
Digitalization of Post-Basic Education and Career Development (PBECD) in Nigeria: Problems and Way Forward

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Abstract: Digitalization of education is an ongoing process in Nigeria. It is a programme that is targeted at the expansion of education through the use of digital resources. The digitalization programme in the Post-Basic Education and Career Development (PBECD) in Nigeria seems to be facing challenges. This paper examined some of these challenges and concluded that poor funding, shortage of digital personnel, shortage of digital resources, cost of digital resources, electricity, unstable internet, poor training, non-implementation of policies, corruption and the problem of data availability are the problems that have hampered the digitalization of Post-Basic Education and Career Development (PBECD) in Nigeria. Based on these problems identified, the paper hereby suggested that the digitalization of Post-Basic Education and Career Development (PBECD) require a lot of financial investment, so, the federal and state government should increase the budgetary allocation to Post-Basic Education and Career Development (PBECD) for the development of digital education. More digital professionals should be employed and posted to Post-Basic Education and Career Development (PBECD) centres to help in the development of digital education. The government should provide adequate digital infrastructure facilities in all the Post-Basic Education and Career Development (PBECD) across the country. The government and private institutions should subsidize digital facilities for students and teachers to enable them to integrate fully into digital education.

Keywords: Post-Basic Education and Career Development (PBECD) in Nigeria, Digital Education, Technology.

Introduction

Post-Basic Education and Career Development (PBECD) is the education children receive after the successful completion of ten years of Basic Education and passing the Basic Education Certificate Examination (BECE) and Junior Arabic and Islamic Studies Certificate Examination (JAISCE). It includes (i) senior secondary education, (ii) higher school; and (iii) continuing education given in Vocational Enterprise Institutions (VEIs) to either Basic Education graduates who are not proceeding to Senior Secondary Schools, or Senior

Secondary graduates that are not proceeding to the tertiary level, as a means of preparing them for the world of work, wealth creation and entrepreneurship (Federal Republic of Nigeria, 2013).

The objectives of Post-Basic Education and Career Development (PBECD) are to: a). Provide holders of the Basic Education Certificate and Junior Arabic and Islamic Studies Certificate with the opportunity for education of a higher level, irrespective of gender, social status, religious or ethnic background; b). offer diversified curriculum to cater for the differences in talents, disposition, opportunities and future roles; c). provide trained manpower in the applied sciences, technology and commerce at sub-professional grades; d). provide entrepreneurial, technical and vocational job-specific skills for self-reliance, and agricultural, industrial, commercial and economic development; e). develop and promote Nigerian languages, art and culture in the context of the world's cultural heritage; f). inspire students with a desire for self-improvement and achievement of excellence; g). foster patriotism, national unity and security education with an emphasis on the common ties despite our diversity; and h). raise morally upright and well-adjusted individuals who can think independently and rationally, respect the views and feelings of others and appreciate the dignity of labour ((Federal Republic of Nigeria, 2013).

The realization of the objectives of Post-Basic Education and Career Development (PBECD) depends on the availability of materials and human resources available in educational institutions. The human resources is made up of the teachers and non-teaching staff while the materials resources include ICT resources and digital resources. Digitalization of education is one of the major programmes anchored by the federal, state and local government authorities in Nigeria. Digital education will help schools to engage with students' lived experiences and existing knowledge as well as extend and diversify these experiences and knowledge to make learning more relevant and purposeful digital education will create a pool of knowledgeable and skilled manpower that will facilitate technology acquisition, assimilation, diffusion, mobility and raise productivity. Digitalization promotes effective teaching by allowing them to function more effectively and proactively in terms of proper student monitoring and regular assessment of their classroom activities. The transfer of data from analogue to digital is viewed as a crucial driver of innovation in teaching and learning (Gillpatrick, 2020).

Digitization of education is a laudable project that encompasses the application of a wide spectrum of practices, including blended and virtual learning (Onyia, 2020). Nevertheless, some hurdles impede its smooth operations, especially in Nigeria. This paper is aimed to examine the problems facing the digitalization of Post-Basic Education and Career Development (PBECD) in Nigeria.

Concept of Digitalization

There are many definitions of digitalization by different scholars. For instance, Witten & David (2003) defined digitization as the process of taking traditional learning materials that are in book form and papers and converting them to electronic form where they can be stored and manipulated by a computer. For (Kannappanava; Rajamkanta & Tandur, 2010) digitization is the conversion of materials created in another format into an electronic form; this definition excludes materials that were initially created digitally, such as email communication while Jagboro, Omotayo & Aboyade (2012) noted that digitization involves

the process of making collections of historical and other materials available online. Also, Pandey & Misra (2014) describe digitization as the course of converting analogue information to a digital format.

According to Machekhina (2017), digitalization is the translation of all information kinds, such as text, audio, pictures, video, and other data from multiple sources into digital language. According to Daniel (2020) and Ray (2020), digitalization involves electronic platforms which include, but are not limited to, Zoom, WhatsApp, Google Meets, Google Hangouts, Skype, Microsoft Teams, or FaceTime, where learning may be done synchronously or asynchronously online. In the view of Bejinaru (2019), digitalization is the conversion of text, pictures, video, and music into digital format utilizing technologies such as a laptop computer, the internet, mobile devices, a scanner, a digital camera, a projector, and a printer, among others, that may be played by a computer. Digitalization in education according to Borisenkov, Gukalenko & Pustovoitov (2021) is the variety of approaches for transitioning conventional modes of teaching and learning into the virtual world, such as online courses, online assessments, and web seminars/conferences or workshops, among other things, using electronic platforms.

There are many benefits of digitalizing educational institutions in Nigeria. Ding (2000) highlighted the advantages of digitization as follows:

1. Digitization means no new buildings are required; improvement in information sharing and redundancy of collections are reduced.
2. Digitization leads to the development of the Internet in digitalized based institutions
3. Digital materials can be transmitted, sorted and retrieved easily and quickly.
4. It is cheaper to access electronic information than its print counterpart when storing files in an electronic device with compatible facilities and equipment.
5. Digital texts can be linked, and made interactively, and this improves the retrieval of more information.

Also, Akinyemi¹, Amaechi, & Etoh (2022) and Jain International Residential School (2021) listed the benefits or advantages of digitalization of education include the following:

One-on-One Learning: The main advantage of the digital education system is that it allows students to learn at their own pace. According to McNulty (2021), learners progress at an individual pace and when students are unable to keep up with the rest of the class, it causes them to lose interest. Teachers in digital education can tailor the curriculum to the learning speed and abilities of their students. Digital education enables teachers to pace learning according to individual needs (Jain International Residential School, 2021).

Develops Smart Learners: With the use of learning tools and technologies, students will be able to study more effectively because students will be able to assess their requirements easily. They learn to hunt for solutions using internet resources (Jain International Residential School, 2021). Students' efficiency and productivity are boosted through digital learning. Furthermore, digital learning tools and technology improve critical thinking abilities, which are the foundation for reasoning skill development. Students gain good sensation as well as the confidence to try new things (Ajay, 2020).

Students become Self-Motivated: Students who use digital tools and technologies to learn become more involved and interested. When compared to conventional learning, digital learning is more participatory and remembered. Students can create a stronger connection to the learning material through digital learning (Ajay, 2020).

Expansive learning opportunities: Additional learning options outside of the traditional classroom teaching and learning environment are referred to as expanded learning (McNulty, 2021). Learners of all abilities can benefit from digital education since it allows them to either extend their knowledge and skills by accessing extension materials or consolidate and/or enhance their knowledge and skills by undertaking support activities and practising similar tasks. This digital learning method provides students with more learning options. The digital education system expands educational options (McNulty, 2021), and the children may fully comprehend the topics. The learning may be done at any time and from any location.

Individualized Learning Experience: One of the fundamental flaws of the old educational system is that many students lose interest when they can't keep up with the rest of the class. Teachers can personalize study materials based on a student's learning pace and aptitude thanks to the modern digital format. With the digitization of the school system, instructional programs are having a greater influence (Ajay, 2020).

Endless Information: The internet is enormous and full of information, the majority of which is freely available. Students may now explore and apply this wealth of knowledge thanks to the advent of digital schooling. Students used to rely on restricted sources of information, but thanks to the rising popularity of the digital education system, the lack of essential information is no longer a barrier to knowledge acquisition (Jain International Residential School, 2021).

Smart classrooms: The chalk-and-talk technique is no longer in use, and teachers are turning to more tech-savvy methods to show students that learning can be creative and enjoyable. Modern classrooms are outfitted with a TV or projector, making it simple to go from a traditional classroom to an interactive digital session. Because they are so familiar with the digital environment, this may cause students to pay greater attention (Jain International Residential School, 2021).

Digitally updated: In a world where technology is always growing, methods and knowledge may readily become outdated as new developments occur. It is no longer optional to provide students with current knowledge and other subject-related issues; it is now a requirement. Because students spend the majority of their time on their phones and laptops, they must be tech-savvy (Jain International Residential School, 2021).

Challenges of Post-Basic Education and Career Development (PBECD) Digitalization in Nigeria

Many problems in Nigeria have hindered the development of digitalization education in

Post-Basic Education and Career Development (PBECD) in Nigeria. Some of these problems include; funding, personnel, shortage of digital resources, cost of digital resources, electricity, unstable internet, poor training, non-implementation of policies, corruption and the problem of data.

Funding Problem

The funding problem is one of the major problems facing Post-Basic Education and Career Development (PBECD) Digitalization in Nigeria. The budgetary allocation for the administration and management of secondary school education in Nigeria is inadequate. The poor funding of Post-Basic Education and Career Development (PBECD) has made it impossible for administrators to provide adequate human and material resources for the development of digital education in the sector. Digital resources for education globally are very expensive and require great financial investment for the development of digital education. The Nigerian government needs billions of naira to be able to successfully develop digital education in all its educational institutions. It is unfortunate that allocation from both the federal and state government towards the funding of Post-Basic Education and Career Development (PBECD) Digitalization in Nigeria is inadequate. Education funding in Nigeria is inadequate and has affected the development of many educational programmes (Ogunode, Jegede, & Musa, 2020; Abdullah, Harun, Razani, & Jali, 2017). Ogunode, Attah, E. & Ebute (2023) identified the poor implementation of national policy on funding of education, subsidy payment, debt servicing, corruption, insecurity problems, fall in national revenue and revenue loss as barriers to investment in education in Nigeria.

Shortage of Digital Personnel

Another problem that has affected the digitalization of Post-Basic Education and Career Development (PBECD) in Nigeria is the shortage of digital personnel. There are shortages of professional digital personnel in majorities of the educational institutions in Nigeria today because of poor manpower planning. The development of digital education involves critical teaching, learning and practicals that involve the engagement of digital professionals. The non-availability of these digital professionals in the right qualities and quantities in the Post-Basic Education and Career Development (PBECD) in Nigeria may have hampered the digitalization programme of Post-Basic Education and Career Development (PBECD) in Nigeria. A study by Dayo (2013) revealed that the shortage of digital facilities in schools has hampered the digitalization of education in Nigeria. Ogunode, Abubakar, Abashi, Ireogbu, & Longdet (2021) also established that shortages of digital infrastructure facilities across educational institutions in Nigeria have fundamentally reduced the pace of digital education development in schools. There is a lack of professionalism in digital education. This is in line with the opinions of Ikemenjima (2005); Jegede & Owolabi (2008) as cited in Nwana (2012) that "there is a dearth of trained teachers for e-learning, lack of facilities, infrastructures and equipment"

Inadequate Digital Resources

Inadequate digital resources in Post-Basic Education and Career Development (PBECD) have also affected the full take-off of the digitalization of Post-Basic Education and

Career Development (PBECD) in Nigeria. Digital materials are very significant tools for learning and teaching in schools. Digital resources are objects or devices that assist teachers to present their lessons logically and sequentially to the learners. Digital resources are very important in the implementation of digital education. They are the resources designed and packaged to make teaching and learning fast, interesting and flexible. Digital resources are such that are used by the teacher to implement teaching and learning programmes. The use of digital resources is central to teaching and learning simply because teaching should be flexible. Perhaps one of the biggest challenges to the development of digital education in Nigeria is insufficient access to IT facilities, tools and equipment by citizens including students and workers at many locations across the country. To promote digital transformation, equal emphasis needs to be allocated to digital skills development as it is to infrastructural development. Many Post-Basic Education and Career Development (PBECD) do not have the digital facilities inadequate to fully implement digital education for all students. There are limited resources to equip schools with digital infrastructure and this has been a barrier to the implementation of digital education. Inadequate digital infrastructures including computer hardware and software and bandwidth access have affected the development of digital education in Nigeria.

Cost of Digital Resources

The high cost of digital resources is also responsible for the poor digitalization of Post-Basic Education and Career Development (PBECD) in Nigeria. The high cost of these facilities has limited many teachers and students from buying and using digital resources for teaching and learning. Also due to poor funding of many educational institutions, heads of schools cannot procure adequate digital resources for their schools. It has been observed that many teachers and students cannot afford to buy the various digital facilities because of the high cost price. Shortage of e-resources is a major problem in schools (Fabunmi, Paris, & Fabunmi, 2009; Jagboro, Omotayo, & Aboyade, 2012). Ogunode, Okwelogu & Yahaya (2021) identified poor funding of ICT education, corruption, poor facilities planning, over-population, lack of maintenance and poor supervision as factors responsible for the shortage of ICT facilities or resources in educational institutions, especially the universities.

Electricity Problem

The challenge of unstable electricity supply is another barrier to digitalization education development in the Post-Basic Education and Career Development (PBECD) in Nigeria. The deployment of digital resources for effective teaching and learning depends largely on the availability of a stable power supply. Jegede, Diaka & Ogunode, 2021; Jegede & Abashi (2019) observed that Nigeria as a developing country is facing the challenge of providing adequate power for its citizens. The inability of the government to provide constant electricity and to ensure every nook and cranny especially the rural areas have electricity had affected the application of digital resources in the classrooms. Mungai (2011) and Ogunode & Dahir (2021) noted that many schools are not yet connected to electricity, especially in developing countries, Nigeria inclusive. Mohammed (2015) submitted that inadequate power supply is one of the major problems confronting the teaching and learning process in Nigeria with particular reference to the deployment of digital resources. Also, Agyeman (2007) stated that about 40% of Nigerians enjoy electricity from the national grid, however, the electric power

supply is sporadic, several communities in the urban areas lack electric power and those in the rural communities are worse off because of the absence of infrastructures. Recently, Thisday (2022) cited the 2022 Energy Progress Report by Tracking SDG 7 (sustainable development goal number 7) and said that Nigeria has the lowest access to electricity globally, with about 92 million persons lacking access to power which is stifling the country's industrial growth and causing other problems. The report also noted that West Africa has one of the lowest rates of electricity access in the world with only about 42% of the total population and 8% of rural residents, having access to electricity, yet only three countries are on track to provide access to electricity by 2030. "At this slow pace, 263 million people in the region will be left without electricity in ten years," the World Bank said in its 'Putting Africa on the path to universal electricity access' report. The educational system is faced with the problem of unstable power (Johnson, 2012; Pandey, & Misra, 2014; Kumar, 2016 Yaya & Adeeko 2016).

Unstable Internet Services

Poor internet service is a major problem to digitalization education development in the Post-Basic Education and Career Development (PBECD) in Nigeria, this is because digital facilities rely on internet services to connect and function. Onyia (2020); Ogunode, Ahmed, Lawan & Ojo (2021); Ogunode, Babayo, Jegede & Musa (2021) and Musa (2016) observed that Educational institutions in Nigeria suffer poor internet accessibility while the majority of the country's schools have no access to the internet at all. Lack of skills is also an obvious factor that needs attention in the proper implementation of digital education in Nigeria. Recently, (Guardian, 2022) reported that only 12.1 per cent of the Nigerian population currently enjoys quality Internet services (Meaningful Connectivity) in the country. This is according to detailed research by the Alliance for Affordable Internet (A4AI). The findings explained that an 81 percent meaningful connectivity gap exists in Nigeria, it claimed that only 6.6 percent of the rural population and 16.4 percent of the urban areas have good Internet service. This is coming as broadband penetration in Nigeria hits 42.3 per cent, while users increased to 80.7 million. The Nigerian Communications Commission (NCC) statistics, which revealed this, also informed that Internet users via the narrow band also rose to 145.8 million within the same period. But A4AI explained that meaningful connectivity is a policy framework and Internet access metric to understand the quality of Internet access someone has. This poor internet accessibility in Nigeria has affected the development of digitalization of education in the Post-Basic Education and Career Development (PBECD) in Nigeria. The problem of internet connectivity is a challenge in schools in Nigeria (Nwana 2012; Ogbnuogwo, Ugwoegbu, Obunna, Apiti, & Okunna, 2019; Ogunode, Lawal & Olubunmi, 2021; Ogunode, Dahir, Yahaya & Jegede 2021).

Poor Training

Poor training of teachers and school administrators in the Post-Basic Education and Career Development (PBECD) in Nigeria may affect the digitalization of Post-Basic Education and Career Development (PBECD) in Nigeria. Training of staff for digital education is very important since the digitalization programme comes with new skills and knowledge. Many teachers lack the basic digital training, not to mention the specialized training required for digitization (Ogunode & Jegede 2020; Jagboro, Omotayo, & Aboyade,

2012). There is a need for continuous training to build teachers' capacity in equipment maintenance and software management. Also, digitization is a complex process which requires specialized skills. However, a good number of teachers who may be involved in the digitization process in Nigerian institutions may not be skilled as they do not possess adequate knowledge or competence in the handling of digitization equipment. Another challenge according to Panji o'g'li, (2023) is the need for faculty development and support. Digital technologies require specialized knowledge and skills, and faculty members may need support and training to effectively incorporate these technologies into their teaching practices. Without adequate support, faculty members may be hesitant to adopt digital technologies, or they may use them ineffectively, which can negatively impact student learning outcomes.

Non-Implementation of Policies

Non-implementation of technological and educational policies is a major challenge to the attainment of digitalization of the Post-Basic Education and Career Development (PBECD) programme in Nigeria. The Nigerian government have developed and formulated different policies towards the development of ICT and digital education in Nigerian educational institutions but poor implementation of these policies has been the major problem in the educational sector (Ogunode, Okwelogu, & Olatunde-Aiyedun, 2021; Anunobi, & Onyebinama, 2011). The Digital Economy Initiative for Africa (DE4A) aims to ensure that every individual, business, and government in Africa will be digitally enabled by 2030 in support of the African Union's "Digital Transformation Strategy in Africa". The Federal Government of Nigeria through the Nigeria Digital Economy Policy and Strategy (NDEPS) document has set a corresponding target of achieving 95 percent digital literacy by 2030 (NITDA, 2021). The policy is anchored around equipping Nigerians with relevant digital literacy skills to keep up with the best global practices which will put the current workers, youths and other professionals in ready mode for opportunities that may open up within and beyond the shores of Nigeria. This will diversify the economy, significantly reduce unemployment and enhance labour productivity and mobility. In turn, this would improve investment and transform Nigeria into a country well-known for technology, problem-solving and critical thinking. The Nigerian digital policies stated that the National broadband brand that is targets about 95 percent digital levels to be achieved across states and local governments by 2030" and with a target to achieve 60 percent digital literacy for youths and adults by 2025. The poor implementation of educational policies in Nigeria has affected the development of education (Ogunode, Akinyode & Ayoko, 2023)

Corruption

Corruption in the administration of Post-Basic Education and Career Development (PBECD) in Nigeria may have hampered the development of digital education at that level of education. Funds released by the government for the administration of the schools sometimes ended up in private hands. Funds meant for the capital and recurrent services in the secondary schools are been diverted by the officials of the ministries (Ogunode, Adamu & Ajape 2021; Ogunode, 2020). Funds budgeted for the different programmes in the ministries are been diverted into private banks. Many public funds meant for the development of education in Nigeria are diverted and mismanaged (Ogunode 2021). Premium Time (2019) reported that Transparency International says 66 percent of the money Nigerian governments budgeted for

education was stolen by corrupt officials. The group presented the report at its sub-regional meeting in Abuja as part of the policy papers on land corruption and corruption in education systems in West Africa. According to the report, “corruption is commonplace in education systems across the Economic Community of West African States (ECOWAS). “This affects education access, quality, inclusion and learning outcomes with devastating consequences, not only for national economic growth but also for the life chances of children, their families and communities,” the report said. The report highlighted Resources misallocation, corrupt procurement, exchange of sex for grades, examination malpractices, fake qualifications, teacher absenteeism, and corrupt recruitment practices as the various corruption risks and challenges facing education systems in all countries. Ogunode & Stephen (2021); Ogunode, Somadina, & Yahaya(2021) identified the effects of education on educational administration to include a shortage of infrastructure facilities like digital facilities and poor quality of education.

Data Problem

Poor data collection and generation in the management of Post-Basic Education and Career Development (PBECD) nationally and at the state level have also contributed to the poor development of digital education at the Post-Basic Education and Career Development (PBECD) level across the federation in Nigeria. There is a lack of current data on students and teachers to plan for the smooth implementation of digital education at the level of Post-Basic Education and Career Development (PBECD). Ogunode (2021) stated that one of the major functions of education administration is the planning of educational programmes and projects. Planning is very vital to the realization of the objectives of secondary school education. Educational institutions must be planned to be able to achieve their objectives and education must be planned too to be able to realize its goals. Data is what is needed to plan and take decisions. Data is very important for planning educational programmes. Without current educational data, planning is impossible. It is very sad to realize that current data on various forms of education in Nigeria is not available (Ogunode, Eyiolorunse-Aiyedun, & Olatunde-Aiyedun, 2021). According to British Council (2014), access to reliable and complete information on education in Nigeria has for a long time proved difficult. The development of a national database for education statistics has been slow and various data-generating agencies (including the Federal Ministry of Education, Universal Basic Education Commission, National Population Commission and National Bureau of Statistics) often used different sample designs, methods of data collection, analysis and reporting, different modes of disaggregation and definitions of indicators. The absence of rudimentary data at the school and local level in many areas is often viewed as a crisis, inhibiting the development of effective education planning, monitoring, programming and policy-making. The lack of current data on Post-Basic Education and Career Development (PBECD) in Nigeria has affected the development of digitalization education in the Post-Basic Education and Career Development (PBECD) in Nigeria.

Conclusion and Recommendations

This paper discussed the digitalization programme in the Post-Basic Education and Career Development (PBECD) in Nigeria. The paper concluded that poor funding, shortage of digital personnel, shortage of digital resources, cost of digital resources, electricity,

unstable internet, poor training, non-implementation of policies, corruption and the problem of data are the problems that have hampered the digitalization of Post-Basic Education and Career Development (PBECD) in Nigeria. Based on these problems identified, the paper came up with the following suggestions:

1. The digitalization of Post-Basic Education and Career Development (PBECD) require a lot of financial investment, so, the federal and state government should increase the budgetary allocation to Post-Basic Education and Career Development (PBECD) for the development of digital education

2. More digital professionals should be employed and posted to Post-Basic Education and Career Development (PBECD) to help in the development of the digital education

3. The government should provide adequate digital infrastructure facilities in all the Post-Basic Education and Career Development (PBECD) across the country

4. The government and private institutions should subsidize digital facilities for students and teachers to enable them to integrate fully into the digital education

5. The government should increase investment in the energy sector to guarantee a stable electricity supply in the country

6. The government should direct internet providers in the country to increase their investment in the sector to ensure stable quality internet services and connectivity across the country

7. The government should organize training for teachers and school administrators on digital education skills and knowledge.

8. The government should develop the political will to implement all digital policies in educational institutions. This will help to attain the digital literacy programme of the government

9. The government should direct all anti-corruption agencies in the country to monitor the activities of all the managers and administrators of Post-Basic Education and Career Development (PBECD) in Nigeria and their financial deals.

10. The government should direct agencies established in the area of data collection and distribution to improve their capacity of data generation to enable current data for education planning in the country available.

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