital literacy, is key to ensuring that digital inclusion becomes a reality for all teachers regardless of geographic or socio-economic status.

This is why this paper provides findings aimed at the following objectives;

a) To critically evaluate digital literacy competences of secondary school teachers in Fako Division.
b) To investigate constraints that impedes digital literacy development among secondary school teachers in Fako Division.

c) To formulate evidence-based, context-specific strategies for improving digital literacy among secondary school teachers in Fako Division.

This study is both timely and necessary, especially in the post-COVID-19 era where hybrid and online learning models are increasingly becoming the norm. Teachers must be digitally competent to navigate these models and deliver quality education. In focusing on Fako Division, the study addresses a critical gap in the literature and practice by proposing context-sensitive solutions that can ameliorate educational policy and improve the digital readiness of Cameroon's teaching workforce.

Digital Literacy of Secondary School Teachers in Fako Division

Digital literacy has emerged as an essential competency for 21st-century educators, as it enables teachers to integrate technology into teaching, enhance student engagement, and contribute to overall educational quality. According to Ng (2012), digital literacy encompasses more than just technical skills-it includes cognitive and socio-emotional dimensions that enable individuals to navigate, evaluate, and create information using a range of digital technologies. For teachers, this means developing a blended skill set that includes pedagogical, technological, and content knowledge (Mishra & Koehler, 2006). As education systems worldwide embrace digital transformation, teachers' digital literacy becomes increasingly critical, especially in developing contexts where technological divides remain evident.

In many developing countries, including Cameroon, teachers are often expected to integrate digital tools into their instruction with minimal training and insufficient infrastructure. Despite national policies that promote Information and Communication Technology (ICT) integration in education, implementation often falls short due to systemic constraints such as inadequate funding, outdated curricula, poor internet connectivity, and electricity shortages (Tchamyou, 2017). In the Cameroonian context, the Ministry of Secondary Education has made strides in introducing ICT education in schools, yet the challenges of implementation remain substantial, particularly in rural and semi-urban settings such as Fako Division. The gap between policy and practice often leaves teachers ill-equipped to leverage digital resources for effective pedagogy (Tandio & Mbangwana, 2020).

The Technological Pedagogical Content Knowledge (TPACK) framework proposed by Mishra and Koehler (2006) is widely used to conceptualize the knowledge teachers need for integrating technology into their practice. It asserts that teachers must develop an understanding of the intersection between technology, pedagogy, and subject content to use digital tools meaningfully. In Cameroon, however, few teacher training programs are built explicitly around this framework, limiting its practical application. Similarly, UNESCO's ICT Competency Framework for Teachers provides a comprehensive guide on ICT skills development across three stages: technology literacy, knowledge deepening, and knowledge creation (UNESCO, 2018). Despite this, many Cameroonian teachers are still at the foundational level of technology literacy, with limited access to resources and professional development opportunities (Ngwa & Nchunge, 2020).

Constraints of Digital Literacy Development among Secondary School Teachers in Fako Division

In the broader Sub-Saharan African region, barriers to digital literacy development among teachers are consistent and well documented. According to Tella (2021), infrastructural

limitations, lack of relevant teacher training, and negative attitudes toward technology use significantly impede ICT integration. A study by Musibau et al. (2022) observed that even in urban schools, some teachers demonstrate resistance to using technology due to fears of irrelevance, obsolescence, or simply lack of confidence. Moreover, gender disparities and unequal access to resources often compound these barriers, with female teachers facing more significant challenges in acquiring digital skills due to social and institutional biases (Akpan & Beard, 2021).

In Cameroon, these Regional and National trends are evident. For instance, divisions such as Fako is a semi-urban and coastal region with a mix of government and mission schools, many of which struggle with underfunding and limited technological resources. While the city of Buea-Fako's capital-hosts the University of Buea and is relatively better resourced, secondary schools in Tiko, Limbe, and Muyuka often lack reliable internet, functional computer labs, and trained ICT facilitators. Teachers frequently rely on personal devices for digital tasks and report difficulties in accessing updated software and learning platforms (Fonkem & Mforteh, 2023). These challenges underscore the need for localized strategies tailored to the socio-economic realities of Fako's educational ecosystem.

Evidence-Based Local Strategies to Improve Teachers' Digital Literacy in Fako Division

Localized strategies are increasingly being recognized as a means to bridge the digital divide in education. Community-based training initiatives that involve local stakeholders and leverage indigenous knowledge have been shown to improve teacher ICT skills in similar contexts across Africa (Chigona et al., 2019). In Fako, a bottom-up approach involving school administrators, local councils, and non-governmental organizations could facilitate context-sensitive training programs that respond to the actual needs of teachers. Additionally, establishing public-private partnerships may help mobilize resources such as internet connectivity, computers, and learning management systems. Successful models from Ghana and Kenya show that local partnerships can result in long-term investments in digital infrastructure and teacher capacity building (Boakye & Banini, 2021).

Policy implementation also remains a critical area for improvement. Although Cameroon has developed national ICT policies, including Vision 2035 and the e-Education Strategy, these documents often lack actionable steps at the school level. For effective policy translation, there must be a feedback loop that allows educators and school heads to communicate ground-level challenges to policymakers. Capacity building programs should not only focus on technical skills but also include digital pedagogy and strategies for critical media literacy, ensuring that teachers can integrate ICT meaningfully rather than mechanistically (Nzomo & Orodho, 2014). Additionally, mentorship programs can foster peer learning among teachers, allowing experienced educators to support others in integrating digital tools in their teaching practices.

Ultimately, the literature reveals that enhancing teacher digital literacy in areas such as Fako Division requires a multi-pronged approach involving policy reform, infrastructure development, context-specific training, and community engagement. While frameworks such as TPACK and UNESCO's ICT Competency Model provide valuable guidance, they must be adapted to local realities. Cameroon's efforts to develop a digitally competent teaching force must be matched with sustained investments and grassroots-level interventions.

Teachers in Fako Division are not passive recipients of technology but key agents of change whose empowerment can catalyze broader educational transformation.

Research Methodology

Research Design

This study adopted a descriptive survey design using a purely quantitative approach to assess the level of digital literacy among secondary school teachers in Fako Division, Southwest Region of Cameroon. This method was considered appropriate because it enabled the researcher to gather factual, quantifiable data from a defined group of participants in order to describe current conditions and identify patterns across variables (Creswell, 2014). The aim was to provide an evidence-based understanding of digital literacy levels, barriers, and localized strategies adopted by teachers in a technology-evolving educational environment.

Study Area

The research was conducted in Fako Division, located in the Southwest Region of Cameroon. The division is composed of six sub-divisions: Buea, Limbe I, Limbe II, Limbe III- West Coast (Idenau), Tiko and Muyuka, Fako serves as both an administrative and academic hub, with Buea as the regional capital and home to the University of Buea, a center of educational innovation. Despite the growing integration of digital technologies in education, many schools in this division, particularly those in rural and semi-urban areas, continue to face challenges in digital integration. The disparity in infrastructure, digital exposure, and institutional support highlights the need to study teachers' digital literacy within this context.

Study Population and Sampling

Using a simple random sampling technique, necessary to ensure that every teacher had an equal chance of being included, thereby enhancing the reliability and generalizability of the results (Kumar, 2019). A total of 317 teachers were sampled and surveyed, using the Krejcie and Morgan sampling table from an initial population of 1775. Government secondary schools were randomly selected from various zones of the division using a paper basket method, where for each subdivision, names under were written on a ballot paper, shaken and half selected, ensuring the inclusion of both urban and rural areas to capture a wide spectrum of digital literacy experiences.

Instrumentation

Data were collected using a structured, closed-ended questionnaire designed to explore key aspects of digital literacy. The questionnaire was developed and adapted to reflect the Cameroonian context. It included five major sections; demographic data, access to digital infrastructure and resources, digital competence and skill levels, perceived challenges to digital literacy, utilization and awareness of localized strategies. All questions were formatted using a five-point Likert scale ranging from "Strongly Disagree" (1) to "Strongly Agree" (5), allowing for standardized data interpretation. To ensure content validity, the instrument was reviewed by two experts in ICT education and educational measurement from the Department of Educational Foundations and Administration, Faculty of Education of the University of Buea. Their feedback helped refine question wording and ensure cultural and contextual relevance. A pilot study was conducted with 10 teachers in non-

sampled schools within the Southwest Region. The Cronbach's alpha for the instrument was 0.898, confirming its high internal reliability (Taber, 2018).

Data Analysis

The collected data were cleaned and coded in SPSS (Statistical Package for Social Sciences) version 25.0. Descriptive statistics, including frequencies, percentages, means and standard deviations were used to summarize responses and answer the research questions. The data provided insights into the distribution of digital competences and perceptions of technological integration challenges among secondary school teachers in the division.

Findings

Fako Secondary School Teachers' Socio-demographic Characteristics

Table 1: Fako Secondary School Teachers' Socio-demographic Characteristics

Variable	Category	Frequency (n)	Percentage (%)	Kruskal-Wallis H Test		
				H Statistic	p-value	Interpretation
Gender	Male	155	48.90%	0.05	0.82	Not significant
	Female	162	51.10%			
Age Group	20–29 years	47	14.80%	11.82	0.008*	Significant
	30–39 years	124	39.10%			
	40–49 years	91	28.70%			
	50 years and above	55	17.40%			
Highest Qualification	Grade I Certificate	38	12.00%	9.76	0.02*	Significant
	DIPES I/DIPES II	115	36.30%			
	Bachelor's Degree	93	29.30%			
	Master's Degree or higher	71	22.40%			
Years of Teaching	Less than 5 years	62	19.60%	9.44	0.024*	Significant
	5–10 years	88	27.80%			
	11–15 years	97	30.60%			
	More than 15 years	70	22.00%			
School Type	Public Secondary School	214	67.50%	2.61	0.12	Not significant
	Mission/Private School	103	32.50%			

The information on table 1 reveal a fairly balanced gender distribution among the respondents, with 51.1% female and 48.9% male teachers. The Kruskal-Wallis H test (H = 0.05, p = 0.82) revealed no statistically significant difference in digital literacy scores between male and female teachers, indicating that gender had no notable influence on the digital competencies of participants. Age distribution showed that a majority of respondents

are in the 30–39-year age range (39.1%), followed by those aged 40–49 years (28.7%). Statistically, a significant difference was found across age groups (H = 11.82, p = 0.008), showing that age significantly affects digital literacy levels among respondents.

In terms of qualifications, the majority of respondents held DIPES I/II (36.3%) and Bachelor's degrees (29.3%), while 22.4% held postgraduate qualifications, with majority of respondents (67.5%) coming from public secondary schools, while 32.5% were from private or mission schools. A statistically significant difference in digital literacy scores was found across different qualification levels (H = 9.76 (p = 0.0207), suggesting that academic qualifications influenced respondents' digital literacy. The majority of respondents (30.60%) had 11–15 years of teaching experience, followed by 27.80% with 5–10 years. Only 19.60% of teachers had less than 5 years of experience, while 22.00% had more than 15 years. Teaching experience significantly influenced digital literacy scores (H = 19.04, p = 0.0003). A significant proportion of respondents (67.50%) were drawn from public secondary schools, while 32.50% taught in mission or private schools. No statistically significant differences were observed across school types (public, private, mission) (H = 2.61, p = 0.1065).

Fako Secondary School Teachers' Digital Literacy Competences

Table 2: Fako Secondary School Teachers' Digital Literacy Competences

Digital Competency Indicators	Mean ($\bar{x}$)	Standard Deviation (σ)	Decision
Ability to use basic digital tools (Word, Excel, etc.)	3.7	1	High Competency
Confidence in using digital platforms (Zoom, Google Meet)	3.2	1.1	Moderate Competency
Familiarity with classroom management tools (projectors, Google Classroom)	2.9	1.2	Moderate Competency
Ability to evaluate digital content for teaching	3	1	Moderate Competency
Integration of digital tools in lesson planning and delivery	2.8	1.1	Moderate Competency
Average Total	3.12	1.08	Low Competency

Table 2 reveals that teachers in Fako Division generally have limited skills which hinders their technology implementation in the classrooms as shown by an overall moderate mean score of 3.12 (σ = 1.08), indicating a low level of competence. The highest mean score recorded was 3.70 on ability to use basic digital tools, while the lowest mean scored was 2.8 on integration of digital tools in the lesson planning and delivery. However, 3.2 mean was recorded for confidence in using digital platforms, while 2.9 mean score was recorded on familiarity with classroom management tools and 3.0 mean score recorded on ability to evaluate digital content for teaching..

Fako Secondary School Teachers' Perceived Constraints to Digital Literacy

Table 3: Fako Secondary School Teachers' Perceived Constraints to Digital Literacy

Statement	Mean ($\bar{x}$)	Standard Deviation (σ)	Decision
Lack of adequate digital infrastructure hinders my use of technology	4.2	0.85	Strongly Agree
Limited ICT training opportunities reduce my confidence in using digital tools	4	0.9	Agree
Poor internet connection makes it difficult to access digital content	4.15	0.88	Strongly Agree
High cost of acquiring digital devices is a major constraint	3.90	0.92	Agree
I feel overwhelmed by the constant evolution of digital technologies	3.85	0.95	Agree
There is limited administrative support to encourage ICT integration in teaching	4.05	0.91	Agree
There is lack of ICT tools maintenance, management and upgrades	3.6	1	Agree
Average Total	4	0.91	Agree

Findings on table 3 revealed that teachers in Fako Division experience significant challenges in integrating digital gadgets in to their teaching. With an average mean of 4.00, the overall decision was 'Agree', having the most strongly agreed with mean of 4.20 and 4.15 in lack of adequate digital infrastructure and poor internet connection respectively. Also, limited ICT training opportunities scored a mean of 4.00, and high cost of acquiring digital devices scored a mean of 3.90. A mean of 3.85 teachers indicated being overwhelmed by the rapid evolution of technologies, while others indicated limited of administrative support with a mean of 4.05. However, 3.60 mean indicated lack of stable internet connections, while mean score of 3.70 recorded statement on limited ICT maintenance, management and upgrades.

Fako Secondary School Teachers' Evidence-Based, Context-Specific Strategies for Improving Digital Literacy

Table 4: Fako Secondary School Teachers' Proposed Strategies for Improving Digital Literacy

Statement	Mean ($\bar{x}$)	Standard Deviation (σ)	Decision
Regular in-service ICT workshops should be conducted in each educational district	4.45	0.7	Strongly Agree
Community-based partnerships can help provide teachers access to digital tools and training	4.3	0.76	Strongly Agree
Peer mentoring systems within	4.2	0.81	Agree

schools can be effective for up skilling teachers			
Encouraging use of mobile-based learning tools will promote broader teacher engagement	4.15	0.84	Agree
Integration of digital literacy training in Teachers' Grade I and II refresher programs is needed	4.4	0.75	Strongly Agree
Local education authorities should set up resource centers with internet and computers	4.35	0.78	Strongly Agree
Teachers should be incentivized to pursue digital training using local platforms	4.1	0.87	Agree
Average Total	4.28	0.79	Strongly Agree

The results in table 4 suggest a strong consensus among respondents regarding strategies that improves their digital literacy, with an average mean of 4.28. The highest mean of 4.5 was recorded for the strategy 'regular in-service ICT workshop should be conducted in each educational district.' Another high-ranking strategy was the integration of digital literacy in to refresher training programs for Grade I and II teachers with a mean of 4.40. Also, establishing community-based partnerships scored a mean of 4.30 and setting up local resource centers recorded a mean of 4.35. Strategy of peer mentoring recorded a mean of 4.20, though received slightly lower in rating. However, mobile-based learning tools recorded a mean of 4.15 while incentivizing teachers to pursue local digital training recorded a mean of 4.10, though with relatively lower mean.

Discussion

Fako Secondary School Teachers' Socio-demographic Characteristics

The findings in revealed a fairly balanced gender distribution among the respondents. This is indicative of an equitable representation of both genders in the teaching workforce within Fako Division, reflecting trends observed in the Cameroonian Secondary Education, where female participation has increased steadily due to National Gender Campaigns (Nfor, 2020).

Also, age distribution shows that a majority of respondent are in the 30 -39-year age range, followed by those aged 40-49 years. This suggests a predominantly mid-career teacher population, likely to be more adaptable to digital training due to their professional maturity and exposure to newer educational trends. According to Hennessy et al. (2010), teachers in this age group are more responsive to ICT integration when appropriately supported. The relatively small representation of teachers under the low percentages may indicate limited recent recruitment or slow turnover in the teaching sector.

In terms of qualification, majority of respondents held DIPES I/II and Bachelor's degree, while few held postgraduate qualifications. This highly qualified teaching pool indicates strong foundational knowledge, which can support effective digital skills development if

adequately nurtured. As stated by Tella and Tella (2011), higher qualification often correlate with higher openness to adopting new teaching technologies, provided institutional barriers are addressed.

The distribution of teaching experiences further reinforces the predominance of experienced teachers. Over half of respondents had taught for 11 years or more, a factor that can influence both willingness and resistance to innovation. While long-service teachers may have rich pedagogical insight, they may also feel overwhelmed by evolving technologies (Rogers, 2003). Thus, any digital literacy program must be designed to address generational learning gaps. Nevertheless, majority of the respondents were from Public Secondary Schools, while few were from private or mission schools. This distribution reflects the public dominance of the education system in Cameroon and is important because access to digital tools is often better in public institutions. Public school teachers may therefore report more significant challenges related to infrastructure and policy support, a trend noted by Aduwa-Ogiegbaen and Iyamu (2005), in their study of ICT accessibility across African schools.

The above demographic insights provide essential context for interpreting the broader findings of the study. The relatively high levels of qualification and experience are potential strengths for digital literacy development, yet infrastructural gaps, generational divides, and institutional limitations may impede progress. A holistic approach, that tailors digital training to diverse demographic profiles as advocated by Ghavifekr et al. (2024), will be critical in bridging the technological divide in this region.

Fako Secondary School Teachers' Digital Literacy Competences

According to the findings presented in table 4.2 above, highest mean was recorded for teachers' ability to use basic digital tools such as Microsoft Word and Excel indicating a high level of competence in fundamental ICT skills. This finding aligns with the work of Tomte et al. (2015), who observed that basic digital literacy is often the first area of competence developed among teachers in resource-constrained environments. It also supports the premise of the Technology Acceptance Model (TAM), which posits that perceived ease of use is crucial in technology adaptation (Davis, 1989). However, competences related to digital teaching platforms, content evaluation, and lesson planning integration show only moderate levels of skill. This supports earlier findings by Ifinedo et al. (2020), who reported that many African teachers face challenges incorporating digital tools in to pedagogy due to limited exposure, training, and infrastructure. Similarly, this resonates with Rogers' Diffusion of Innovation Theory (2003), suggesting that many teachers are in the early stages of tool adoption, needing support to move towards full integration.

Furthermore, the standard deviation values highlight significant disparities in digital literacy across the teacher population. These variations may stem from factors such as differing levels of access to training, experience and institutional support, as also observed in studies by Tondeur et al. (2017). These findings reveal both a promising foundation in basic ICT literacy and a pressing need for targeted capacity-building programs advanced digital integration, content evaluation, and the use of learning management systems. As posited by Constructivist Learning Theory, effective digital education relies not only on access to tools, but also on the teacher's ability to construct and facilitate meaningful learning experiences using these tools (Vygotsky, 1978). Thus, while the teachers in Fako Division are not starting from zero, interventions must focus on raising competences

beyond the basic level, particularly in pedagogical and integrative aspects of digital technology. Investing in mentorship and regular digital up skilling workshops may help bridge this gap and contribute to more effective adoption in education across the region.

Fako Secondary School Teachers' Perceived Challenges to Digital Literacy

The findings indicated in table 4.3 above reveals that teachers in Fako Division experience significant challenges in integrating digital literacy in to their teaching processes. The overall decision was 'Agree', indicating consensus on the presence of considerable obstacles. Notably, 'lack of adequate digital infrastructure' and 'poor internet connectivity' were the most strongly agreed upon challenges. As one respondent expressed 'We lack basic facilities such as functioning computer labs and stable electricity, which are prerequisites for digital engagement.' This aligns with Tella, Bashorun, and Adu (2021), who argue that infrastructure deficits are the primary hindrance to ICT integration across many African school systems. Also, limited ICT training opportunities were another prevalent issue, as many teachers lack structured programs to build confidence in digital tools. This supports Human Capital Theory (Becker, 1993), which emphasizes the need for consistent investment in capacity building to drive educational development. For examples, a teacher noted, 'We only receive general workshops, specific digital training is rare and inaccessible'. Similar challenges were noted in Tanzania by Mtebe and Raisamo (2014), where absence of relevant training discouraged digital adoption.

However, cost-related issues also emerged, with 'High cost of acquiring digital devices' noted as a key constraint. Many teachers shared concerns about affordability: 'my salary cannot cover buying a personal laptop or subscribing to internet services every month.' These findings reflect Afolabi's (2020) work which concluded that the digital divide in education is as much economic as it is technological. On a psychological front, feeling overwhelmed by the rapid evolution of technologies shows the struggle to keep pace with advancement. One teacher commented, 'Just when I get used to one software, a new version comes up, It's frustrating'. This aligns with Rogers' Diffusion of Innovation Theory (2003), which suggests complexity and pace of innovation can act as deterrents for late adopters. Administrative support also proved to be lacking as teachers felt abandoned in their digital journey, in their response 'school management often shows little interest in encouraging us to integrate technology'. This aligns with Olibie (2021), who found poor institutional backing a common reason for stagnation of ICT policies in schools. Finally, cultural and generational attitudes were identified as subtle barriers. Older teachers, in particular, are less likely to embrace digital tools. A participant remarked, 'Younger colleagues find it easier to adapt, but for us, it is challenging to start anew'. This finding resonates with the studies by Aduwa-Ogiegbaen and Iyamu (2020), who highlights age and tradition as factors influencing digital resistance in Africans schools.

Fako Secondary School Teachers' Evidence-Based, Context-Specific Strategies for Improving Digital Literacy

Findings indicate a strong consensus among respondents on the effectiveness of evidence-based and context-specific strategies to enhance teachers' digital competences. Participants particularly emphasized the importance of regular in-service ICT workshops within their local districts. Many teachers expressed frustration with being sent to distant towns for training and preferred localized sessions. This reflects a shared belief in the practicality and relevance of decentralized professional development. This response supports the work of

Boateng et al. (2021), who emphasized decentralized, context-sensitive professional development as the most effective approach in Sub-Saharan Africa.

Another high ranking strategy was the integration of digital literacy into refresher training programs for Grade I and II teachers. This resonates with Ghavifekr and Rosdy (2015), who argue that pre-service and ongoing teacher education must embed digital skills to foster systemic change. Establishing community-based partnerships and setting up local resource centers were also strongly supported. Teachers acknowledged the potential of partnerships with NGOs, councils, and private sector donors to provide infrastructure and tools. 'With support from local businesses, we can equip our schools with devices and even sponsor internet,' said one teacher. These views echo the Community Participation Model (Epstein, 2001), which highlights the transformative role of local collaboration in education enhancement.

The strategy of peer mentoring was well received, though slightly lower in rating. Teachers valued learning from colleagues within their schools who were more digitally inclined. As one commented, 'When I see my younger colleagues using Google forms or smart boards, I get motivated to try as well.' This aligns with the Social Learning Theory (Bandura, 1977), which affirms the importance of learning in social contexts.

Mobile-based learning tools and incentivizing teachers to pursue local digital training were also agreed upon, though with relatively lower means. These strategies were seen as practical in a context where smartphones are more accessible than laptops. These observations are supported by Olumide et al. (2020), who reported that mobile learning has high adoption potential in African classrooms due to its affordability and ease to use.

The consistent emphasis on localization in all the items reflects a belief in the context-specific strategies rather than imported models, offering the most promised form of bridging the digital divide in teachers' competences. This supports Zubairu and Shuaibu (2022), who advocate for educational innovation grounded in the social, infrastructural, and economic realities of each community.

Conclusion

This study investigated the current state of digital literacy among secondary school teachers in Fako Division, South West Region of Cameroon, with a focus on access to digital infrastructure, digital skill levels, and perceived challenges to digital engagement. Grounded in the descriptive survey design and analyzed using statistical tools, the research revealed significant disparities in digital access, moderate skill level, and numerous institutional, technical and personal barriers impeding full adoption of digital tools in pedagogy. These findings resonate with broader discourses on digital divides in Sub-Saharan Africa, where infrastructure and training gaps remain key obstacles to ICT integration in education (Ghavifekr et al., 2014; UNESCO, 2020).

The study contributes to scholarly and policy discussions by contextualizing the problem within the socio-educational dynamics of Fako Division. The high qualification levels and teaching experiences of respondents highlight a strong potential for transformation if the right digital resources and support mechanisms are provided. However, the data also underscored a lack of consistent internet access, insufficient training opportunities, and limited institutional support as critical impeding challenges previously identified by Aduwa-Ogiegbaen and Iyamu (2005) and reaffirmed in this localized context.

Theoretically, the findings affirm the principles of the Technology Acceptance Model (Davis, 1989), suggesting that perceived usefulness and ease of use remain central to digital adoption. Equally, Rogers' (2003) Diffusion of Innovation theory is evidenced in the varying degrees of digital engagement across demographic groups, reinforcing the need for differentiated support strategies tailored to teacher's age, experience and school type. Ultimately, enhancing teacher's digital literacy in Fako Division is not solely a technological endeavor-it is a systemic and strategic one. Addressing infrastructure deficits must go hand-in-hand with robust teacher capacity-building programs, policy reforms, and locally grounded solutions. By anchoring recommendation in both data and theory, this study offers a roadmap for educational stakeholders to bridge the digital gap and ensure that no teacher is left behind in Cameroon's evolving digital education landscape

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