



# Challenges Facing Teachers in Using Digital Media in Teaching Literacy among Early Grade Pupils in Dodoma, Tanzania

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**Abstract:** Education is a fundamental entitlement inherent to all individuals. In recent times, a significant number of sub-Saharan nations have effectively expanded the reach of primary school's education. Nevertheless, numerous empirical studies and educational assessments conducted in this particular location have repeatedly observed a lack of proficiency in core literacy abilities among pupils. The integration of digital media in primary school classrooms is crucial in the current digital era as it provides pupils with valuable learning opportunities. This study aimed to investigate the challenges encountered by teachers while utilizing digital media as a tool for teaching reading to early-grade pupils in Tanzania. It used a mixed method approach within a contemporaneous triangulation methodology. It comprised a sample of six primary schools, encompassing a total of 36 respondents. These respondents consisted of 12 public early grade teachers, 12 non-public early grade teachers, six main head teachers, and six school IT teachers. The research employed a purposive sampling methodology. The data was obtained through questionnaires, interviews, and classroom observations. The research successfully identified a number of obstacles associated with the utilization of digital media, which include insufficient time for integration, inadequate availability of hardware, software, and Wi-Fi, budgetary limitations, and syllabus that fails to promote the incorporation of digital media in the instruction of literacy. The study proposes the following strategies; mobilizing community support to solicit fund for the acquisition of digital resources, the Government increase of financial resources to educational institutions, and incorporating digital media into early literacy pedagogy.

**Keywords:** Digital media, Early grade pupils, Literacy, Illiteracy, Public early grade.

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## 1. Introduction

It has been strongly argued globally that the acquisition of foundational skills such as reading and writing should be seen as an inherent entitlement of all individuals (Derby, 2016). Nevertheless, an ongoing issue that plagues many societies today, especially in developing countries is the enduring problem of illiteracy (UNESCO, 2016). The persistence of illiteracy has resulted in a significant number of individuals globally being unable to exercise their fundamental human rights, hence limiting their economic and political opportunities (Kabay, 2021). According to

UNESCO (2022), out of the total population of six hundred and fifty million primary school-aged children who are struggling to acquire proficiency in reading and writing, around one hundred and thirty million have been enrolled in educational institutions for an extended period. Hence, it is crucial to investigate approaches for enhancing students' learning to develop proficiency in literacy.

According to Mlaba (2021), children residing in Africa face significant barriers in accessing and exploring the

enriching realm of written literature. Lyytinen et al. (2019) reported that a significant proportion of children in Sub-Saharan Africa, about 90%, and in developing nations, over 50%, who are under the age of 10, lack the ability to read and write. According to Lyytinen et al. (2019), there is an estimated global population of 265 million children who are currently not enrolled in formal educational institutions. Furthermore, a study conducted in 2019 by the World Bank and the UNESCO Institute for Statistics reveals that around 50% of 10-year-olds worldwide may encounter difficulties in attaining literacy skills by the conclusion of 2021, with African children projected to see the greatest impact. The study reveals that sub-Saharan Africa is the exclusive residence of 40% of the world's children who are at risk, so making it the region where the global crisis is most prominently seen. If no interventions are implemented to enhance global literacy rates, it is projected that by the year 2030, over 750 million children will lack the ability to read by the age of 10, as indicated by Azevedo et al. (2021).

Moreover, it appears that there is limited impact on learning outcomes in East Africa, specifically in Uganda, with regards to poor levels of academic achievement. According to a report by Uwezo in 2019, nearly half (49%) of third-grade kids in Uganda demonstrated an inability to read even a single word, while a significant majority (78%) struggled to comprehend a basic sentence. Despite the substantial financial investment made by the government in the training of primary school teachers to effectively facilitate students' acquisition of literacy and numeracy skills, research conducted in Tanzania has revealed that a notable proportion of students commence the third grade without possessing the ability to read and write proficiently (Uwezo, 2019). Furthermore, the reading and numeracy competency levels of school-aged children were examined by Uwezo (2019). According to an assessment, around 90% of children in Tanzania are now enrolled in educational institutions. However, a significant proportion of these children exhibit reading and numeracy levels that are below the expected standards for their respective age groups and grades.

Furthermore, Mmasa (2016) conducted an investigation on the instructional approaches employed for imparting reading skills in primary school classrooms in Tanzania. The study extensively investigated the factors contributing to the insufficient mastery of reading, writing, and numeracy skills among primary school graduates. The findings of his study indicate that there exist noteworthy concerns regarding reading education in public primary schools, where a majority of teachers have a deficiency in the required expertise. Approximately 64% of students enrolled in the second grade and approximately 54% of students enrolled in the third grade exhibit a lack of proficiency in reading, writing, and basic mathematical

skills. The country's major educational reforms, namely the Primary Education Development Plan (PEDP) and the Secondary Education Development Plan (SEDP), are exerting pressure on teacher education to address the prevailing circumstances. The innovations implemented in teacher education programs are designed to address the increasing demand for highly skilled educators, while also promoting the evolution of teachers into facilitators of problem-solving and learning.

In 2007, the Tanzanian government formulated an ICT Policy for Education in response to recognizing the significant role that information and communication technology (ICT) can play in improving the quality of education provision, outcomes, and influence. The government acknowledges the potential of information and communication technology (ICT) in enhancing the quality of education through the adoption of contemporary pedagogies and the acquisition of relevant skills aligned with the demands of the twenty-first century. This transition requires a shift away from predominantly utilizing textual materials for educational instruction and learning, towards an approach that prioritizes information and communication technology (ICT) and offers broader accessibility. From an early age, children have been deeply integrated with technology and digital media in their everyday routines (Donohue, 2014; Smahelova et al., 2017). In the context of education in the digital era, technology and digital media encompass a range of instruments such as televisions, digital games, interactive websites, and several other gadgets (Donohue, 2015). Research indicates that when employed in a proficient and conscientious manner within early childhood environments, these technological tools have the potential to facilitate the development and educational progress of young children (Ihmeideh, 2014; Ihmeideh & Al-Khawaldeh, 2017; Palaiologou, 2016).

Evans (2021) conducted a study examining the utilization of digital media for instructional purposes among early-grade kids. The findings of this investigation indicate that the increasing prevalence of digital media in educational settings has emerged as a substantial matter of apprehension for educators, students, and stakeholders alike. The authors additionally posited that digital media can be advantageous for young students in enhancing their comprehension of individual words, texts, and concepts, while also facilitating the instruction of reading and writing through the utilization of technology. The utilization of digital media in educational settings offers significant benefits to teachers, as it enhances the quality of their instruction by facilitating the learning process for their students. Phelps (2021) is the author or source being referenced. Nevertheless, Mudra (2020) argued that the utilization of digital media might effectively mitigate challenges related to literacy and numeracy skills. This

study examines the difficulties encountered by educators when incorporating digital media into the instruction of reading skills among young students in Dodoma city, Tanzania.

## 1.2 Statement of the Problem

The utilization of digital media in educational settings is of significant importance in the contemporary day, as it provides students with valuable learning opportunities (Nguyen, 2021). The use of multi-media classrooms has gained momentum in many primary schools in Tanzania, as a response to the rapid pace of global development (Temu, 2019). According to the findings of John (2018), a significant hindrance to effective literacy instruction and learning in primary schools in Tanzania is contributed by inadequate pedagogical expertise of teachers in the subject matter. The debate further illustrates that the current primary education curriculum in Tanzania does not effectively foster multi-literacy competencies, including the integration of emerging digital media in teaching and learning process. This suggests that incorporating literacy competencies into the curriculum may enhance literacy skills among pupils in schools. Moreover, according to Darmanin (2017), the presence of weak signals poses a significant obstacle to internet accessibility when utilizing digital media for educational purposes. Numerous additional issues have been identified through various research investigations pertaining to the utilization of digital media within the educational context. Various challenges exist in the field of education, including differences in the comprehension levels of young learners and the presence of English as a Foreign Language. Additionally, teachers often lack experience in utilizing digital technologies, and there is a deficiency in information and communication technology infrastructure. These challenges have been identified by scholars such as Dahal and Dahal (2015) and Darmanin (2017). Nevertheless, the specific obstacles associated with utilizing digital media to enhance children's literacy in Dodoma City, Tanzania, remain unclear. Hence, this study delved into a comprehensive examination of the challenges encountered by teachers while utilizing digital media to facilitate the teaching and learning of literacy among pupils of the early grades in the primary schools in Dodoma.

## 2. Literature Review

Darmanin (2017) conducted a qualitative study to explore reading and writing in the digital age. The study involved five teachers and eight young students. The findings showed that digital literacy has both advantages and disadvantages for young English learners. The advantages of digital literacy include promoting online collaboration between teacher-learners and students and enhancing young learners' writing, reading, listening, and speaking

abilities, as well as their comfort with real resources. However, according to this study, digital literacy also has some unfavourable effects on young students. Weak signal issues that make it difficult to access the internet still exist. Young learners find it difficult to understand and transform the contents of online digital materials into straightforward, self-regulated knowledge. In addition, digital literacy resources are thought to be pricey. These obstacles might be influenced by other issues like the complexity of digital literacy technologies, disparities in young learners' understanding levels of English as a Foreign Language (EFL), and teachers' lack of experience with digital literacy.

Dahal and Dahal (2015) have drawn a conclusion based on their research about the opportunities and challenges of using ICT in Nepalese mathematics education. The study concluded that ICTs provide great opportunities for schools and universities in developing countries to improve their teaching and learning processes. So far, most of the schools and universities in developing countries possess basic ICT infrastructure such as the internet, computers, video, audio, and mobile technology that facilitates the establishment of e-learning. It was argued that e-learning technologies should be adopted by educational institutions in developing nations in order to enhance teaching and learning procedures. They concluded that outlines possibilities, efficacy, efficiency, motivation, simplification of abstract information, instructional resources, improvement of student performance and success, and quality, pace, and accreditation of learning. Additionally, they discuss difficulties with infrastructure, awareness and attitude, economic preparation, and skilled facilitators. The Curriculum Development Center and other associated sectors should consider how to address the issues we currently face while implementing ICT. They believe that the Ministry of Education should first create and execute an ICT-friendly curriculum at every level of schooling.

Guan (2018) conducted research on the advantages of computer-aided multimedia-aided English teaching. He claimed that employing digital media to teach reading and writing to students in the first grade presents a number of difficulties for teachers. Several of these difficulties included limited access to technology. Also, it is challenging for instructors to incorporate digital media into their instruction since not all schools and teachers have access to devices like computers, tablets, or internet connectivity. Lack of access to technology can be a major obstacle, particularly in rural or low-income schools. Utilizing digital media is also hampered by a lack of technical skills. Some teachers might not have the technical know-how to successfully incorporate digital media into their courses. It may be difficult for them to use digital

media in a way that is successful and interesting for their students.

Early grade levels may only have a few digital media options available to teach reading and writing (Ibarra, 2018). This may result in a lack of variation in the contents and make it difficult to maintain students' interest and engagement. Sometimes monitoring student progress is difficult, especially when using digital media. When students are working alone on digital platforms, it can be difficult to keep track of their progress. It could be challenging for teachers to monitor students' progress, give comments, and modify their instruction as necessary.

Rikard (2017) argued that over-reliance on digital media can increase students' screen time, which has been linked to negative health effects such as eye strain, obesity, and poor sleep patterns. Also, digital media may reduce opportunities for personal interaction between the teacher and the students, which can lead to a lack of personal connection and a sense of isolation among students. In addition, Rahmawati (2017) conducted a study on the correlation between the use of *liquid crystal display* (LCD) projector media and the students' writing achievement in the seventh grade. Observations showed that when students read and write through the medium of digital technology, they collaborate and interact more, and they make use of skills such as skim reading, viewing, reading of images, multidirectional reading, and sharing information through sound and visuals.

Despite these findings, few studies were conducted in Tanzania concerning the challenges facing teachers in using digital media in the teaching and learning of literacy among early-grade pupils. Therefore, this study explores the challenges facing teachers in using digital media in teaching literacy among early-grade pupils in Tanzania.

### 3. Methodology

The research utilized a mixed methods approach within a contemporaneous triangulation design, wherein the investigator gathered and examined both qualitative and quantitative data pertaining to the same phenomenon. The purpose behind the utilization of this particular design was to amalgamate the distinct advantages and non-overlapping limitations of quantitative approaches, such as high sample sizes, identification of patterns, and generalizability, with those of qualitative methods, including small sample sizes, detailed analysis, and in-depth understanding (Creswell, 2013). The concurrent triangulation design is a research approach that involves the utilization of several methodologies or data sources in the design to achieve a full comprehension of phenomena (Creswell, 2013). By

employing a variety of instruments encompassing both quantitative and qualitative methodologies, researchers are able to mitigate the limitations inherent in each methodology. Additionally, through the process of triangulation, the researchers further enhance the reliability and validity of their findings.

The research was carried out in the city of Dodoma. This study encompassed both government and non-government primary schools, incorporating the participation of head teachers and teachers responsible for instructing early grade kids. The research encompasses a total of six primary schools located in Dodoma City. These schools were chosen based on a stratified sampling method, with three government primary schools and three non-government primary schools being included in the study. The researchers employed purposive sampling as a method to carefully choose schools that possessed prior experience in utilizing digital media as a teaching tool for students in the early grades. In addition, the researcher gathered data from individuals who were most suitable for the study in order to obtain findings that were pertinent to the specific research setting.

The study collected data in Dodoma City, using three data collection instruments. The research employed questionnaires, interviews, and classroom observations as the primary tools. The questionnaire utilized in this study was specifically tailored for teachers and had a combination of open-ended and closed-ended questions. Its primary objective was to gather comprehensive data regarding the progress of reading skills among young pupils in Dodoma City. A total of 22 early-grade teachers were surveyed using questionnaires. Besides, a total of 11 respondents were interviewed, consisting of five school information technology (IT) workers, and six head teachers. The interview process involved the administration of a semi-structured interview schedule. The utilization of this approach facilitated the acquisition of comprehensive insights and understanding of the viewpoints and perspectives of respondents concerning the impact of digital media on the enhancement of literacy among young students in Dodoma City, Tanzania. The duration of each interview session was set at a range of 30 to 40 minutes. The researcher utilized interview recording technologies, such as a cellular device, to capture the data. Subsequently, the data were downloaded to a personal computer (PC) for subsequent analysis and manipulation. Furthermore, the collection of data was facilitated by classroom observation, wherein the researcher was present within the educational setting equipped with a comprehensive checklist. This enabled the researcher to closely examine the instructional practices employed by teachers while utilizing digital media, as well as the level of engagement exhibited by learners in their utilization of

digital media. The data acquired using this methodology facilitated a comparative analysis with the findings derived from the teacher's questionnaire and interviews.

The study utilized content validity by administering pilot interviews to assess the efficacy of the research tools. In addition, the researcher presented the questionnaire, interview questions, and classroom observation checklist to a panel of certified specialists, who conducted a thorough review to ascertain their suitability for the intended purpose. Subsequently, the specialists provided their inputs on the questionnaire, interview guide, and checklist. This process facilitated the identification of questions with confusing phrasing in the instruments, enabling their realignment to ensure that the assertions were expressed properly. This clarity allows readers to accurately grasp the researcher's intended meaning behind the questions.

The data acquired from the field through the utilization of questionnaires underwent a process of screening and editing to ensure accuracy, consistency, and completeness. The process of assigning numerical values to each response was facilitated through the utilization of coding techniques. This enabled the seamless transfer of data from the questionnaire to the Statistical Package for the Social

Sciences (SPSS version 25). The findings were displayed in tabular format, illustrating the frequency and mean values. During the analysis of the interview data, the researcher diligently engaged in the process of attentive listening to the recorded information, subsequently transcribing it from audio format and condensing it into written documents. Based on the condensed texts, the researcher analysed the data and employed logical reasoning to identify overarching themes and sub-themes, which were systematically arranged to provide insights on the role of digital media in primary schools in Dodoma City, Tanzania. However, the data obtained from classroom observations was manually examined subsequent to being assessed using the researcher's checklist.

## 4. Results and Discussion

The data collected via questionnaires and interviews with instructors and IT specialists from the schools were subjected to comprehensive analysis. Table 1 presents the outcomes pertaining to the challenges encountered by teachers and potential strategies for mitigating such obstacles. The Likert scale utilized in this study is operationally defined according to the specifications outlined in the Table provided.

Likert item	Strongly Disagree (SD)	Disagree (D)	Agree (A)	Strongly Agree (SA)
Range	<1.5	1.5-2.4	2.5-3.4	3.5-4

**Table 1: Challenges of Using Digital Media**

Item/Statement	SA	A	D	SD	Average
Lack of hardware, software and WIFI is the barriers to using technology to support literacy.	6	13	2	1	3.1
Lack of finances is the barriers to using technology to support literacy.	8	10	3	1	3.1
Outdated or insufficient hardware is the barrier to using technology to support literacy.	6	12	2	2	3.0
The syllabus does not encourage the use of media technology.	8	5	6	3	2.8

**Source: Field Data's Extraction, 2023**

#### 4.1 The Lack of Hardware, Software and Reliable WIFI

The results reveal a prevalence of consensus among participants as indicated by a mean score value of 3.1, that a lack of hardware, software and WIFI contributes significantly as a challenge that hinder teachers' effective utilization of digital media to enhance early-grade pupils literacy skills. This difficulty underscores the significance of possessing the requisite tools and infrastructure to effectively employ digital media in the context of literacy training. According to Picton's (2019) findings, a significant proportion of teachers hold the belief that technology can yield favourable outcomes in children's literacy acquisition. Nonetheless, the utilization of technology in educational settings is hindered by disparities in the availability of hardware, software, and WiFi, which pose as obstacles to its efficient implementation. One of the professors who was interviewed stated that:

*“The WIFI is not yet connected to our school, which compels us to spend our own expenses (mobile bundles) to access Internet for instructional use, which interfere with our operations, especially when you run out of money”.* (Teacher, School F, 15<sup>th</sup> May 2023).

Limited availability of essential tools and infrastructure, including dependable connectivity, hardware, and software is a notable impediment to the use of digital media for instructional purpose. This suggests that the research takes into account this variable as a potential influencer on the results of utilizing digital media in literacy training. Furthermore, the utilization of own resources (airtime bundles) by teachers to access the internet implies that there exist financial ramifications for the teachers. This result highlights the imperative for policymakers in the field of education to allocate resources towards facilitating digital initiatives in literacy instruction. According to one of the principals, it is evident that despite the potential for pupils to easily study and acquire information through the utilization of media instructional technology, a significant number of schools in the country have not adequately provided teachers with access to these technological resources.

#### 4.2 Lack of financial support

The financial constraint as an impediment to utilizing technology for literacy support scored an average mean value of 3.1 on a scale ranging from agreement to disagreement. The consensus among participants is that the utilization of media technology for enhancing literacy skills is impeded by financial limitations. Furthermore, this difficulty implies that the restricted availability of financial

resources acts as a barrier to the successful adoption of digital media for the purpose of supporting literacy. The present discovery aligns with the research conducted by Okoye (2023), which revealed that many issues, such as inadequate training and resources encompassing financial resources and infrastructure, greatly influenced the difficulties or degree of implementation of digital technologies for educational purposes throughout Latin America. Furthermore, in the course of the interview with a head teacher from a government school, the following was said:

*“The capitation grant allocated by the government is insufficient to cover the cost of airtime, resulting in a limited duration of usage for electronic devices. Consequently, pupils are unable to access the IT room for educational purposes until additional funding is received, which may take several months. The current circumstance poses a hindrance to the objectives I have established for my teaching practice involving the utilization of digital media, as this approach has proven to be highly appealing to our pupils”.* (Head teacher, Government school, 10<sup>th</sup> May 2023).

This indicates that the study acknowledged the financial challenges faced by educational institutions and teachers while developing digital media instructional approaches. The interviews carried out by the principal yield empirical information that showcases the concrete impact of inadequate financial resources on the achievement of goals pertaining to utilizing digital media in education. Pangrazio (2016) asserts that the lack of internet financing is a significant obstacle to teachers' instructional objectives since it hampers pupils' ability to utilize the IT room. The observation implies that a lack of financial resources is a significant barrier to the use of digital media as a means of improving reading abilities. As a result, it may be necessary for politicians to increase funding allocations and provide more support to educational institutions.

#### 4.3 Outdated hardware

Regarding outdated hardware, the results indicate that a considerable portion of teachers (18 out of 22) maintain the perspective that outdated hardware poses a barrier to the effective usage of technology in supporting literacy education among pupils. This group consisted of six (6) teachers, who strongly agreed, and twelve (12) teachers who just agreed, hence indicating general agreement with the provided statement. The statement expresses a notable concern over the impact of obsolete hardware on an teachers' ability to properly employ technology for the goal of teaching literacy. The opinions provided are further substantiated by the statement uttered by one of the teachers during interview session that is quoted below:

*“The equipment that we have does not adequately cater to the school's population, and some of it is quite outdated. However, technology-savvy teachers are working hard to fix broken devices so that we can continue using them”.* (School IT teacher May 12<sup>th</sup>, 2023)

The findings are supported by Ghavifekr's (2016) study, which found that, several factors hinder the effective integration of information and communication technology (ICT) in Turkish schools. These included insufficient computer availability, outdated or sluggish ICT systems, and a limited availability of educational software. In a similar vein, the study conducted by Alenezi (2018) revealed that the absence of internet connection during school hours and insufficient availability of hardware were impeding the successful integration of technology in Saudi Arabian educational institutions. Consistent with the findings of previous studies, it is imperative to modernize the information and communication technology (ICT) equipment and obsolete hardware due to the rapid evolution of technology and associated equipment.

#### **4.4 The syllabus and the use of media technology**

In relation to the effectiveness of the syllabus in promoting the integration of digital media into literacy education, the results indicate that a group of thirteen (13) teachers concurred in their perception that the existing syllabus does not support the utilization of digital media. These teachers maintain the perspective that the current curriculum lacks emphasis or support for the integration of media technology into instructional and educational practices. However, a group of nine (9) teachers possess varying perspectives. This collective maintains the perspective that the syllabus either actively promotes the integration of technology or, at the very least, does not hinder its assimilation. Furthermore, the results obtained from the interview carried out with six head teachers reveal that a majority of them, specifically four out of six, hold the perspective that the current curriculum fails to sufficiently address the effective integration of media technology. One of the educators had the following sentiment:

*The current curriculum mainly prioritizes the application of traditional instructional methods and less about digital media technologies. Therefore, it is crucial to undertake a thorough assessment of our syllabus to guarantee conformity with the current technological breakthroughs in the realm of education.*

According to Hwa (2020), the Tanzania's Government reoriented its national curriculum standards for Grades 1 and 2, with much focus on Kiswahili and mathematics

instead of subjects like "Vocational Skills" and "Information and Communications Technology." This shift may limit opportunities for integrating digital media in literacy development. Therefore, findings of the current study highlight the need to revisit and adapt the current syllabus to better incorporate digital media in early-grade education to enhance literacy skills with the aid of digital media technologies.

## **5. Conclusion and Recommendations**

### **5.1 Conclusion**

The research findings indicate that there is a wide range of digital media resources accessible in elementary schools, including both government and non-government institutions. Nevertheless, the limited availability of essential resources such as dependable connectivity, wireless internet access, hardware, and software posed a hindrance to the efficient exploitation of digital media in the context of literacy training. The study has determined that teachers' instructional goals are not effectively achieved as a result of insufficient financial resources allocated to digital-based instruction. The report moreover asserts that the existing curriculum acknowledges the significance of digital media in education, however has not yet prioritized the utilization of digital media above conventional media in facilitating the advancement of literacy skills among early grade students.

### **5.2 Recommendations**

The study recommends that education policymakers, key educational stakeholders, and parents provide the necessary resources to support digital literacy initiatives. In addition, policymakers may need to increase funding and provide schools with more assistance in acquiring appropriate digital media for teaching and learning literacy skills. To improve literacy skills, the current curriculum should be reexamined and revised to better incorporate digital media in early grade education.

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