INTEGRATING DIGITAL LITERACY IN COMPETENCY-BASED CURRICULUM AMONG JUNIOR SECONDARY SCHOOLS IN KENYA

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ABSTRACT

This study explores how Junior secondary schools in Kenya are incorporating digital literacy into their Competency-based Curriculum (CBC). The necessity of digital literacy for 21st-century educational success is becoming more widely acknowledged. However, obstacles such as a lack of ICT equipment, negative teaching attitudes, and technophobia make it difficult to execute. The COVID-19 epidemic brought to light how urgently supportive policies are needed to fully utilize digital technologies in education. To prepare students for real-world circumstances, the competency-based curriculum places a strong emphasis on the development of knowledge, skills, and attitudes, including digital literacy. Although digital technologies have demonstrated the potential to improve learning outcomes, it is necessary to assess their effects on students' and parents' socioeconomic backgrounds, teachers' competencies, and learners' development of digital literacy skills. Therefore, the purpose of this study is to advance knowledge about the best ways to incorporate digital literacy into the competency-based curriculum to support inclusive, high-quality education in Junior secondary schools in Kenya.

Key Words: *Digital Literacy, Competency-Based Curriculum, 21st Century Skills, ICT, Junior Secondary Schools.*

1.0 INTRODUCTION

Digital literacy is a key resource for OECD education and training systems. The integration of ICT into teaching and learning practices has enhanced quality, equity, and efficiency and it has immensely spread globally over the past decade thus, increasingly permeating into all levels of education institutions and classrooms (OECD, 2023). According to the OECD, Digital technologies are broadly defined to include networks (such as the Internet), hardware, software, and technology-related services. For this reason, ICT in education is seen as a means of creating access to education, especially in marginalized populations in making teaching and learning enjoyable and creating a more inclusive education system (Murithi, et al 2021).

Moreover, integrating information communication technology in classrooms assists the teachers in performing their work effectively and encourages the students to learn positively (Omer, 2019). Furthermore, since the outbreak of the COVID-19 epidemic, there has been an unprecedented increase in their use, which enabled the continuation of online learning. However, previous studies show that some challenges have been hindering ICT integration in the country such as the lack of ICT devices, the perception of ICT by teachers as time-consuming and as an additional workload, technophobia by older teachers, teachers' inadequate ICT expertise among others (Murithi, 2021).

Additionally, a previous study suggests that to address some of the issues, the Jubilee government had a plan in 2013 to integrate ICT into education in Kenya by providing laptops to all class one pupils (Muinde & Mbataru, 2019). However, the surge of the COVID-19 pandemic in the country on 13th March 2020, exposed these shortcomings and underlined the need for supportive policies and conditions to make use of the full potential of digital technologies in the implementation of Competency-based Curriculum (Murithi, 2021).

Competency-based Curriculum under 2-6-3-3-3 (two years in pre-primary, six years in primary school, three years in junior secondary school (JSS), three years in senior secondary school (SSS), and three years in Tertiary/University education) emphasized the importance of developing knowledge, skills, and attitudes and applying them to real-life situations (Sifuna, et al. 2019). In addition, CBC focuses on seven core competencies, which include; communication and collaboration, critical thinking and problem-solving, creativity and imagination, citizenship, digital literacy, learning to learn, and self-efficacy. Further, the study suggests that "Digital

literacy" is one of the seven core competencies to be embedded in the Kenyan Competency-based Curriculum in preparation for learners for 21st-century skills (Gioko, et al. 2019).

Furthermore, the utilization of digital learning devices and content enhances the learning outcomes of students, particularly during their initial stages of education. For instance, the introduction of digital tools and resources has a significant impact on the development of numeracy skills in early learners (Achieng, et al. 2024). Additionally, the use of ICT in education provides and equips teachers with new pedagogical approaches and new methods in teacher education (Daniel O. 2020). Although, an increasing number of teachers and students make use of digital tools, fewer seems to embrace them as a platform to engage in a more individualised, efficient, and responsive pedagogy (OECD, 2020). Hence, this study sought to find out the development of digital literacy skills among learners in grade seven in Junior secondary school in Kenya. Further, the study assesses their effects on learners' and parents' socioeconomic backgrounds, teachers' competencies, and learners' development of digital literacy skills.

1.1 Aims of the study

The researcher attempted to respond to the following aims of the study.

1. To investigate the impact of ICT in the implementation of the competency-based curriculum in Kenya.
2. To examine the teachers' beliefs and schools' readiness in the implementation of the competency-based curriculum in Kenya.

1.2 Research Questions

This study was guided by the following research questions

1. What is the readiness level of Junior secondary schools in implementing a Competency-based curriculum through ICT Kenya?
2. How do the teachers' beliefs affect the integration of ICT in implementing a Competency-based Curriculum among Junior secondary schools in Kenya?
3. What are the key barriers that hinder Competency-based curriculum implementation in Junior secondary schools through ICT in Kenya?

2.0 LITERATURE REVIEW

2.1 Theoretical framework

Constructivist theory

The study was guided by constructivist learning theory. Constructivism, also referred to as the constructivist theory, is a learning theory that asserts that learners create new meanings and comprehension by merging new information acquired from novel experiences with prior knowledge obtained from previous experiences (StudySmater 2024). The proponents of this approach redirect the emphasis from the instructor, who was conventionally seen as the primary provider of knowledge, to the student (Murithi, et al; 2021).

2.2 ICT integration in education in Kenya.

The Kenya Vision 2030 places significant emphasis on science, technology, and innovation as the primary drivers to propel the country towards achieving a middle-income economy (MoE 2021).

One effective approach to achieve this long-term development plan is to adopt Information and Communication Technology (ICT) in education and training. Kenya, along with other Sub-Saharan African countries, has included ICT in its education policies over the years (Murithi, et al. 2021). Nevertheless, the lack of access to information and communication technology (ICT) infrastructure remains a significant obstacle in Africa, and Kenya is no exception. In most affluent nations, the standard ratio is one computer for every 15 students. However, in Africa, the ratio is one computer for every 150 pupils. This ratio is significantly more pronounced in economically challenged regions and places. It will also be acknowledged that different educational subsectors have different levels of access to ICTs. In Kenya, there is one computer for every 45 students in universities and colleges, one computer for every 120 students in secondary schools, and substantially less access to computers for primary school students one computer for every 250 kids. (MoE, 2006).

Disparities in access to digital technologies continue to exist in several OECD nations, despite advancements in linking persons and pupils over the past few decades (OECD, 2020). In certain nations, students from socioeconomically poor schools are less likely to benefit from having an internet connection at home or to have access to a computer for schooling. Though the COVID-19 pandemic has forced students to study from home, there are still significant barriers to learning

activities and a risk of leaving certain students behind due to limited access to digital devices at home. Furthermore, disparities in access to digital technology are no longer the sole focus of the "digital divide." Individual disparities are becoming more and more focused on how people use digital tools and the advantages they can obtain from doing so (OECD, 2019[2]; Burns and Gottschalk, 2019[3]). Many variables contribute to access disparities, such as socioeconomic position or geography, which also account for differences in the utilization of digital tools.

2.3 Knowledge of Technology

The evolution of the academic's role in the digital age is a complex process that requires a combination of technological and pedagogical skills. Chuwuedo and Igbinedion (2014) and Nwokedi et al. (2018) highlight the need for academics to develop technological literacy, while Loveless (2011) emphasizes the importance of soft skills grounded in pedagogy. Ali (2019) further underscores the significance of staff readiness, confidence, and motivation in integrating technology into teaching. Walker (2018) and Birch (2009) both stress the need for a nuanced understanding of digital literacies and the barriers to their adoption, including institutional, individual, and pedagogical concerns. Nachimuthu (2010) adds to this by discussing the skills needed for teachers in the digital age, including the ability to create new knowledge with and without technology.

2.4 Technology's Complexities

The integration of digital technology in education is a complex process influenced by various factors (Maton, 2011). This complexity is further compounded by the challenges of resolving the utility of specific technological offerings (Brown, 2015). Educational technology research has evolved over the years, with current trends such as personalization, social learning, and machine learning posing additional complexities (Scanlon, 2021). Embracing these complexities is crucial, as technology's outcomes are often unpredictable and require a nuanced understanding (Robbin, 2011).

2.5 Effects on students' and Parents' socioeconomic backgrounds.

Research consistently shows that a digital divide exists between the home and school environments of low-socioeconomic families (Sutherland-Smith, 2003; Dianne, 2009). This divide is not due to a lack of access, but rather a gap in ICT practices and skills (Sutherland-Smith, 2003; Dianne,

2009). Teachers in low-socioeconomic schools tend to underestimate their students' access to computers and do not consider their use of digital technology at home, particularly mobile phones and game consoles (Robyn, 2008). This is further compounded by the fact that teachers often do not integrate information technology into their classroom practice (Chalkley, 1997).

The research conducted by Ikaningrum (2021), Tour (2017), Lindstrom (2016), and Bhatt (2012) emphasizes the significance of comprehending learners' digital literacy practices, especially when considering the differences between activities conducted at home and in the classroom. Ikaningrum emphasizes how important it is for students to acquire the critical digital literacy skills necessary for online reading assignments. Tour's study highlights how teachers' digital mindsets influence how they interact with technology, highlighting the necessity of professional development in this area. The significance of instructors comprehending their students' informal digital literacy practices especially when it comes to social networking sites is further highlighted by Lindstrom's study. Lastly, Bhatt's research emphasizes how students can use their digital literacy skills to improve their performance in the classroom.

2.6 Teacher Competence in Digital Learning

Ghavifekr, and Rosdy, (2015), study found that the majority of pre-service teachers only used elementary ICT tools for educational purposes, this study found that most teachers believe that ICT integration is effective, but that the ICT tools provided in schools are neither sufficient nor in good condition, that teachers do not receive enough training or professional development, that technical supports are provided but could be improved occasionally, and that the school computer lab is not in very good condition with well-functioning tools and facilities. While Torrato (2020), discovered that grade school teachers are generally highly proficient and have a favorable attitude regarding the incorporation of technology, they also noted that there is still room for growth in both technical skills and attitude. Both Djoub (2019) and Djoub (2018) stressed the value of teacher education programs in enabling educators to successfully integrate technology into the classroom; the latter explicitly addressed pre-service teacher preparation. In 2019, Križanić emphasized the growing importance of digital competencies and abilities in the workplace and put forth a model for creating plans to improve teachers' preparedness for integrating digital tools into the classroom. The aforementioned research highlights the necessity of continuous professional development and

assistance to improve educators' technological, pedagogical, and psychological readiness for digital learning.

The notion of technological preparedness in education, which includes the familiarity and competence of educators with technology, is a complicated and diverse topic. DiGregorio (2018), draws attention to the difficulty instructors encounter when incorporating technology into their lessons, including both internal and external obstacles, as well as the necessity of continuing professional growth and assistance. Tiba (2021), highlights the significance of teacher educators and mentor teachers consistently and effectively demonstrating the use of technology during pre-service teacher training. Hsu (2010), highlights the positive relationship that study has consistently shown a link between teachers' technology usage and their ability to integrate technology into the classroom. Dornisch (2013), found that students' perceptions of their teachers' comfort with technology impact their evaluations, particularly when students have a high affect for technology. Tondeur (2017), highlighted the importance of pre-service education programs in shaping beginning teachers' technology use, with field experiences being a critical factor. Najdabbasi (2014), emphasized the role of teachers' pedagogical beliefs and knowledge in technology integration, suggesting that teachers should facilitate students' acquisition of technology-related knowledge and create situations for technology integration. Finally, Bai (2005), explored the relationship between teacher educators' pedagogical beliefs and technology uses, and their influence on pre-service teachers' beliefs and attitudes toward technology. These studies collectively underscore the need for teachers to improve their technical proficiency, create student-centered learning environments, and address psychological barriers to effectively integrating technology into the classroom.

According to Bingimals (2009), there can be a cascading effect from one barrier to another. For instance, there may be availability of ICT resources, but insufficient proficiency on the part of Inadequate training is associated with the academic realm. The use of ICT in teaching and learning is frequently impacted by inadequate training in soft skills, pedagogy, and technology skills (Dziubar et al., 2018). Although the professional development and training programs provided to academics are laudable, Nwabueze & Ukaigwe (2015) contended that they do not appear to address their current technology needs. Current practices include a noticeable gap, which correctly indicates a lack of training. The conclusion is that for academics, who were the primary actors in

the teaching and learning process to be altered through the use of ICT, to meet this challenge, they will require additional exposure through training. Academics may become unmotivated and lack confidence as a result of inadequate training, as mentioned by Bingimals (2009).

3.0 METHODOLOGY

This study employs a systematic way to synthesize findings from a variety of scholarly papers, studies, and research articles about the incorporation of digital literacy into a competency-based curriculum. It makes use of theme analysis to find recurring themes, obstacles, and best practices in the literature. This analysis will include the causes of the divide, and how it affects educational outcomes and solutions. Further, the investigator will investigate how ICT integration in the CBC implementation appears in these settings and pinpoint effective approaches to close the gap.

4.0 Discussion and Recommendation

To adequately prepare students for the challenges of the twenty-first century, digital literacy must be incorporated into a competency-based curriculum. Enhanced Student Performance and Engagement: Personalized learning experiences catered to each student's requirements, interests, and learning preferences are fostered by a competency-based curriculum. Teachers can improve student engagement and motivation by letting students advance at their speed and offering focused support. Furthermore, gaining digital literacy skills helps students to make use of all that technology has to offer in terms of learning, creativity, and teamwork, which enhances their educational experiences even more.

Since the teachers' role is crucial to the effective and efficient implementation of any new policy. Advanced technology and communication tools, which should be accessible to children wherever they are at home or school are the driving forces behind the changes that are occurring. Additionally, to increase student outcomes, teachers must be literate and possess strong ICT skills and expertise. Additionally, to improve their teaching strategies and methods, instructors must be literate and possess strong ICT abilities. This integration of ICT in the classroom requires careful thought to raise the standard of the nation's educational system. This will result in a better labor force in the future and help the country's education rank higher in the globe. The government must alter teachers' perceptions of how best to integrate ICT into the classroom to satisfy the demands

of 21st-century teaching skills and facilitate effective learning to increase the usage of ICT in the classroom.

5.0 CONCLUSION

A competency-based curriculum must incorporate digital literacy to adequately prepare students for the challenges of the contemporary world. Teachers may make sure that students have the skills and information needed to succeed in an increasingly digital culture by including digital literacy skills. This integration fosters critical thinking, problem-solving, and collaborative abilities in addition to improving students' comprehension of technology. Additionally, it fosters innovation and creativity by teaching kids how to use digital technologies for self-expression and problem-solving. Incorporating digital literacy into a competency-based curriculum also encourages lifelong learning by equipping students with the skills they need to keep up with the quick changes in technology. Additionally, it fosters equity by giving every student access to the digital skills required for success in the twenty-first century.

To sum up, incorporating digital literacy into a competency-based curriculum is crucial for equipping students with the necessary skills to deal with the intricacies of the digital era, developing critical thinking abilities, encouraging innovation and creativity, and guaranteeing fair access to opportunities in a world that is becoming more and more digital. Elements of a Competency-based Curriculum must be included in universities and colleges' teacher preparation curricula. This will improve educators' ability to apply CBC in the classroom by strengthening their pedagogical skills.

6.0 RECOMMENDATION

Infrastructure Development: To guarantee equal access for all students, governments and educational institutions need to give ICT infrastructure investments priority.

Digital Literacy Programs: To improve teachers' skills with ICT integration, comprehensive digital literacy programs ought to be incorporated into the teacher training curriculum.

Flexible Pedagogies: To accommodate a range of learning preferences and styles, educators should implement flexible pedagogical strategies that combine conventional teaching techniques with cutting-edge ICT-based activities.

Collaboration and Networking: Knowledge exchange and the spread of best practices can be facilitated by collaborative relationships amongst educational stakeholders, such as educators, legislators, and technology specialists.

Continuous Assessment and Adaptation: To determine the success of ICT integration in CBC implementation, regular assessment and feedback mechanisms should be set up. This will allow for incremental improvements based on actual data. Therefore, there is need to address the requirement to assist teachers in identifying the factors impeding the development of their talents, a quantitative study is required.

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