

# Use of Information and Communication Technology for Effective Teaching of Physical Education in Universal Basic Education: The Nigerian Experience.

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**Abstract.** Technology has influenced teaching, yet we know little about physical educators' predispositions and use in Universal Basic Education (UBE). One of the goals for integrating information and communication technology (ICT) in teaching physical education is to enhance teaching and learning practices, thereby improving the quality of education at this level. However, in most developing countries like Nigeria, the potential of ICT to support pedagogy is yet to be fully realized. Up until now, most of the attention, both in policy and research, has been on how the lack of infrastructure and access to technology affect the use of ICT in Universal Basic Education (UBE). So this paper x-rays: how ICT in physical education is designed as a tool for increasing instructional effectiveness in UBE, the impact of ICT use on classroom teaching and learning in UBE, and the path towards effective implementation of ICT in Universal Basic Education. Recommendations were made to effect the appropriate use of information and communication technology in teaching physical education in the universal basic education programme.

**Keywords:** ICT, Teaching, Physical Education, Universal Basic Education

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## **INTRODUCTION**

Information and Communication Technology (ICT) is the emergence of tools of microelectronics and telecommunications that are used in the automatic acquisition, analysis, storage, retrieval, manipulation, management, control, movement, display, transmission, reception, and interchange of quantitative and qualitative data (Boritz, 2000). Haddad (2002), as cited by Oyenike (2010), divided ICT in education into three categories: instruments (TV, DVD, computer), instructional (video and multimedia modules), and dissemination (TV broadcast, CD, or Web), but emphasised that the choice of technology and the way it is used are partially determined by what is expected in terms of education, learning, and teaching objectives. Information and communication technology (ICT) in education has been continuously linked to higher efficiency, higher productivity, and higher educational outcomes, including the quality of cognitive, creative, and innovative thinking. In response to the global imperative of education for all and not wanting to be left on the lower side of the "digital divide," Nigeria launched universal basic education in 1999 and developed an ICT policy in 2001. Nigeria, like many other countries around the world, has over the years sought to improve its education system by introducing reforms and making plans based on the education needs of the country, hence the development of Universal Basic Education (UBE) (Oyenike, 2010).

Technology use in schools has influenced the way educators plan, design instruction, and assess their pupils. Innovations in educational technology have changed systems of communication, learning resources, lesson ideas, and professional development. Innovative technology facilitates creativity and learning productivity. Technology can consist of computer programs, Internet programs, or other assistive, digital, and communicative tools. Classroom teachers have integrated these forms of technology over time using a variety of methods in different styles and practises (Becker, 2001; Friedman, 2006; Judson, 2006; Wozney, Venkatesh, & Abrami, 2006). An area in which technology has not yet become customary but has great potential is physical education. Although discipline-specific technology has been developed, generally, technology inclusion has not become commonplace in physical education due to limitations like lack of training, personnel comfort levels, availability of equipment, space, and time (Martin, 2003).

The Universal Basic Education (UBE) Program is an educational programme aimed at eradicating illiteracy, ignorance, and poverty. It is in compliance with the Declaration of the World Conference on Education for All (WCEFA), which was made in Jomtien, Thailand, in 1990, and Ban clearly states in Article 1 that every person—child, youth, or adult—shall be able to benefit from educational opportunities designed to meet their basic needs. This declaration was reaffirmed at the World Summit for Children, also held in 1990, which stated that all children should have access to basic education by the year 2000. Basic education refers to the type of education provided at the first level of education, both in terms of quality and content. This construct changes from country to country. In the past, in Nigeria, basic education was equated

with six years of primary schooling. Currently, basic education is extended to include the three years of junior secondary school. Universal Basic Education (UBE) is conceived to embrace formal education up to age 15, as well as adult and non-formal education, including education of the marginalised groups within Nigerian society. It is a policy reform measure of the Federal Government of Nigeria that is in line with the stated objectives of the 1999 constitution, which states in Section 18 that "*government shall eradicate illiteracy; to this end, government shall as and when practicable provide a free and compulsory education. universal primary education, free secondary education, and free adult literacy programmes* (FGN 1999, FGN 2000).

### **ICT IN PHYSICAL EDUCATION IS DESIGNED AS A TOOL FOR INCREASING INSTRUCTIONAL EFFECTIVENESS IN UBE.**

ICT is one of many tools that can enhance the presentation of content and convey information to pupils. It is, however, merely a tool, which physical educators should use only in conjunction with effective instruction. The Internet, "podcasts" (Apple, 2009), and "wikis" (Leuf & Cunningham, 2001) can provide a wealth of information to students, allowing them to receive instruction through portable media devices.

These information-delivery systems have expanded the information available far beyond school libraries. To implement them adequately, physical educators must use these resources in conjunction with careful monitoring. Providing pupils with instruction concerning Web sites' content validity and helping them develop the skills to evaluate the accuracy of electronic information is vital. Ensuring that pupils understand the difference between sources that have put procedures in place for monitoring content validity and those that have not is necessary for guiding them toward obtaining correct information.

Technology such as projector systems, smart boards, and wireless transmission (WiFi and Bluetooth) allows for the display and transfer of information far beyond the traditional chalkboard. Teachers can enhance physical education instruction by using those tools, provided the set-up and/or implementation don't reduce student activity time. Planning and preparing effectively in advance of lesson presentation is necessary to ensure that these valuable tools become an integrated part of the lesson with minimal transition time and management (NASPE 2009).

Physical educators must consider which types of physical activity monitoring devices are suitable for pupils' developmental levels. Using technology to monitor children's heart rates and comparing the data to adult ratios, or having children use adult-sized equipment, for example, can produce inaccurate results. Teachers should use these tools to enhance instruction only if the data provided is accurate for the grade level to which they are to be applied.

Appropriate physical education practise should include activities that are aligned to students' learning expectations, fit children's developmental levels, and align content to standards. Using technology for the sake of using technology may not

provide children with relevant learning experiences because technology is not the curriculum but rather a tool or device to supplement instruction.

### **THE IMPACT OF ICT USE ON CLASSROOM TEACHING AND LEARNING AT UBE**

Bringing ICT into the classroom can have a considerable impact on the practise of teachers, in particular when ICT is conceptualised as a tool that supports a real change in the pedagogical approach. Not only do the teachers need to change their roles and class organization, they also need to invest energy in themselves and their students in preparing, introducing, and managing new learning arrangements. Some need to acquire basic ICT skills. Teachers also need to determine which applications have added value for learning in their subject area. While doing this, they need to be aware that this is not a one-time activity, as the information environment is continuously changing. Perhaps most important and challenging for teachers is determining which basic subjects, social skills, and management skills students need to function in such environments. The change can impact assessment tasks, with new learning environments moving away from summative methods of assessment to formative approaches and open-ended products (such as reports and research papers created by groups of students). These different aspects are time-consuming and result in an increased teacher workload.

Physical educators can integrate technology through a variety of approaches. Preparing, generating, administering, and reporting information such as fitness scores, class participation, or motor skill rubric grades for both students and teachers is completed more efficiently (Posner, 2004). In addition to normal everyday technology use, physical education programmes can be structured based on the enhancement of content-specific technology. Physical educators can include the use of word processing and desktop publishing for items like newsletters, information packets, and student portfolios. Teachers can utilise technology through fitness assessment databases, physical education department Web pages, content-based software programs, multi-media systems, and visual presentations. Digital videos, exercise equipment, and other fitness-related devices may be incorporated into daily assignments and unit planning (Mohsen, 2006). The nature of teaching and the organisation of instructional materials can be further developed through the use of the Internet for increased communication, resources, and lesson ideas (Friedman, 2006).

Some things can be done to reduce the workload. Teachers can be encouraged to share resources with others, locate good practises on the web (where available), and adapt these to their local circumstances. In a number of cases, the high workload is caused by teachers wanting to control all the activities of their students, which means answering many questions and running from one student to the next all the time. Teachers can take time to discover that computers do not mean extra work—rather, they actually make their work easier. Again, more competent students themselves can be a useful resource, this time for their peers.

There is no doubt that teachers who use ICT in classrooms have to demonstrate high levels of energy, hard work, and perseverance, often in the "face of considerable odds" (Lankshear & Snyder, 2000). If they are early adopters, then they are required to be resourceful and overcome many barriers to make things work. Planning lessons involving computers can take considerable time and demand complex scheduling and resourcing. Therefore, teachers using computers in the classroom should not act in isolation from each other. They require access to resources that will provide ideas and material for various classroom applications, as well as peers who are developing their own pedagogies and resources (Leach, Ahmed, Makalima, Power, 2005). While computers have enormous potential in education, they also present teachers with additional challenges.

### **TOWARDS EFFECTIVE IMPLEMENTATION OF ICT IN UNIVERSAL BASIC EDUCATION**

There has to be proper planning, which entails estimating the number of pupils that will be in our school system; this means keeping proper records of school-age children in different wards, local government areas, and states. If the number of schools on the ground is not adequate, then preparations have to be made to build new ones and renovate the existing ones instead of having children stay under the trees. Moreover, we must consider the curriculum itself, which has to be reviewed so as to cater for the different needs of the people.

The rapid development of technology over the past two decades has provided many new and creative ways for educators to present instructional materials effectively. Until recently, those advancements have focused on desktop technology, which limited their use in physical education in the UBE programs. But wireless technology, computer projection systems, and physical activity monitoring devices are moving technology into school gymnasiums. The recent development of active gaming, or "exergaming," using video games that incorporate physical activity (Thompson, 2008), is adding yet another dimension to the teaching and learning of physical education in the UBE curriculum process. The National Association for Sport and Physical Education (NASPE 2009) believes that technology can be an effective tool for supplementing instruction when used appropriately in the UBE curriculum. There are a number of factors that contribute to educators' decisions about whether to use technology when planning and teaching. This is an important factor to consider when designing and implementing instructions. Teachers now face a generation of students who have never known life without a computer, video game console, cellular phone, or Internet access, and that is changing the scope of education dramatically. Appropriate practise in physical education should include activities aligned to student learning expectations and that fit students' developmental levels, as well as content aligned to standards. Because technology is not the curriculum, but rather a tool or device to supplement instruction, using technology for the sake of using technology may not provide students with relevant instruction experiences.

Physical educators can integrate technology through a variety of approaches. Preparing, generating, administering, and reporting information such as fitness scores, class participation, or motor skill rubric grades for both students and teachers is completed more efficiently (Posner, 2004). In addition to normal everyday technology use, physical education programmes can be structured based on the enhancement of content-specific technology. Physical educators can include the use of word processing and desktop publishing for items like newsletters, information packets, and student portfolios. Teachers can utilise technology through fitness assessment databases, physical education department Web pages, content-based software programs, multi-media systems, and visual presentations. Digital videos, exercise equipment, and other fitness-related devices may be incorporated into daily assignments and unit planning (Mohnsen, 2006). The nature of teaching and the organisation of instructional materials can be further developed through the use of the Internet for increased communication, resources, and lesson ideas.

## **CONCLUSION**

It is no longer disputable that ICT is important in the development of quality teaching and learning in physical education around the world, as well as a means for fundamental transformation of existing school principles and practises for the preparation of pupils to meet the innovations in the global arena. Achievements in ICT penetration and usage in Nigeria's nursery education programmes are dependent on recognising this importance beyond policies and fragmented efforts to apply it to education. The world is a global village. The present age of technological advancement has brought changes to virtually all human endeavors, including the teaching and learning processes. For anyone interested in improving physical education teaching, acquiring computer literacy skills as well as a good face value certificate in computer education is a must. This is also the case for Nigerians. Promotion at work and obtaining a well-paying job are all linked to computer literacy; thus, society should become more enlightened through computer education, and beginning at this young age allows for a better and more lasting understanding.

## **Recommendation**

There is therefore a need to consider how best to integrate specific ICT objectives and resources into the physical education program. As the Internet becomes an important part of education and as literacy is redefined by the new technology, it will be mandatory that:

1. Teacher preparation and staff development programmes to acknowledge the convergence of the internet, instruction, and curriculum and to prepare teachers to integrate technology with the curriculum
2. For the sustainable integration of ICT in education, funding and other infrastructural issues should also be addressed.

3. Nigeria also needs to develop a specific policy for ICT in education—a national policy for ICT in education will help to locate Nigeria in the emerging global knowledge-based economy, coupled with strategic investment in education to enable greater productivity in the workforce and thus increased national competitiveness.
4. The Ministry of Education should have a standard policy for stakeholders to have input into the process of defining a common vision for the systematic integration of ICT in the education system.
5. Conferences, workshops, and symposiums should be organised to train people and enlighten them on the need for computer education.
6. Curriculum developers should make computer education one of the core subjects to be offered in basic secondary schools.
7. The state ministries of education, through their Chief Inspectors of Education (CIE), should monitor the implementation of the computer education programme in Nigerian basic secondary schools.

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