Exploring EdTech Policies in Africa

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National Educational Technology (EdTech) policy analysis research is essential for various reasons. For example, identifying factors that influenced the formulation of policies, informing the use of EdTech for policymakers, investigating cost-benefit analysis and comparison of national plans across countries and regions. There is a lack of updated research on African nations' educational technology (EdTech) policies analysis resulting in a lack of knowledge on current EdTech policy landscape of Africa. This paper examined the EdTech policies for selected African countries. By adapting Zhao et al. (2006) 's policy analysis framework, this study aimed to investigate what EdTech policy documents are in place, by which government bodies, and the role of teachers, students, and technologies in the education sector are depicted in these documents.

Introduction

EdTech policy analysis research focuses on identifying factors that have influenced the formulation of policies (McGarr & Johnston, 2021), informing the use of EdTech for policymakers and practitioners (Culp et al., 2005), investigating if the cost-benefit analysis is enough in low-resource areas (Kozma & Vota, 2014) and comparing purposes of national EdTech plans of different countries (Hodges et al., 2022). However, apart from an analysis of 53 African nations' policy status reported by Farrell and Isaacs (2007) and a policy rationale and structure analysis conducted by Kozma and Vota (2014), there is no updated research on African nations' EdTech policy analysis resulting in a lack of knowledge on current EdTech policy landscape of Africa. This paper examines the policies for integrating educational technologies in select African countries namely South Africa, Nigeria, Kenya, Ghana, and Ethiopia. The research question that guided this study is: *What documents are in place, by which governing bodies, and what are the roles of various stakeholders and technology as depicted by the policy documents?* The study is primarily directed towards policymakers, education professionals, researchers, and stakeholders involved in EdTech in the specified countries. The purpose of the study is to examine EdTech policies from five specific African countries, shedding light on the approaches taken, the roles defined for EdTech in student learning, teacher practices, and its broader implications for education.

Theoretical framework

Zhao et al. (2006) analyzed national EdTech plans of 13 countries, and they identified teachers, students, educational goals, and technology images as key educational factors in a nation's education technology policy plan. Their analysis focused on implementing Information Communication Technologies (ICT) in the education sector, which differed from the national ICT policy of nations that covers all other sectors. Given the remarkable development in technology integration in schools over the years, this study used a revised analytical framework that included educational goals, the role of students, the role of teachers, and the role of technology.

Literature review

Based on the literature, understanding the development and implementation of ICT in education policy and investing in technology integration at the national level is crucial. McGarr and Johnston (2021), in their analysis of 10 years of evolution of ICT in education policies in Ireland, highlighted educational, economic/vocational, social, and catalytic rationales for having ICT in education policies. Culp et al. (2005), in their analysis of the United States' 20 years of evolution of EdTech policy documents, identified technology as a tool for addressing challenges in teaching and learning, technology as a change agent, and technology as a central force in economic competitiveness. Mao et al. (2019) analyzed policy changes and technology initiatives in five countries (China, Germany, Italy, the US, and Japan). The authors emphasized the importance of understanding the policy's impact on EdTech adoption and funding for research. More importantly, they concluded that adopting EdTech is influenced by local culture and can change traditional educational practices (Mao et al., 2019). Thus, conducting this present research in an African context is crucial to investigate the EdTech development, implementation status, challenges, and visions from national EdTech policies perspectives. The government bodies responsible for ICT in education policies are often responsible for budget allocation. By identifying these bodies, it becomes easier to understand how resources are allocated to support implementation plans and hold the relevant authorities accountable. By analyzing how stakeholders' roles are defined, it becomes possible to assess whether these roles align with the educational goals. This is crucial to ensure working cohesively towards a common vision.

Recently, the African Union (AU) Digital Education Strategy and Implementation Plan, which runs from 2023 to 2028, was created as a framework for engagement and the acceleration of digital technology adoption (African Union, 2022) in accordance with the Continental Education Strategy for Africa (CESA). Considering the AU's focus on digital education and its reliance on member states' network readiness and education strategy plans African Union (2022), it becomes evident that a significant challenge exists. This study aims to bridge this gap by examining the most recent EdTech policy documents in South Africa, Nigeria, Kenya, Ghana, and Ethiopia.

Method

This study focused on the national EdTech policy published between 2015 and 2022 for five countries (Ethiopia, Kenya, Ghana, Nigeria, and South Africa). The study employed qualitative content analysis, as suggested by Williamson et al. (2018). First, an initial research frame was generated based on the analytical framework. Then, we conducted data pre-processing. With a focus on trends and challenges of the educational technology landscape at a national level, two researchers independently analyzed the policy documents to extract relevant information. After the data pre-processing and intensive group discussions, the coding scheme was gradually expanded with more categories and then finalized. The documents were coded and recorded in a spreadsheet and then imported to MaxQDA software to conduct inductive coding and gain insight from the ground level. Due to the considerable variation of the plan documents, the unit of analysis was decided on meaning.

Preliminary Results

Approaches to EdTech Policy in National Education Plans

In many countries, different parts of the government are responsible for preparing ICT in education policy documents (Moonen, 2008). For example, in Nigeria, the Ministry of Education is responsible for issuing the 2019 National Policy on ICT in Education. Similarly, in Ghana, the Ministry of Education has the 2015 ICT in Education Policy. On the other hand, in Ethiopia, the Ministry of Education has no separate policy document for ICT in education. However, the 2021-2025 Education Sector Development Plan VI (ESDP VI) has ICT as an integral part of the education sectoral plans. Kenya also has ICT as part of the National Education Sector Strategic Plan 2018 – 2022 issued by the Ministry of Education. On a slightly different approach, South Africa's 2020 National Digital and Future Skills Strategy is the latest document issued by the Ministry of Communication and Digital Technologies.

Focus of educational goals

Examination of educational goals shows Ethiopia and Nigeria share a similar vision of providing inclusive and equitable education for all learners. South Africa and Ghana identified digital citizenship with technology proficiency as one of their educational goals, stating:

> "To confidently and creatively use ICT tools and resources to develop required skills and knowledge needed to be active participants in the global knowledge economy at all times" (Ministry of Education of Republic of Ghana, 2015, p. 20).

Kenya's policy focuses on ensuring learning continuity and quality focusing mainly on improving access and participation rate in competence-based learning for primary, secondary, higher education, and CTE levels and promoting acquisition of market ready skills at TVET level (Kenya Ministry of Education, 2018).

Focus of student roles

In terms of student roles, these countries discussed students as active digital learners with specific expectations such as to raise awareness and build basic and intermediate digital skills for all students (e.g., Ethiopia, South Africa, Nigeria).

> "The students/learners are transformed from passive recipients of the knowledge of the teacher/trainer to active participants in knowledge-seeking and knowledge-construction, with the teachers/trainers often learning new technology programs along with them" (Nigeria, 2019, p. xi).

However, others promote higher levels of digital proficiency with the capability to think, apply and digitally create (e.g., South Africa, Ghana), stating:

> "By giving students the skills to be successful in a 21st century workplace, they will more likely find jobs or start ICT-focused enterprises which can bring long term driven economic growth in Ghana" (Ministry of Education of Republic of Ghana, 2015, p.19).

Focus of teacher roles

The primary role of teachers in the five countries has been defined as leaders/advocates of technology (e.g., Kenya, Ethiopia, Ghana, Nigeria), which requires teachers to be able to use technology to support all teaching, learning and management. Additionally, South Africa has identified the teacher role as a fluent user of technology, which calls for educators with digital skills and competencies to use technology effectively.

Focus of technology's roles

The roles of technology have been described in multiple dimensions with a common purpose of improving the education process and outcomes (e.g., South Africa, Ethiopia, and Ghana). The roles include 1) a fundamental level as

an information tool (e.g., Ghana); 2) a decision-making tool and a tool to reform or transform education. For example, Ethiopia's plan states:

> "Aims to transform the practice of data collection, storage, analysis, and reporting of the school inspection system from a paper-based to a digital system, thereby improving the effectiveness of the system in establishing, evaluating, and promoting the highest standards of quality in educational provision" (Ethiopia Ministry of Education, 2021, p. 111).

Challenges in Implementation

Kenya and Nigeria mentioned a lack of educational resources as a challenge whereas Ethiopia and Kenya indicated the insufficient and ineffective training for teachers and school leadership which results in a lack of understanding, willingness, and proficiency in using technology in teaching and learning.

Conclusion

This research provided an in-depth view of EdTech policies in select African countries, highlighting their decentralized nature. While some countries integrate ICT into their national education sectoral plans, others have separate documents for ICT in education policies. Kenya and Ethiopia have integrated ICT as part of their national education sectoral plans, while Nigeria and Ghana have separate ICT in education policies published by the respective ministries of education. Though they share commonalities, the specific approaches to educational goals, students' roles, teachers' roles, and technology's roles vary. These differences reflect the unique contexts, priorities, and challenges in each nation. Contextually relevant policies are essential for driving positive educational outcomes across the continent.

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