

# INFORMATION COMMUNICATION TECHNOLOGY (ICT) INTERGRATION IN EDUCATION FOR SUSTAINABLE SECURITY AND ECONOMIC DEVELOPMENT

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## **Abstract**

*There has been an advance changes in the world over the years. These changes are as a result of scientific evolution, industrial evolution, political evolution and educational evolution. In note of these changes comes with its own challenges. Education evolution is not exempted. Several educational policies had been made and set to tackle the lying issues of education for sustainable development. Until now the desires and goals have not been meant in most developing countries like Nigeria. This was revealed in recent time as event of Covid-19 affected the education system of the world. This paper emphases on the integration of Information Communication Technology in education, its objectives and the role in teaching and learning. The paper reviewed the need for effective implementation of Information Communication Technology integration in education, use of Information Communication Technology in education and impacts to sustainable security and economic development. Also the use of Information Communication Technology in education and implication in economic development was reviewed. The study highlights some of the limiting factors of Information Communication Technology in Nigeria education process and improvement. The paper gave some implications and recommendation.*

## **Introduction**

Education is one of the national tools for development. There has been a global concern on the quality of education and its impact for sustainable development. Government recognize the key role of education towards the attainment of sustainable development and has made qualitative education one

of its key focuses (FME, 2019). Hence, the actualization of National vision and the sustainable development goals (SDGs) is linked to education. Obtainability of qualitative education is hinged on improving teaching process, learning and educational administration. This in turn need the integration of ICT into education.

Progress in information and communication technology (ict) have turned the world into a global community and are transforming the world economy. ICT are tools that comprise electronic devices that are utilized for the information needs of institution, organizations, and individuals. The electronic devices includes information machine (for example computer, hard and soft ware), networking, telephone, video, multimedia and the internet (Ibara, 2010). In concrete terms, ict can enhance teaching and learning through its dynamic, interactive engaging content and can provide real opportunities for individualized instruction (Ibara, 2010). Accordingly the Nigeria national policy on education has laid emphasis on the provision and utilization of ICT as it stipulate prominent role of ICT in advancing knowledge and skills necessary for effective functioning in the modern world, there is the urgent need to integrate ICT in education (FRN, 2004).

ICT integration in education is a complex task due to its dynamic nature. Hence planning for ict integration in education is considered as a key element for improvement and development (Ghavifekr, 2014). The ICTs have the potentials not only in ensuring effectiveness and efficiency in these two area of teaching and learning, but also in ensuring the administrative duties. According to the Organization for Economic Co-operation and Development (2005) and Gbega (2006), Ict can work in a number of general ways as follows:

- i. It can be used to train student 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.
- ii. It can provide access to information and communication outside the classroom eg. via the internet.
- iii. It can be used to support teacher development via external network.
- iv. It can support the learning and teaching process

### **Objectives of Utilization of Ict in Education**

Federal Ministry of Education (2019), has outlined these objective:

1. Facilitate the teaching and learning process
2. Promote problem-solving, critical thinking and innovational skills
3. Promote the commercialization of indigenous inventions, products and services of Ict in Education.

4. Develop and support technical infrastructure that maximizes digital creativity, sharing and innovation
5. Foster research and development
6. Widen access to education, range of instructional options, and opportunities for any-where, any time, any-pace and any-path learning.

### **The Role of Ict in Teaching and Learning**

According to Dr. Kastusiranjan one of the noted scientists of India has observed that global development already demonstrated that the central role of advances in science and technology and their application in the social economic and cultural transformation of the world is tremendous. Hence, according to Anu Sharma (2011), the new ICT enable self-paced learning through various tools such as assignment, computer etc. as a result of this the teaching-learning enterprise has become more productive and meaningful. Ict helps facilitate the transaction between producers and users by keeping the students updated through e-mail, chat session etc. this promotes effective learning, sharing of idea and knowledge discussion and also provide immediate feedback. It activate paced learning and allows effective mapping of learning path ways. From the ongoing, it is worthy of note that Ict integration in the field of education has contributed highly in improving the quality of education. It is widely believed that ICT integration will help as in making education more accessible and affordable.

### **The Need for Effective Implementation of ICT Integration in Education**

According to Ukessay (2019). Globally, education system are adopting new technologies to integrate ICT in the teaching and learning process, to prepare students with the knowledge and skills they need in their subject matter in this way the teaching profession is evolving from teacher-centered to student-centered learning environment. In recent time ICT help to facilitate not only the delivery of lesson but also the learning process itself this includes computer based technologies, digital imaging, the internet, file servers, data storage devices, network infrastructure etc. are used as infrastructural tools at schools. ICT has invaded and transformed many aspect of our lives to the extent that we live in an environment that is dominated by technology which itself is consumer-driven (Semenov, 2005). No matter how we perceive its presence, there is no denying that it is an important part of our lives that is here to stay. There are key issues to remember in relation to the importance or need of ICT in education (ICT Solution Australia 2019).

1. **E-learning or online learning:** The presence of ICT in education allows for new ways of learning for students and teachers. E-learning or online learning is becoming increasingly popular and with various unprecedented events taking place in our lives, this does not only open opportunities for schools to ensure that students have access to curriculum materials.
2. **ICT brings Inclusion:** The benefits of ICT in education is of such that learn from the curriculum material. Student with social needs are no longer at a disadvantage as they have access to essential material.
3. **ICT Promote Higher-Order Thinking Skills:** One of the key skills for the 21<sup>st</sup> century which includes evaluation, planning, monitoring, and reflecting to name a few. The effective use of ICT in education demand skills such as explaining and justifying the use of ICT in producing solution to problem.
4. **ICT Enhance Subject Learning:** It is well know these days that the use of ict in education adds a lot of value to key learning area like literacy and numeracy.
5. **ICT in Education Improves Engagement and knowledge Retention:** When ICT is more engaged in their work.
6. **ICT Use Allows for Effective Differentiation Instruction with Technology**

### **Use of ICT in Education and Impact to Sustainable Security and Economic Development**

Considering the role and need of ICT in education. It was observed that ICT integration has a tremendous impact on national security sustainability and also drive economic growth. Its agreeable to note that investment in ict for education growth would lay a transforming foundation in Nigeria economic landscape. Previous studies have shown that investment in education can have tremendous impact on economic growth and development of any country and it security. Ict has revolutionized the developed world economy with changes in different economic activities (Kodakanchi et al, 2006). Toreno and Braun (2006,p22) argue that a country's ICT infrastructure can make a direct contribution to her gross domestic product and also have all encompassing impact throughout the economy. In short term, "Education has always been a critical investment for the future, for individual, for economies and for all societies" (OECD, 2019. P2).

### **Use of ICT in Education, Implication in Economic Development**

Since information and communication technology (ict) has become an integral part of our lives, it has been considered as a crucial key and means to solve social problem and promote economic development. The World Education Forum (2015), the international community, and different organizations also highlight the importance of United Nation 2030 Agenda for sustainable development, which underlines that interconnectedness and new capabilities for the 21<sup>st</sup> century through ICT can provide great opportunities to economic progress. However, although many previous studies have discussed the design, implementation, and evaluation ICT-integration learning environment in school of developed countries (Cha et al, 2020). There are constraints on creating ICT integration learning environment and space in the developing world.

### **Limiting Factors of ICT in Nigeria Education Process and Ways of Improvement**

Federal Ministry of Education (2019) outlined some of this challenges in implementation of ICT in education. These includes.

- i. **Policy:** inadequate policy implementation.
- ii. **Institutional and administration capacity:** Although capacity building of teachers in ict is being done, a good percentage of teachers are still not proficient in ict.
- iii. **Regulation:** IT education, especially at the non-formal education sub-sector is still largely non-standardized uncoordinated and unsupervised.
- iv. **Curriculum:** there is generally lack of regular review and upgrading of existing IT curriculum, especially at the tertiary level, to meet changing societal needs.
- v. **Efficiency and Effectiveness in the use of IT:** teacher educators and teachers are concerned more with efficiency rather than effectiveness when they adopt ICT in education.
- vi. **Funding:** although, funds are being provided for ICT in education, they are largely inadequate to provide the drive necessary to position the sector for the attainment of the national goals. The forgoing reveals that the state of ICT in education in Nigeria falls below global standard.

Certain education policy suggest ways to improve ICT integration.

1. Restore the environment for teaching and learning as well as education administration to be Ict-enhanced
2. Ensure appropriate continuing ICT training including content development and delivery for all staff.

3. Encourage private sector participation in education and training in ICT
4. Encourage ICT education at all level
5. Encourage the implementation of research finding in ICT in education
6. Ensure and promote periodic public awareness campaign on ICT in education using appropriate media.

### **Implication**

There is certain implication of this article which address the emergence need to enhance ICT integration in school system and learning process at all level of educational institution. Educators should consider how ICT can contribute to active learning and teaching and examine the potential of ICT to enhance learning.

### **Conclusion**

Having considered the enriching contribution of ICT in education. ICT has become a global discussion, reason is as a result of how it affect economic development. Urgent attention need to be paid on education which is one the instrument of national development. Integration of ICT in education process will drive the wheel of economic growth and also revermp education for better sustainability and development.

### **Recommendation**

The need for economic development and sustainable security can be drive through education by proper integration of information and communication technology into education process. Hence, some recommendation were made in this paper:

- i. Government should ensure adequate funding of ICT in education
- ii. Teachers should pay proper attention to effectiveness of teaching when adopting ICT in education activities.

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