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Deployment of ICT Facilities by Post-Basic Education and Career Development (PBECD) During Covid-19 in Nigeria: Challenges and way Forward

Ogunode Niyi .Jacob
Ogunodejacob@gmail.com

Okwelogu Izunna Somadina
Is.okwelogu@unizik.edu.ng

Yahaya Danjuma M.
dajumayahaya@gmail.com

Olatunde-Aiyedun, T. G.
aiyedunt@gmail.com

Abstract: The covid-19 pandemic since it advent in 2019 have affected the traditional conventional method of teaching and learning in all educational institutions across the world. The sudden switch over to online education by countries was easy for some advanced countries while developing countries faced with numerous challenges. Nigeria, which is one of the developing country in Africa and the world faced many challenges of deploying information communication technologies for teaching and learning during the covid-19 lock down. This paper wish to discuss the challenges faced by Post-Basic Education and Career Development (PBECD) in the deployment of ICT for teaching and learning during covid-19 lock down. Secondary data was used to support the various facts raised in the discussion. The findings revealed that the following are the major challenges or problems faced during the covid-19 era: inadequate funding, unstable power supply, high cost of ICT facilities, poor computer literacy among teachers and students, inadequate ICT professionals, inadequate ICT infrastructural facilities in schools and poor implementation of ICT educational policies. Based on this findings, it was recommended that government should provide adequate fund in education so as to ensure that online education are fully integrated into the Nigerian educational system.

Key words: Covid-19, Post-Basic Education and Career Development (PBECD), ICT Challenges.

INTRODUCTION

The global provision of schooling is facing unprecedented challenges as a result of the covid-19 crisis. Within the span of a few months, 191 countries had closed their schools to deploy social distancing measures in accordance with the World Health Organisation (WHO) recommendations. More than 1.5 billion students from pre-primary to university-level were affected by these closures, with classroom-based learning interrupted for indefinite periods of time **(**Nkwoemeka, Okwelogu & Amakiri 2020; Olatunde-Aiyedun, Eyiolorunse-Aiyedun & Ogunode, 2021). In Nigeria, in order to contain the spread of the virus in Nigeria, the Federal Ministry of Education directed that all educational institutions in Nigeria should be shut down and students should be allowed to go home. The Permanent Secretary in the Ministry of Education, informed reporters on 19 March that the directive was part of the country's overall strategy to contain the spread of the virus. Nigeria joins the growing list of countries in Africa which have closed schools and universities. Before the official announcement by the permanent secretary, most universities had already sent their students home (Ogunode, Jegede & Abashi, 2020).

In response to the challenge of covid-19, many countries across the world switched to online education, virtual learning or digital education. Olatunde-Aiyedun, et al. (2021), stated that the context of covid-19 school closures, paper-based and digital distance education platforms have become essential to the continued provision of education for all. Juan-Ignacio, Echeverria, Cabellos & Daniel (2020), noted that the critical global incident generated by the pandemic forced most teachers to assume virtual teaching where they had to use digital technologies, sometimes for the first time, to facilitate their students' learning. The closure of schools as a consequence of COVID-19 led to substantial changes in education with profound consequences.

The adoption of online strategy across the world especially in the advanced world made it possible for continuous teaching and learning process. However, in Nigeria, there are many challenges that prevented online strategies for teaching and learning. This paper discusses the challenges that prevented the deployment of Information communication technology by public Post-Basic Education and Career Development (PBECD) during the COVID-19 for teaching and learning in Nigeria.

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REVIEW OF RELATED LITERATURE

Concept of Post-Basic Education and Career Development (PBECD)

Post-Basic Education and Career Development (PBECD) is the education children receive after a 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 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 for agricultural, industrial, commercial and economic development;

e. develop and promote Nigerian languages, art and culture in the context of 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 emphasis on the common ties in spite of 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.

The realization of the objectives of Post-Basic Education and Career Development (PBECD) depends on the availability of materials and human resources available in the educational institutions. The human resources is made up of the teachers and non-teaching staff while the materials resources include ICT resources etc.

Concept of Information Communication Technology (ICT)

Adebayo (2013), sees information and communication technologies (ICTs) as the technology that supports activities involving the creation, storage, manipulation, communication of information using microelectronic and telecommunications tools such as laptops, computers, computer networks, Internet digital printers and mobile technology that are used by the administrator to record, store, process, retrieve and transmit information (Kokt & Koelane, 2013). Deebom and Zite (2016) stated that ICT and IT (Information Technology) are often used synonymously. However, the key difference is that IT is a subset of ICT which covers all forms of communication, including telephone mobiles etc. while information technology (IT) refers to an entire industry that uses computers, networking, software and often equipment to manage information. Akinwumi & Jayeoba (2004) define school administration as the scientific organization of human and material resources and programs available for education and using them systematically and meticulously to achieve educational goals. World Bank (2007), submitted that Information Communication Technology (ICT) involves the use of hardware, software, networks and media for the collection, storage, processing, transmission and presentation of information (voice, data, text, images etc) as well as related services.

Aiyedun and Ogunode (2020), observed that ICT enhances possibility by providing what teachers can do, by providing an entry point into the content and enquiries that were not possible without the use of ICT, by extending what students can to produce and because of their investigations and by providing teachers with the opportunities to become learners again. Information Communication Technology (ICT) is an organized technologies that contains software and hardware that inputs, processes, stores and output information for the user. Patil (2012), listed the following as benefits of ICT to students in Post-Basic Education and Career Development (PBECD) as follows:

a. Computers can improve independent access for students to education

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b. Students with special educational needs are able to accomplish tasks working at their own.

c. Create greater enthusiasm for learning amongst students,

d. Visually impaired students using the internet can access information alongside their sighted peers.

e. Give greater exposure to vocational and workforce skills for students,

f. Students with profound and multiple learning difficulties can communicate more easily.

g. Students using voice communication aids gain confidence and social credibility at school and in their communities.

h. Increased ICT confidence amongst students motivates them to use the Internet at home for schoolwork and leisure interests.

i. Provide distance learners country-wide with online educational materials.

j. Provide learners with additional resources to assist resource-based learning.

ICT Benefits for Academic and Non−Academic Staff

The following were outlined by Olatunde-Aiyedun and Ogunode (2021a) as some major opportunities for academic as well as non-academic staff:

1. Reduces isolation for teachers working in special educational needs by enabling them to communicate electronically;
2. Provide opportunities for multiple technologies delivered by teachers;
3. Offer the opportunity for more student centred teaching;
4. Improved skills for staff and a greater understanding of access technology used by students;
5. Enhances professional development and the effectiveness of the use of ICTs with students through collaboration with peers; and
6. Materials already in electronic form (for example, from the Internet) are more easily adapted into accessible resources such as large print (Patil, 2012).

Aiyedun and Ogunode (2020), stated that information and communication technology can work in a number of general ways:

1. It helps in effective teaching and learning
2. It promotes schools' quality administration.
3. It can be used to train students in skills which they will need in further education and as an ongoing learning process throughout the rest of their lives and for their future jobs, e.g. word processing, email communications etc.
4. It can provide access to information and communication outside the classroom e.g. via the Internet.
5. It can be used to support teacher development via external networks.
6. It can support and potentially transform the learning and teaching process.
7. ICT has a number of features which it particularly suitable for tertiary education:
8. It combines and integrates a full range of media essential for effective learning. The ICTY uses sounds, vision, text and numeric data.
9. It provides lecturers with new opportunities and in particular, distance learning and involvement in the real-world.
10. There is an opportunity to increase the interest and involvement of students by the one to one relationship provided by the student and computer.
11. It provides students with op-opportunity with an opportunity to work and learn on their own.

Problems of Deployment of ICT Facilities by Post-Basic Education and Career Development (PBECD) in Nigeria during COVID-19

There are many challenges that prevented the deployment of ICT facilities for teaching and learning during the COVID-19 lock down in Nigerian Post-Basic Education and Career Development (PBECD). Some of the

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challenges includes; unstable power supply. high cost of ICT facilities, poor computer literacy among teachers and students, inadequate ICT professionals, inadequate ICT infrastructural facilities in schools, poor application of ICT in schools and poor implementation of ICT educational policies. Some of which are outlined by Ojelade, Aregbesola, Ekele and Aiyedun (2020), thus:

1. Inadequate Funding

Inadequate funding of ICT programme in public Post-Basic Education and Career Development (PBECD) is a major factor that prevented many Post-Basic Education and Career Development (PBECD) from adopting virtual learning during the COVID-19 lock down in Nigeria. Olatunde-Aiyedun, Ogunode & Eyiolorunse-Aiyedun (2021) submitted that the inadequate funding is a major challenge to the administration of Post-Basic Education and Career Development (PBECD) in Nigeria. Jegede & Abashi (2019) observed that funding is the key to the successful implementation of ICT programs in the educational institution. The budgetary allocation for the implementation of computer education is inadequate in the basic schools and this is affecting the utilization of ICT facilities in the basics schools. To run or operate a computer system needs a lot of financial resources. School administrators of basic schools are not provided with adequate funds to manage the various ICF infrastructural under their cares.

2. Unstable Power Supply

Unstable power supply is a major problem that militated against deployment of ICT facilities by Post-Basic Education and Career Development (PBECD) in Nigeria during the COVID-19. During COVID-19 era, Post-Basic Education and Career Development (PBECD) in Nigeria were unable to deploy ICT for teaching and learning because of unstable power supply. Many Post-Basic Education and Career Development (PBECD) are located in communities where there are no electricity supply. Constant power supply is the only key to a successful adoption of online education in Nigeria. Online education depends largely on ICT facilities which directly and indirectly depend of power to work. Electricity failure has been a persistent problem militating against ICT application and use in Nigeria (Jegede & Abashi 2019). Agyeman (2007), observed that about 40% of Nigerians enjoy electricity from the national grid however, electric power supply is sporadic, and several communities in the urban areas lack electric power and that rural communities are worse off because of the absence of infrastructures. This made many Post-Basic Education and Career Development (PBECD) with ICT facilities unable to use them regularly during COVID-19. Mohammed and Yarinchi (2013) Inadequate power supply is one of the major problems confronting teaching and learning process in Nigeria with particular reference to computer among others as it brings about digression, failure to achieve the desired goals and objectives in time.

3. High Cost of ICT Facilities

High cost of ICT facilities is another problem that prevented many Post-Basic Education and Career Development (PBECD) in Nigeria no to switch to virtual learning. Many of the Post-Basic Education and Career Development (PBECD) in Nigeria are underfunded and this their purchasing power to procure ICT facilities in their various schools. Cost has been reported as one of the factors which influence provision and use of ICT services (Jegede & Abashi 2019). The cost of computers is too high for many to afford. Monthly Internet rates are exorbitant and the charges for satellite television are unaffordable for most people in Africa. This has made it difficult for Nigerian secondary schools to acquire and install ICT facilities for the use of teachers and students. Oyekanmi, (2016) cited Alesinloye (2006) reported in his survey that, cost of obtaining a computer, weak infrastructure, lack of skills, lack of relevant software, and limited access to the internet are the factors impeding the successful use of Information and Communication Technology in Nigerian education. This is rightly observed, presently, the nation has only crude oil as her major exporting goods, while machinery like cars, computers, and the likes are the country major importing goods. Unfortunately, this is a great discouragement to the adoption of computer in the country.

4. Poor Computer Literacy among Teachers and Students

Poor computer literacy among the teachers and students of Post-Basic Education and Career Development (PBECD) also constituted setback for the deployment of ICT facilities for teaching and learning in some Post-Basic Education and Career Development (PBECD) in Nigeria during COVID-19. Many Post-Basic Education and Career Development (PBECD) in Nigeria teachers are not computer literate. Abdul-Salaam (2012) did a study in Oyo state, Nigeria and revealed out that more than half of the teachers cannot start a computer, only about 15% can work with MS word and less than 10% can use MS Excel, MS access, browse the internet and use the computer to teach in class. The students in majorities of the public Post-Basic Education and Career Development (PBECD) are not computer literate. Musa (2012) observed that many students of Post-Basic Education and Career Development (PBECD) in Nigeria are not computer literate. The inability of the teachers and students to effective use computer and other ICT facilities affected the deployment and adoption of ICT for teaching and learning

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by the Post-Basic Education and Career Development (PBECD) in Nigeria during the COVID-19. Esharenana &. Emperor, (2010) cited NEPAD that scored the level of African continent students' experience with ICTs and their proficiency in using them very low. Fifty-five percent of students within the continent, including Nigeria, Algeria, Burkina Faso, Cameroon, Republic of Congo, Egypt, Gabon, Lesotho, Mali, Mauritius, Mozambique, Rwanda, Senegal, South Africa, and Uganda (who are participating in the first phase of the NEPAD e-Schools initiative), stated they had no experience at all in using computers. Findings by Olatunde-Aiyedun (2021) noted that the typical African school environment provides neither opportunity nor training in using ICTS, and that 75 percent of responding teachers have no or very limited experience and expertise regarding ICT educational applications.

5. Inadequate ICT Professional

Inadequate ICT professional in majorities of public Post-Basic Education and Career Development (PBECD) in Nigeria prevented the deployment of ICT during the COVID-19.

Olatunde-Aiyedun and Ogunode (2021b) stated the main problem facing Nigeria and its ICT programme is workforce training. Teaching as a profession in Nigeria is considered to be for poor people, therefore the few professional that are available prefer to work in companies and industries where they can earn better salaries. With this deplorable condition, teachers are not motivated to go the extra mile in assisting the students to acquire computer education (Esharenana & Emperor, (2010). Jegede and Abashi (2019) opined that the effective utilization of ICT facilities depends largely on the teacher's and students' capacity to use the ICT facilities to aid in teaching and learning. The application of ICT facilities in the educational institutions depends largely on the numbers of ICT instructors or teachers the schools has at a particular time. Inadequate ICT manpower in educational institutions is affecting the effective utilization of ICT facilities in schools. Research has it that shortage of professional ICT teachers is preventing the effective implementation of Computer education in schools in Nigeria.

6. Inadequate ICT Infrastructural Facilities in Schools

Inadequate ICT infrastructural facilities in many public Post-Basic Education and Career Development (PBECD) in Nigeria prevented the adoption and deployment ICT facilities during COVID-19 lock down in Nigeria. Esharenana and Emperor (2010) discovered that the unavailability of some ICT components in schools hampers teachers' use of ICTs. Lack of adequate search skills and of access points in the schools were reported as factors inhibiting the use of the Internet by secondary school teachers (Aiyedun, 2020). The absence of ICT equipment in most Nigerian secondary schools leads students to resort to cybercafés for Internet access. Most cybercafé clients in Nigeria are students (Esharenana &. Emperor, 2010). Odera (2011) stated five problems confronting the implementation of ICT in Education thus: non-availability of computers or inadequate supply of computers in most of the secondary schools; lack of proper teacher training to help them integrate computers into teaching and learning; lack of time to incorporate computers into the subject being taught; inadequate or lack of physical facilities to enable schools to introduce computer education and lack of relevant software. These highlighted factors had expressed other problems that can be attributed to poor implementation of computer education in this nation.

7. Poor Implementation of ICT Educational Policies

Poor implementation of ICT policies in the public Post-Basic Education and Career Development (PBECD) in Nigeria hindered the full deployment of ICT facilities for teaching and learning in majorities Post-Basic Education and Career Development (PBECD) in Nigeria. The Nigerian Federal Government's 1988 policy introduced computer education to the high schools. The only way this policy was implemented was the distribution of computers to federal government high schools, which were never used for computer education of the students. No effort was made to distribute computer to state government or private schools. Although the government planned to integrate ICTs into the school system and provide schools with infrastructure, concerted efforts have not been made to provide facilities and trained personnel. Thus, most schools do not yet offer ICT training programmes (Esharenana & Emperor, 2010; Goshit, 2006). The NEPAD e-Schools Project is expected to take care of an estimated 600,000 African schools. This means that not all schools will benefit from this initiative. Most countries participating in the NEPAD e-Schools Project have an ICT development policy or are creating one, but very few have clear implementation plan. The study by Abubakar (2016) confirmed the outlined challenges as major contributing factors to the low rate in the adaptation and application of the new technology especially in the public schools in north-eastern Nigerian. Oyekanmi, (2016) further stated that the common factor that tends to inhibit the proper implementation of Information and Communication Technology in schools has clearly been attributed to the failure of the government to play their own unquantifiable part by properly equipping the learning materials (the teachers inclusive).

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CONCLUSION AND RECOMMENDATIONS

The Nigerian government should plan and prepare for the future through huge investment in information communication and technologies. All public Post-Basic Education and Career Development (PBECD) should be provided with adequate ICT facilities that can guarantee online education. Online education will prove beneficial in improving Nigeria's Post-Basic Education and Career Development (PBECD) and giving students a better education. This paper discussed the challenges the prevented Post-Basic Education and Career Development (PBECD) from deploying Information communication technology for teaching and learning during covid-19 lock down. Challenges such as unstable power supply, high cost of ICT facilities, poor computer literacy among teachers and students, inadequate ICT professionals, inadequate ICT infrastructural facilities in schools and poor implementation of ICT educational policies are militate against these efforts.

In order to ensure that ICTs are widely adopted and used in Nigeria's secondary school system, the following were recommended:

1. Government should increase the funding of Senior Post-Basic Education and Career Development (PBECD) and ensure that the online education version are fully integrated into the Nigerian Post-Basic Education and Career Development (PBECD) system.
2. The government should ensure that ICT policy statements are translated into reality.
3. The government should provide all ICT infrastructural facilities in all the Post-Basic Education and Career Development (PBECD) and ensure these schools can switch to online educational system at any time.
4. More ICT professionals should be employed and deploy to Post-Basic Education and Career Development (PBECD).
5. Training on online education should be organized for teachers and students.

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