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## Managing Digital Divide for Goals Attainment in Basic Education Schools in Nigeria

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### Abstract

The paper focused on managing digital divide for goals attainment in universal basic education schools in Nigeria. The paper adopted qualitative technique of research and as such data for the paper were collected from secondary sources which included textbooks, journals and the internet. The concept of digital divide was defined as the gap that exist between those who have digital resources and those who do not. Universal Basic Education was also explained as well as its goals basically to improve access to education for the first nine years of a child. The various forms of digital divide were identified such as the divide in information, access, infrastructure and location and each of these explained appropriately. The various ways of measuring digital divide were also highlighted such as level of access, application and capabilities. The effects of digital divide were also explained as well as the strategies for closing the digital gap. The benefits accruing from closing the digital gap were also captured in the study. It was concluded that digital divide existed in basic schools in Nigeria but can be closed through appropriate action such as adequate financial allocation and training as suggested explicitly in the paper. This is in addition to the suggestion for formulation and implementation of relevant ICT legislation as well as digital partnership between the school and other ICT institutions.

**Keywords:** Managing, Digital Divide, Goals Attainment, Universal Basic Education

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### INTRODUCTION

The world has witnessed several changes and innovations in recent times not just in the area of religious, politics, education and finance but also in the area of science and technology. In fact, the main breakthroughs that have taken place since the 20<sup>th</sup> century has make the world to be regarded to as a global village. The innovations made in the area of science and technology has found relevance in other fields of study such as education, business, finance, religion among others. However, the pace at which individuals and institutions align with these digital changes are notably at variance and this has raised the issue of digital divide among societies since the 1990's. The relevance of technology to society has come under threat as a result of difference in access and utilization of digital resources. Digital divide has become an issue of concern not just

to educational administrators but to all lovers of education world-wide and the need to deal with this crisis for the attainment of educational goals and objectives especially at the basic level of education has been an issue of concern.

The issue of digital divide is taking different dimensions in the educational sector as the world continues to experience growth in technology. In the past, differences in access and use of technology only existed between nations such as the developed and the developing economies. Today, digital divide exists across the length and breadth of the school such as between teachers and students, male and female school personnel as well as across the different levels of education (Antonio & Tuffley, 2014). The implication of this is that how, when and the outcome of teaching and learning even within the same learning environment may likely not be the same and this calls for adequate action from relevant educational stakeholders. It therefore becomes more important more than even before to understand the reasons behind existing digital divide in the school system and how this can be corrected in order to ensure that the gains of formal education can be harvested across the different levels of education. This will not only help to improve on educational outcome among teachers and students but will also promote the image of the country in today's digitally driven economy and education system.

## **CONCEPTUAL CLARIFICATIONS**

### **Management**

The concept of management is one that has diverse meaning to different stakeholders as it is often understood best within the context which it is being used. Management to the housewife may simply imply being economical while an educational institution may consider management as those in the board of the school responsible for making educational policies and initiating programmes. However, scientifically, management which was first introduced by Fredrick Taylor refer to a series of activities that contribute to the attainment of the goals and objectives of an organization and this usually includes planning, organizing, budgeting etc. The Ministry of Human Resource Development (n.d.) asserted that management is a series of activities which includes staffing, planning, delegating, organizing and controlling organizational resources to that outlined objectives can be achieved. This implies that the main crux of management is ensuring that available resources in an organization are put into prudent use for the attainment of the goals and objectives of an organization by any possible and legitimate means.

### **Digital Divide**

The word 'digital' is often used in connection with anything that is powered by technology. In a clearer definition, the concept of digital is used to refer to any technology that is used for information and communication purpose. Divide on the other hand refers to a distinction, gap or disconnection between two points. The concept of digital divide literarily refers to a gap or difference between those who own and use information and communication technologies and those who do not.

Furthermore, the National Telecommunications & Information Administration as cited in Srinuan (2012:9) stated that "digital divide is the gap between those with and those without

access to ICT”, Digital divide is a concept borne out of the belief that there is still a margin between those who have access to those who do not. It can be deduced that digital divide is simply the difference between those with ICT resources and those without such resources.

In a related dimension, digital divide has been defined in terms of difference in access to ICT not just on individual basis but also across regions, institutions and nations among others. This implies that digital divide is the gap between demographics and regions that have access to existing Information and communications technologies and those who do not or have restricted access. This means that digital divide exists across difference levels ranging from those with outright inaccessibility to those with restricted access to technology.

Nwegbuet *al.*, (2011:75) stated that digital divide “is used to define inequality in access to and use of telecommunication infrastructure by citizens to solve personal and societal problems” and this agrees with the position of other scholars who mentioned that digital divide is the gap existing between individuals as well as households or businesses and geographic areas at diverse socioeconomic levels with regard to their opportunities to access and use technologies and the Internet for a wide variety of activities. Digital divide is therefore the inability to access and use, or having limited access and usage of ICT’s and the internet for different purposes among different individuals. This implies that while some group of individuals and institutions are optimizing existing technologies and the internet, other people within the same locality are unable to do so and this results to a difference in the benefits derived from this existing resource.

### **Universal Basic Education (UBE) Goals Attainment**

The Universal Basic Education is a system of education that is both free and compulsory for the first nine years of a child. This level of education covers primary to junior secondary education and is provided freely by the government to improve on the literacy rate of the citizens. Furthermore, Anaduaka and Okafor (2013) in agreement with a related opinion by Abulet *al.*, (2017:85) corroborated that:

The Universal Basic Education (UBE) programme was launched on 30th September 1999 by the then president of Nigeria, President Olusegun Obasanjo. The purpose of the programme is to provide free and compulsory education for children in the primary and junior secondary schools in the country

According to The Universal Basic Education Commission as cited in Opohet *al.*, (2015:1), the objectives of the UBE are as follows:

Ensuring unfettered access to 9 years of formal basic education, the provision of free, universal basic education for every Nigerian child of school-going age, reducing drastically the incidence of drop out from the formal school system, through improved relevance, quality and efficiency and ensuring the acquisition of appropriate levels of literacy, numeracy, manipulative, communicative and life skills, as well as the

ethical, moral and civic values needed for laying a solid foundation for lifelong learning (p.1).

It is therefore obvious that the goals and objectives of UBE cannot be overemphasized as it serves as the building block for the success of successive education provided for the growth and development of the nation.

### **Reasons for Digital Divide in Basic Education Schools**

There are several factors that have contributed to the growing cases of digital divide across regions, institutions and individuals and these include:

**Inadequate Technical Infrastructure:** There is no doubt that technology is driven by modern infrastructures ranging from the internet (Díaz, 2021), power facilities and other ICT tools. However, the shortage or unavailability of some of these technical infrastructures in some locations have further increased the cases of digital divide especially in schools. Some students and teachers are forced to utilize commercially provided technical infrastructures while those with no means of economic sustenance are cut out of the network. The shortage of technical tools needed to connect to the internet further complicates this problem as several teachers and students go to school without the needed technical tools needed to participate in the digital village. This has widened the problem of digital divide in schools.

**Socio-Demographic Difference:** The difference in social and demographic factors has also contributed to the issue of digital divide in and outside the school system (Akanbi & Akanbi, 2012). In today's school system, while some students are in the urban areas where they have access to some of the required facilities for digital teaching and learning, others are in the rural areas where these facilities are not available and as such are disconnected from the digital space. Furthermore, the issue of age difference and ethnicity also form part of the socio-demographic differences that have expanded the digital divide in recent times. This leaves some individuals with access while others do not despite the growth in technological innovations in and outside the school environment.

**Manpower Shortages:** The shortage of qualified ICT personnel across different geographical areas is also a contributory factor to why the digital divide is widening. There is still a gross inadequacy of technology experts in and outside the school who should be innovating as well as educating other stakeholders on how they can utilize available digital tools for their everyday life including teaching and learning. Similarly, the few technology experts available in and outside the school are not adequate to bridge the digital divide in the school system and this has made it difficult for any meaningful digital progress to be made. The benefits of the digital transformation going on around the world therefore remains elusive for those who are disconnected from these professionals.

**Lack of Interest:** There are students, teachers and other school administrators who have also been aback to the use of modern technology in their everyday life. This set of individuals decide not to adjust to the merging technological trend as they appear to be more comfortable with the traditional method of carrying out personal responsibilities. This includes those who prefer to go to school on foot instead of any of the modern means of transportation while others prefer to stay under a classroom with no technological devices that one with technological resources. It is therefore obvious that the personal choices and interest of people as regards the use of modern technology differs and this has made it difficult for the school like other social systems to bridge the digital divide that is making it difficult for teacher and students to benefit from emerging technologies. It is therefore obvious that without a change of interest and attitude towards emerging technologies, this divide will continue to exist even in the school environment.

**Rapid Technological Changes:** Scholar such as Bikoset *al.*, (2018) have posited that during the last two decades, ICTs have posed a radical change in society, and generated a social phenomenon of inequality as a result of their rapid and continuous technological development in every human activity. The rate at which technological innovations are radically being changed has actually short-changed some individuals, institutions and nations in recent times. This is because while some users are trying to understand and catch up with the optimization of existing technologies, more sophisticated ones are being produced and this makes it difficult to be at par in the utilization of these devices. For example, while some schools are still struggling with making use of USSD method of teaching and learning on mobile phones, others have progressed to the stage of using more sophisticated mobile phones to do complex graphic works and this has created a huge lacuna among technology users. The radical changes in the technology world has further complicated the issue of digital equality.

### **How wide is the digital divide?**

The width of the digital divide remains unknown whether in the school system or in other social environments. However, the cases of digital divide exist in various ways which include but are not limited to the following:

**Information gap:** This refers to the gap that exists in terms of access to information that is driven by technology. There are individuals who do not have access to technology driven information. This information which is supposed to keep them abreast with happenings around their environment are usually unavailable and this makes it difficult to know what is happening within the locality. The lack of access to information also makes it difficult for these individuals to make reasonable choices among available alternatives as a result of the lack of information.

**Infrastructural gap:** Ugboma (2012) identified infrastructure gap as one of the major aspect of digital divide in today's society. This refers to the difference in the quality and quantity of digital infrastructure which people should have access to. The lack of access to infrastructure in some localities disconnect people from the digital space such as those in the rural areas. Infrastructure

gap is one of the aspects that have been calling for attention especially in developing countries such as ours where there is still a gross short fall in the quality and quantity of digital tools available to end users.

**Access gap:** This type of divide exists where the technologies are majorly or slightly available but there is a lack of access or discrepancy in the level of access. For example, in some basic education schools, technological devices supplied to the school are only reserved for the principals use while in other severe cases, these digital tools are kept out of the reach of the teachers and students who should be making use of them. This means that the digital tools are available but are not accessible to those in need of it. Similarly, there are cases where teachers and students are forced to pay for the use of these technological resources and those who do not have the financial resource to do so are automatically disconnected from the use of such digital tools.

**Literacy gap:** This type of divide exists when there is a difference in knowledge of use of available technological tools. This means that while some individuals know how to use these tools, others are not so literate in the usage. The literacy gap hence favours some users to continue to benefit from the provided tools while those who are not literate are at disadvantage in the use of these tools. The literacy gap can sometimes exist when one learner has a parent who is advantaged and can provide these tools while others do not have the same level of exposure making it difficult to benefit at the same level. The literacy level can also be attributed to the kind of schools that the students have previously attended and whether or not they had access to interact with relevant digital resources. This creates a literacy gap in the future which will often be begging for attention from relevant stakeholders.

**Language gap:** This divide is attributed to the language in which the technological tool is configured. Some technology users are unable to benefit from digital tools that are not configured in a language that they are familiar with. The language gap is implying a language barrier and this contributes to the inability of some technology users to optimize the gains of modern technology. The digital tools therefore short-change those who are not knowledgeable in the language of configuration while others who are at language advantage benefit maximally from these devices.

**Demographic gap:** This refers to a location divide where the location where these devices are situated does not favour all those who are expected to benefit from its provision. Those within the purview of the digital resources make adequate use of it while others are at a disadvantage as a result of their location. This makes it difficult for people to benefit equally from available digital tools within their locality.

### **Measuring The Digital Divide in Basic Education Schools**

There are various methods that are used in measuring existing digital divide in different environments and this includes the following:

**Technology Access:** One of the ways that have been used in the past in measuring digital divide is simply by estimating those who have and those who do not have access to digital resources. This implies that there is no digital divide when everyone has access to digital tools, there is total digital divide when no one has access to digital tools, digital divide is minimal when majority have access and is maximal when majority do not have access. Therefore, the extent of access to digital tools is one of the indicators that have been used to measure digital divide both in and outside the school environment and this has contributed to the process of seeking how to balance the difference in access to digital tools.

**Human Capabilities:** The capability of people to use digital tools where they are available is also a strong measure of digital divide. The capability of users to make use of all available digital tools is an indicator that there is minimal digital divide. When technology users are able to put their tools into use, it is an indication that the digital gap is very minimal even though they may experience a gap in other essential areas.

**Motivations:** The level of digital motivation provided to technology users is also a measure of digital divide. There are societies where technology users are motivated through digital policy formulation, provision of free and accessible digital tools, internet services etc. All of these assistance or motivation helps to close the divide gap and this is used to measure whether or not digital divide exists and how wide it is. Where there is adequate motivation, the digital divide is minimal while the gap is wide where there are no motivations and this is used by experts to measure the level of digital divide.

**Knowledge and Application:** The extent of knowledge and application of digital resources is also used to measure the digital divide level in the environment. When people are able to use and apply existing digital tools for different purposes, it implies that they have a high level of inclination towards the use of digital tools. The knowledge and ability to apply digital tool is only a sign that the level of digital disadvantage is low. Those who are able to utilize digital resources to solve a wide range of problems indicate that they have a high level of digital awareness and integration.

### **Effects of Digital Divide in Basic Education Schools**

Digital divide has several effects both in and outside the school system and some of these implications include the following:

**Inability to compete economically:** There is no doubt that technology has several benefits both economically and otherwise. However, those who have access to digital tools appropriate its benefits more for their economic advantage while those without digital resources stand at a disadvantage. Digital divide therefore makes it difficult for people to appropriate existing digital tools for use across all areas whether economic, educational, social, physical or otherwise and this calls for a close in the digital gap in the interest of all.

**Research dearth:** Digital tools play a significant role in the area of research. Technology no doubt has made the world a global village thereby making research activities more efficient and effective. However, the lack of digital resources has crippled the ability of teachers and students to carry out essential research activities that will contribute to quality educational outcomes. Research activities no doubt are adversely affected in schools and societies where there is a wide digital divide and the far implication of this is that growth and development prospects both in the school system specifically and the society at large generally will be adversely affected to the disadvantage of all stakeholders.

**Exclusion:** The issue of digital divide has also contributed to the problem of exclusion from the social and educational cycle. Teachers and students who do not have access to digital tools are excluded from the digital space and the implication of this is that teachers and students are not able to benefit from the social and economic advantages that technology is contributing to the world. The issue of exclusion also makes it difficult for individuals to appropriate the benefit of technology to themselves and the nation at large.

**Waste of human resources:** There is no doubt that humans like every other essential resource becomes more efficient and effective when they have access to available technology. However, when teachers and students do not have access to relevant technologies, their abilities are underutilized and this leads to the wastage of human resources. This is because such individuals become less productive and their contribution to the society becomes less impactful as a result of their underutilization.

**Inequality:** One of the gravest implication of the digital divide is the issue of inequality (Harper, 2010). This ranges from educational inequality to development inequality as well as social inequality. When people have discrepancy in their access to technology, the implication is that there will be unexpected inequality which will create a society where there are two extremes of those benefiting from technology and those who are not benefiting and this results to the growth of a hostile society where there is a tussle between the advantaged and the disadvantaged.

### **Strategies for Managing the Digital Divide in Basic Education Schools**

The following are some of the strategies that can be used to manage the digital divide in and outside the school system:

**Digital Dividend:** This simply means the provision of incentives that will help to equate the digital sphere. This means that those who are disadvantaged should be given some assistance that will enable them meet up with those who are already connected or integrated into the digital space. There are several teachers and students in the school who lack requisite digital tools for teaching and learning and it is the responsibility of the government to provide incentives that will enable them keep pace with emerging technological advancements in and outside the school.

**Digital Policy:** There is no doubt that developing countries need to pay adequate attention to the formulation of digital policies just as practiced in other developed nations. The digital policy does not only help monitor the digital progress made across all sectors but also helps to ensure that no individual is left out of the digital circle and this helps to ensure that all citizens have equal right and responsibility to the use of technology in their various areas of operation.

**Provision of Infrastructure:** More than ever before, there is the need for investment in digital infrastructure ranging from computer devices to the internet, power source and other digital auxiliary tools (Hess, & Lead, 2011). The investment in digital infrastructure will help to resolve the problem of access as everyone will be linked to the available infrastructure either personally or institutionally and this will help to close the digital gap. These infrastructures also need to be provided across all levels whether rural or urban and for all ages so as to improve the chances of the citizens to be connected to the digital platform.

**Digital Partnership:** There is need for digital partnership among individuals, institutions and nations so as to be able to close the digital gap. This is essential because no society is digitally sufficient and as such the need for collaboration to share the pains and gains of technology where all individuals will be able to benefit equally by sharing available human and material resources where all members can optimize the digital resources provided for the benefit of all.

**Curriculum Review:** The need for the curriculum of schools to be reviewed to become digitally compliant is an issue that cannot be overemphasized. There is no doubt that the adoption of traditional curriculum in our schools has limited the interest to advance technologically like other developed nations. Therefore, now, more than ever before, there is need for the curriculum of schools to be reviewed to be digitally inclined so as to encourage teachers and students to make digital progress like other nations of the world.

### **Benefits of Bridging the Digital Divide in Basic Education Schools**

The following are some of the benefits that can be derived from bridging the digital divide:

**Employment Opportunities:** The growth in technology has improved chances to secure employment both within and outside the country. When teachers and students are digitally compliant, employment opportunities are provided both within and outside the country. In fact, the recent COVID-19 pandemic has established the fact that digital abilities are essential for securing employment opportunities even in distant locations and this opportunity is only available to those who are digitally ready.

**Economic Growth and Development:** There is no doubt that the fastest developing countries today are those that are digitally savvy. Technology contribute greatly to health, education, science etc. (Oyenike, 2010). and all of these contribute to economic growth and development. Digital advancement will bring about progress not just in the school but in the society are large.

**Promote e-governance:** Digital innovations is also contributing greatly to the issue of e-governance in developed countries. Part of the governance problems in developing nations such as Nigeria can be resolved with relevant digital advancement (Umukoro, 2014). This means that government activities and the duty of governance is now digitalized where the government and the governed only need to hook up to the digital space to benefit from the diligence of governance and also share thoughts on how to improve on government responsibilities.

**Promoting academic excellence:** The growth in technology also has the capacity to improve on the academic performance of students. This is because students are given access to a wide range of digital resources which they can consult to improve on their academic activities and performance is also enhanced through this process.

**Promoting Research Activities:** Teachers also stand to benefit from this process as they are able to adopt technology to carry out research activities. Knowledge management becomes easy not just among teachers in the same location but also for the purpose of carrying out research even in distant nations through relevant collaboration.

## CONCLUSION

There is no doubt that schools in Nigeria especially at the basic education level is facing one of the worst forms of digital divide in history ranging from the lack of infrastructure to the shortage of personnel and internet services. This has so far limited basic education schools from optimally attaining their educational goals and objectives. However, with sincere commitment from all stakeholders, this gap can be closed and will require the commitment of all stakeholders. This will not only be of benefit to the school alone but will contribute to the advancement of the society as a whole for the benefit also of humanity in the long run.

## SUGGESTIONS

The following suggestions are made:

1. There is need for the government to show more commitment to the bridging of the digital divide by allocating adequate financial resources to education as well as science and technology. This will help to ensure that the needed human and material resources are provided to provide access to relevant digital resources that will be used for teaching and learning and the development of the nation at large.
2. The training of teachers and other experts on the use and innovation of digital tools has also become more essential. Teachers and other ICT experts need to be trained on regular basis on how they can improve on existing technologies and also on how to optimize existing ones for the benefit of the education system and society at large. The training provided will also help to keep relevant stakeholders abreast with digital advancements taking place in other parts of the world thereby keeping the nation at par with others.
3. There is an urgent need for proper ICT legislation which will put a rest to the question of where, when, how and why digital tools should be put to use in the school. Similarly, this

- policy will also enable teachers and students as well as other stakeholders to be aware of their rights and responsibilities in the digital space so as to contribute to the society at large. The digital policy will also respond to questions of how resources will be provided and accessed as well as the goal and objectives of the digital rebirth which will be in the interest of all members of the society.
4. School administrators, parents, private sector and the government also need to enter into a digital partnership with the international community on how to build and utilize relevant technologies for the benefit of all stakeholders. The need for partnership cannot be overemphasized but this will require the collaboration of all stakeholders. This is because all stakeholders have a role to play in building a truly technology driven school and society and this will require the effort of all. This will help to ensure that the digital growth becomes the responsibility of all for the benefit of all members.

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