Policies on Digitalization of Instructions: Implication on Teaching and Learning of TVET Programmes

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Abstract
The National Policy on Education, with the Digital Protocol Network on National Digital Policy, launched by the world economic forum together with the 2030 Agenda for sustainable development of United Nation policies, and the National Policy On Information and Communication Technology (ICT) In School Education (2012), provide better opportunities for acquisition of valuable knowledge and skills that will match the labour market skills demand. These goals of policy can be fully attained if quality delivery using ICT facilities is fully implemented in Nigerian educational systems especially in TVET programmes to enable graduates compete globally. This article identified and discussed the implications of digitalization of teaching and learning in TVET programmes. The authors recommended that Nigerian Government at all levels should meet up with the 26 percent spending in education from their budgets as recommended by UNESCO. Furthermore, enabling environment should be provided for in-service training for teachers in ICT competence. Government and NGOs should act as a matter of urgency to provide basic infrastructures, virtual libraries and laboratories, ICT facilities and internet connectivity in all TVET programmes. This will enable TVET graduates to be competent, creative and be agents of sustainability in their workplaces, job markets and in the society at large.

Keywords: Policies, Digitalization, Teaching, Learning, TVET.

Introduction

The national policy on education 1986, as modified in 2013, stressed the need to employ educational technology to improve the quality of education. A policy is a set of ideas or plan that is used as a basis for making decision, especially in politics, economics, education, or business. According to Burkholder (2012), policymakers need to ensure that teachers have access to high-quality professional development opportunities that help utilize technology for instruction and student learning. The Digital Protocol Network on National Digital Policy launched by the World Economic Forum in 2016 serve as the focal point for framing these emerging policy concerns arising from the digitalization of Education, Business and society. The Digital policy playbook 2017 is also designed to help leaders understand the complex dynamics and difficult decisions they will face in managing their transition into digital domain. This policy was coalesced with two objectives: First to expose national leaders from the public, private and civic sectors to innovative and practical mechanisms of national digital cooperation and governance; and second, to advance approaches that embrace the local context where adoption and impact can be most effectively realized for sustainable development.

The 2030 Agenda for sustainable Development of United Nations Goal 4 policy is to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. This policy envisaged that by 2030, there shall be substantial increase in the number of youths with vocational skills for employment, decent jobs and entrepreneurship. This sustainable development goal by United Nations is a call for action to change our World. Anyakoha (2004) and Obebe
(2008) argued that our policies are written by knowledgeable writers who have foresight and believe strongly in what they write for the future, but the problem occurs when it comes to translating theory into practice by implementation. The goals of Technical and Vocational Education and Training (TVET) as stated in the National Policy on Education (2013) shall be to: to provide trained manpower in the applied sciences, technology, and business; to provide training that enables students acquire continuous education that makes them self-reliant, wealth creators and providers of employment; and To provide training that enables students to acquire the skills and competences in order to take advantage of life’s opportunities. Similarly, the United Nations goal 8 policy is to promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all. One of the targets of this policy framework is to achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including a focus on high-value added and labour-intensive sectors. According to Osinem (2017), TVET systems need to prepare their learners to be responsible and well informed producers and consumers, and for them to be able to act competently, creatively and as agents for sustainability in their workplace and in society at large. He emphasized that Digital technologies are quickly becoming the engine of change through all sectors of the global economy.

**Policies on Information and Communication Technology (ICT)**

The ICT policy in School Education aims at preparing youths to participate creatively in the establishment, sustenance and growth of a knowledge society leading to all round socio-economic development of the nation and global competitiveness (National Curriculum Framework (NCF) 2005). The National policy on ICT defines Information and Communication Technologies as all devices, tools, contents, resources, forums, and services, digital and those that can be converted into or delivered through digital forms, which can be deployed for realizing the goals of teaching learning, enhancing access to and reach of resources, building of capacities, as well as management of the educational system. The policy defines ICT literacy in terms of levels of competence. Using computers and literacy according to the policy as mere information delivery devices grossly underutilizes its power and capabilities. There is an urgent need to develop and deploy a large variety of applications, software tools, media and interactive devices in order to promote creative, analytical and problem solving abilities and sensitivities in students and teachers.

With the convergence of technologies, it has become imperative to take a comprehensive look at all possible information and communication technologies policies for improving school education in the country. The comprehensive choice of ICT for holistic development of education can be built only on sound policy. The national policy on information and communication technology (ICT) in school education(2012), states that the potential of ICT to respond to the various challenges in education system are:

- ICT can be beneficially leveraged to disseminate information about and catalyze adaptation, adoption, translation and distribution of sparse educational resources across various media and forms. This will help to promote its widespread availability and extensive use.
- There is need to digitalize to make available educational audio and video resources, which exist in different languages, media standards and formats.
- Given the scarcity of print resources as well as web content, ICT can be very gainfully employed for digitalizing and disseminating existing print resources like books, documents, handouts, chart and posters, which have been used extensively in the school system.
- ICT can address teacher capacity building, ongoing teacher support and strengthen the school system’s ability to manage and improve efficiencies.
Using computers and the internet as mere information delivery devices grossly underutilizes its power and capabilities.

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**ICT Enabled Teaching –Learning Processes**

ICT policy emphasized that ICT enabled teaching-learning encompasses a variety of techniques, tools, contents and resources aimed at improving the quality and efficiency of the teaching-learning process. Ranging from projecting media to support a lesson, to multimedia self-learning modules, to simulations to virtual learning environments, there are a variety of options available to the teacher to utilize various ICT tools for effective teaching. Each of such devices or strategies also involves changes in the classroom environment, and its bearing on effectiveness. Availability of a wide range of such teaching-learning materials will catalyze transformation of classrooms into ICT enabled classrooms. Teachers will participate in selection and critical evaluation of digital contents and resources. Teachers will also be encouraged to develop their own digital resources, sharing them with colleagues through the digital repositories. Unfortunately, many Universities in Nigeria that offer TVET programmes lack human and material resources to effectively digitalize instructions. According to Samoff (2007), many of the academic staff who in the past would not have qualified for technical vocational Education and Training is found doing so. He further stated that, due to very low salaries and insecurity, it is no longer possible to attract competent staff from abroad to teach Technical vocational Educational courses in the public Universities. Similarly, fund for the improvement of physical facilities, acquisition of laboratory/workshop equipment, textbooks and other supplementary teaching resources, especially in TVET programmes need to be provided. Capacity Building of teachers through in-service training will be the key to the widespread infusion of Information and Communication Technology TVET enabled practices in the school system to achieve the aim of digitalization policies.

**Digitalization Policies**

Embracing digitalization offers profound benefits to government looking to improve the productivity of the economy for which they are responsible. Digitalization of education is a powerful trend in terms of reformation and modernization of global education environment. Digitalization means transformation of all information types (texts, sounds, visuals, video and other data from various sources) into the digital language (Stuart, 2014). Stuart considers transition of education process into digital stage as the turning point in the history of education. The World Economic Forum “Digital Policy playbook 2017: Approaches to National Digital Governance” is both timely and relevant, in that the policy provides policy-makers and practitioners with a pragmatic tool for prototyping and implementing digital governance solutions. Technological advancement and globalization is said to have created a new global economy having information and communication technology (ICT) occupying a complex position in relation to globalization (Agbo, 2012). Today, as a result, globalization has led to the introduction of ICT on Teaching and Learning practices in most educational Institutions in Nigeria. All these digitalization policies especially ICT policies to enable teaching –learning encompasses a variety of techniques, tools, content and resources aimed at improving the quality and efficiency of the teaching-learning process. Globalization and advancement in technology require a new value-added focus to be able to face the changing realities of globalization and competitiveness. However, the problems lay on implementation of these policies. Many teachers of TVET programmes still resort to old tradition of lecture methods in teaching skill courses. Training of teachers in specific field will enhance better
mastery, performance, confidence, boldness, for effectiveness in the digitalization of the teaching process.

Teaching Process
Teaching has been variously defined by many authors, Olaitan and Agusiobo in Obi (2005) defined teaching as an attempt to bring about desirable changes in learner behaviour and to reflect the expected behavior in improving the learner and the society where he lives. Hence, effective teaching is contributory to understanding, helps him to improve his abilities and develop in him more desirable attitudes. Mbah (2012) defined teaching as an attempt to help someone acquire change in skills, attitude, knowledge, idea or appreciation. Teaching, according to Adeola (2011), is the process of imparting students with knowledge, skills and attitudes in order to bring about a desirable change in them.

Teachers are the most important factor in students learning. As a result, the pre-eminence of teachers, the application of pedagogical knowledge into classroom oriented plan of actions constitute most essential upon which the success of the school, its administration and the entire education system rest upon. Collier (2000) stated that research has consistently shown that one of the most important factors contributing to students’ success is the quality of teaching he or she receives. Technology and digital learning offer teachers the ability to collect and interpret various points of student assessment data. Teachers need to be trained on how to use these data effectively to inform instruction and increase students learning. Effective teaching is contributory to the learners’ understanding, helps him to improve his abilities and develop in him more desirable attitudes. According to Obi (2005), a modern conception of teaching is that, It is an attempt to help someone to acquire a change in attitude, knowledge, idea, skill and appreciation. Teaching, according to Onwuka in Obi (2005), is more than the delivery of carefully prepared lecture. Basically, it is an activity designed by a person most experienced, more knowledgeable and more mature with respect to learning to further the education of another. Today, TVET programs that require skills are being taught using lecture methods due to lack of equipment, lack of knowledge of how to use the digital resources, or no power supply etc. Obsolete equipment in our laboratories should as a matter of urgency be replaced with modern equipment to enhance learning outcomes.

Learning Outcomes
The intention of all teaching activities is to bring about learning. Therefore, it is impossible to understand fully the importance of teaching, until we know what learning is. There is no one general definition of learning. Many scholars and educationists have made several attempts to define learning in different ways. Generally, learning can be defined as a relatively permanent change in the behavior that comes from reinforced practices. According to Mbah (2012), learning is not only about verbal knowledge acquired through instruction, study or rote memory. Rather, modern and proper use of the term learning embraces work or activities in every aspect of life. Biggs(2007) is of the view that wise and effective teaching does not simply involve applying general principles of teaching, rather it should aim at engaging students in learning related activities that enable them theorize, generate ideas, reflect and solve problems in the target content areas. From the above definitions, it can be seen that teaching involves a teacher, learner(s), learning/teaching materials, learning activities and effective communication between the teacher and learner.

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students do not apply for TVET programs in JAMB Examinations. Some of the students found themselves into TVET programs as their last hope of admission. This low interest in TVET programs is always shown during instructional processes. Therefore, only students who show interest and ability should be admitted to run Technical Vocational Education and Training programs. TVET instructions should as much as possible be digitalized since the current crop of students are more digital friendly than analogue. These students tend to learn faster under the computer, social media and internet related environments.

Technical Vocational Education and Training (TVET)

Technical Vocational Education and Training (TVET) is widely recognized as a vital driving force for the socio-economic growth and technological development of nations. According to Idialu (2012), in achieving the goals and objectives of TVET in Nigeria, the quality of the programme needs to be improved and sustained. Technical vocational Education and Training (TVET) holds the key to training the skilled and entrepreneurial workforce needed for the changing technological workforce (Afeti, 2010). Technical vocational Education and Training (TVET) is used as a comprehensive term referring to that aspect of the educational process involving in addition to general education, the study of technologies and related sciences, and the acquisition of practical skill, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life (UNESCO, 2002). Some of the goals of Technical vocational Education and Training (TVET) shall be to:

- Provide trained manpower in the applied sciences, technology, and business’
- Provide training that enables students acquire continues education that makes students self-reliant, wealth creators and providers of employment.
- Provide training that enables students to acquire the skills and competencies in order to take advantage of life’s opportunities, among others (NPE, 2013).

Problems Encountered by Schools and Teachers in the Implementation of Digitalization Policies in Nigeria.

The teachers and the schools frequently encounter a plethora of challenges in the course or need to digitalize the teaching-learning process. Some of the challenges are explained below;

- Poor funding: Underfunding has been the major hindrance to the implementation of Digitalization policies in Nigerian Universities. The government expenditure at all levels on education is below 10 per cent of its overall expenditure. To improve quality, funds for the improvement of physical facilities, acquisition of laboratory/workshops that are networked are of utmost importance.
- Inadequate manpower with requisite skills: Specialized teachers in deferent areas are of importance to quality of instruction delivery in TVET programmes. Adequate trained teachers in specific fields will enhance better mastery, performance, confidence, and boldness as teachers will be better equipped in their area of specialization.
- Non-availability of instructional materials: Instructional materials aid teaching and learning. The use of instructional materials makes learning real, and permanent in the pupils mind. Some of the instructional materials in TVET laboratories and workshops in Nigerian Universities are obsolete and non-functional. There are no ways skills can be acquired without practice. Skills are acquired by doing. The use of instructional materials makes students to be active, interact better with the teacher and promote social interaction among students.

Strategies for Improving the Digitalization of Teaching and Learning of TVET Programmes in Nigeria

- Adequate funding: Government at all levels should maintain the UNESO minimum standard recommendation of
at least 26 per cent of budgetary provisions. Government should increase their investment in education in order to eliminate the deficiency in public investment in Nigeria. To improve quality, funds for the improvement of physical facilities, acquisition of laboratory/workshops that are networked are of utmost importance.

- Provision of adequate skilled manpower: Training and retraining programmes should be organized for teachers to cope with the challenges of emerging issues in technology and environment. One of the major economic trends that have taken place is the changing of material value to knowledge value with the coming of knowledge economy, which manual workers are fast changing to knowledge workers (Osinem, 2017).

- Provision of equipment and facilities: Government and Non-Governmental organizations should help in procuring Hardware and software tools, media and interactive devices, laboratories and workshops. Technological trends are sweeping across countries and regions. Continuous changes and technological advancements are happening, and their benefits are envisioned to enhance TVET delivery. This can be effectively and efficiently embrace with adequate digital facilities and infrastructures for the teaching and learning process.

Conclusion

Digitalization policies provide better opportunities for acquisition of valuable knowledge and skills that will match the labour market skills demand. Unfortunately, underfunding, inadequate manpower with requisite skills, non-availability of modern laboratories, workshops, poor equipment and facilities among others, are some of the problems inherent in achieving full digitalization instructions in TVET programmes in Nigeria. Adequate funding by Government and Non-Governmental organizations, provision of adequate skilled manpower, provision of ICT modern equipment, and facilities are some of the strategies identified for effective digitalization of instructions of TVET programmes. Policies on digitalization of instructions in TVET programmes is aimed to prepare learners to responsible and well informed producers and consumers, and for them to be able to act competently, creatively, and as agents for sustainability in their workplaces and in the society at large.

Recommendations

Based on the Conclusion drawn, the following recommendations are hereby made:

1. Government should increase their investment in education in order to eliminate the deficiency in public investment in Nigerian educational system. At least 26 per cent UNESCO minimum standard recommendation of the Government budget should be dedicated to funding of education at all levels.

2. Educational Administrators and Managers as well as other stakeholders should provide fund for the improvement of physical facilities, acquisition of laboratory/workshops that are networked to improve quality in TVET programs.

3. Regular training and re-training programmes on ICT should be organized for Teachers to be able to cope with the challenges of emerging issues in Technology and environment.

4. All the policy frameworks on ICTs, Digital protocol Network on National Digital policy, United Nations 2030 Agenda for sustainable development policy should guide every TVET programme to be able to attain better opportunities for acquisition of valuable knowledge and skills that will match the labour market skills demand.
Students with interest and ability should only be admitted to run TVET programmes in Nigerian Universities, so that graduates of Nigerian TVET programmes should be able to compete favorably with their counterparts anywhere in the world.

6. The government, stakeholders, policy makers and TVET providers should focus on TVET quality assurance for best practices that have worked in countries around the world.

7. Provision of scholarship/grants for TVET teachers/instructors; proper supervision and monitoring of the implementation of TVET programmes by government to insure achievement of policy targets.

References


