

# The Demands of Sustainable Development on the Curriculum Tasks of Technical Vocational Education and Training Teachers

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**ABSTRACT**— *Technical Vocational Teacher Education and Training (TVET) have received increased attention in international and national policy in recent years as a means to sustainable development. This in turn, demands changes in the curriculum tasks of teachers who teach TVET subjects. The purpose of this paper is to identify some demands of sustainable developments on these teachers' curriculum tasks. The paper presents the concept of sustainable development and the aims of TVET. It further describes teachers' curriculum task performance, the elements involved and the demands of sustainable development on the teachers' curriculum task performance. The paper then discusses some ways of meeting these demands through the teachers' use of technology in communication and teaching; interpersonal communication among teachers; fostering positive classroom interactions; leadership support from principals and teachers' engagement in multiple curriculum tasks.*

**Keywords**—curriculum delivery, teaching tasks, professional development, training, vocational.

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## 1. INTRODUCTION

Sustainable development is a topical subject with many facets. It is aimed at meeting the needs of the present while at the same time, preparing for meeting the needs of the future. Zuboff and Maxim (2004) defined sustainable development as long-lasting improvement. It focuses on continuous improvement of systems, resources and information that are central to national development. Sustainable development covers health, education, economy, environment, technology and everything that is essential for societal survival. Sustainable development (SD) is about achieving economic, social and environmental objectives at the same time. As Iloh and Olibie (2011) noted, ensuring steady improvements in these areas for meeting present and future needs is the core of sustainable development and education has been seen as a driver for this development.

Education is an essential tool for achieving sustainable development. Education for Sustainable Development (ESD) is education that is capable of meeting present and future developmental needs. The United Nations Development Programmes (UNDP, 2004) recognized that current economic development trends in several countries are not sustainable and that public awareness, education, and training in Technical Vocational Education hold the key to moving society toward sustainability.

One of the aims of Technical, Vocational Education and Training in Nigeria is to encourage students to acquire knowledge, skills and competencies for various sectors of economic and social living. Atsumbe (2006) noted that TVET emphasizes the development of responsible and informed attitudes to the modern world and the developing technology that drives it. The acquisition and understanding of knowledge pertaining to the well-being of individuals and communities in terms of technology, commerce, production, food, health and shelter should enable students to become informed, active and responsible citizens. As Fatakun and Yalams (2007) implied, the knowledge and understanding acquired in the technological areas of TVET should develop in the students a responsibility to the environment in which they live and to which they contribute, with an emphasis on safe and healthy living, and to sustainable development and interdependence. TVET equips students with knowledge and skills to deal with employment problems, manpower shortages, social ills, environmental issues and other emergent global problems.

There is a need to look at education for sustainable development in the light of how people teach and learn about sustainable development and how education provides people with the skills, knowledge and understanding to allow them to fulfil our duty as global citizens. Since teachers are principally charged with teaching and providing learners with knowledge and skills, this paper therefore examines what are expected of them in performing these tasks under the following subheadings:

1. Emergent Issues in Curriculum, Teaching and Learning for Sustainable Development.
2. The Concept of Teachers' Curriculum Task Performance
3. Elements of Teachers' Curriculum task performance, and
4. Demands of Sustainable Development on TVET Teachers' Curriculum Task Performance.

## **2. EMERGENT ISSUES IN CURRICULUM, TEACHING AND LEARNING FOR SUSTAINABLE DEVELOPMENT**

The emphasis on education for sustainable development has led to several emerging issues in curriculum, teaching and learning. Le Métails (2003:5-7) highlighted the following issues:

- Many countries of the world have a statutory curriculum, prescribed by national or sub-national authorities. There is a tendency towards increasing review of curricula to reflect changing needs, and most countries have undertaken major reforms of their curriculum within the past 15 years.

- In all countries, there are greater expectations in terms of skills and dispositions, which are perceived as relevant to lifelong learning, employment and social participation. As a result, curricula designed during the past fifteen years increasingly stress the role of transferable skills and, in some cases, reduce prescribed content.
- There is a trend towards formulating curricula in terms of learning outcomes. In most cases – these are linked to achievement targets which specify the percentage of learners who are expected to achieve a given level have been linked to these learning outcomes.
- International language learning has traditionally been strong in countries which have two or more official languages and a foreign language is a compulsory part of the curriculum (especially for older learners) in many countries except England, Ireland, Japan, New Zealand, the USA and Wales. Hence, there is an increasing trend towards offering one or more foreign languages, and/or extending provision for younger learners, even where it is not mandatory,
- Science, Technical and Vocational Education, Mathematics and global citizenship skills are part of the curriculum in all countries. There is also a tendency to increase the emphasis on personal, social and health education.
- In several countries, there has been considerable investment, especially during the past ten years, to equip schools and prepare teachers for the integration of Information and Communication Technologies (ICT) into the classroom. This is intended to help students develop ICT skills and to support independent learning.
- An integrated approach to learning is now formally encouraged, even in countries where the curriculum is structured in terms of individual subject areas.
- There is no single prescribed teaching style, and teachers in all countries use whole class, group and individual learning according to needs. However, the demand for transferable skills and the introduction of ICT are leading to greater emphasis on group work and independent learning in virtually all countries. These developments are closely linked to the introduction of Information and Communication Technologies into the classroom.
- There has been a considerable increase in all countries in centrally produced guidance to support teaching and learning (for example, schemes of work, lesson plans and ideas, exemplification of learners' work). There is a strong trend towards publishing these materials in electronic formats.

In addition to these emergent issues, the world is experiencing a knowledge economy in which there is increasing emphasis on the production, distribution and use of knowledge to acquire life skills. The knowledge economy is dependent on people's ability to adapt to situations, update their knowledge and know where to find knowledge. The educated person of today requires asset of life-skills intended to respond to the demands of a globalised world often referred to as knowledge economy. The life-skills necessary for a knowledge economy as described by Obanya (2009:44) are displayed in figure 1.

KNOWLEDGE: in the form of versatility and flexibility, not simply the ability to store and reproduce facts and figures.
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**COMMUNICATION SKILLS:** capacity to appreciate the views and feelings of others, and to convey one's own feelings and opinions in ways that help to sustain personal and working relationships.

**ADAPATABILITY:** a willingness to venture into novel situations-new ideas, novel working and living conditions, new knowledge areas, new working and thinking tools.

**CREATIVITY:** a strong drive to go beyond the well-trodden path.

**TEAM SPIRIT:** an acceptance of the group cohesiveness, the team be more important than any of the individual member.

**LITERACY:** in its comprehensive dimensions-prose quantities, graphics, spatial analysis, interpretations, used in communications.

**IT-FLUENCY:** a mastery of ICT as thinking, research, communication and working tool.

**LEARNING AS THE WAY OF LIFE:** a frame of mind that is the foundation stone for life-long, life-wide, and life-time learning.

**Figure 1:** Life-Skills Requirements of a Knowledge Economy Obanya, P. (2009).

The role of TVET teachers in facilitating education in the context of these emergent issues in curriculum, teaching and learning is obvious. Educational literature provides compelling evidence that the teacher is the most decisive factor in education (Olibie & Akudolu, 2008, 2009). At the individual level, the teachers help students to learn how to learn, and colleagues to learn how to teach. At the institutional level, the teachers work together to improve learning and teaching through mutual support and shared innovation. They provide service for different educational needs within their schools, facilitate developments of education as a profession, disseminate knowledge and information to the next generation, and contribute to the formation of a learning society. How the teachers are able to do these and several other things are depicted in the curriculum task performance as described in subsequent sections of this paper.

### **3. THE CONCEPT OF TEACHER CURRICULUM TASK PERFORMANCE**

The role of TVET subject teachers in the education system requires that they display a high level of commitment to their curriculum task performance. Curriculum is a set of plans or materials, and instruction is the transformation of these into a course of action. Curriculum and instruction are concerned with imparting and implementing series of planned events that are intended to have educational consequences for one or more pupils. Curriculum and instruction requires a teacher to perform some tasks such as to: appropriately and timely design instructional objectives, structure learning content, organise learning experiences and materials, and evaluate instruction to ensure optimal pupils' learning. Curriculum task performance is execution, conduct, compliance or conformity with stated decision or directives issued by a super ordinate or demanded by a job. Teacher curriculum task performance refers to the execution, conduct and carrying out of jobs by TVET subject teachers (Ogbonna, 2007). In other words, TVET subject teachers' curriculum task performance is the resulting response or reaction by TVET subject teachers in accordance with the requirements of teaching.

TVET subject teachers' curriculum task performance also includes the execution of teaching tasks by TVET subject teachers. Obidike, Agu and Olibie (2012) defined

teacher curriculum task performance as a judicious devotion and dedication to the achievement of standards within and outside the school setting. Teachers' curriculum task performance thus refer to the performance of teaching tasks and rendering of expected teaching services by teachers. It has to do with the ability of a teacher to fulfil his/her duties as a teacher. TVET subject teachers' curriculum task performance is reflected in their continuous obedience to constituted authorities, regularity and punctuality to work, and other such work behaviour that enhances the growth of the school system. As these definitions suggest, curriculum task performance among TVET subject teachers are actions used in carrying out teaching requirements that often progresses the aims and objectives of any educational system. It is made of several elements.

#### **4. ELEMENTS OF TEACHER CURRICULUM TASK PERFORMANCE**

In this paper, teacher curriculum task performance is described in terms of three elements. These elements are: curriculum delivery, participation in extra curricular and professional development tasks.

##### ***4.1 Curriculum Delivery***

Curriculum is a schools' plan for all the learning experiences the learner is expected to engage in under the guidance of the school. Mkpá (2010) described the curriculum as the set-out knowledge, skills and attitudes which the learner is expected to be exposed in the schools. Curriculum delivery refers to the implementation of the curriculum.

The classroom TVET subject teachers are key factors in curriculum delivery because they select and set up the learning opportunities which are meant to enable the learners acquire desired knowledge, skills, and values articulated in the curriculum. The fact that a curriculum has been so well designed to feature appropriate experiences is no guarantee that corresponding appropriate experiences would result. The type of educational experiences that will result in the end will depend on the TVET subject teachers. Curriculum delivery include using appropriate modes of content delivery, giving and marking assignments, giving feed back, modeling, using inquiry and soliciting advice and opinions, giving praise and directing students' classroom processes (Blasé & Blasé, 2004).

The task of curriculum and instruction involves implementing curriculum policies and innovations. In doing this, the teacher is expected to use a variety of resources, and give students directives that may be necessary for the demands of the instructional process. Every practice of instructional leadership concerning textbook prescriptions, resources allocation, can thus be said to be in the area of curriculum and instructional leadership.

In delivering the curriculum, TVET subject teachers are charged with teaching pupils in the assigned classrooms and of various grades or years. They should plan, implement and evaluate lessons. It is among the job of TVET subject teachers to define lesson objectives, specify instructional alternatives, select from among alternatives to enhance instructional effectiveness.

Implicit in these descriptions of TVET subject teachers' role in curriculum delivery is the fact that it is concerned with the ability of the teacher to display sound skills in setting instructional objectives, classroom management, instructional delivery, and evaluation, which are very essential in determining the quality of what secondary school students are taught. By effective performance of their curriculum delivery tasks, TVET subject teachers would be more likely to prepare their learners for future contributions to sustainable management of schools.

#### **4.2 Participation in Extra Curricular Tasks**

Another area of teacher curriculum task performance is in extra-curricular tasks. According to Brian & Jacob (2000), TVET subject teachers are expected to perform other functions not stipulated in the curriculum but that are crucial to teaching and learning. These functions are called extra curricular tasks. Participation in extra curricular tasks include: being in school on time for morning assembly, participation in sports, participation in social welfare even burials and weddings, disciplining students, understanding and implementing school policies and goals, and interacting with super ordinates, colleagues and subordinates to implement schools programmes. A teacher that is willing to participate in extra curricular activities is punctual in school attendance, strives to enforce and manifest disciplined behaviours, and is commitment to the general welfare of the school. He/ she is judicious in preparing his /her lesson notes, keeping the classroom in order, disciplining his pupils, evaluating pupils learning outcomes, participating in school committees, attending and contributing to staff meetings and Parents TVET subject teachers Association meetings. Such a teacher also participates in planning of the school extra curricular activities and shows serious efforts in assisting in school administration. These activities are necessary for school management. It also include organising debates, excursions, paying visits to students' parents or guardian' organising inter-house competitions, participating in Parents-TVET subject teachers-association (PTA) meetings, organising parents day-associations, and other activities. The extent to which the TVET subject teachers perform these roles is therefore one of the focuses of this study because these roles are essential in school management.

#### **4.3 Professional Development**

The potentials of TVET subject teachers for sustainable development would be maximized through professional development. Professional development of TVET subject teachers is the ability of TVET subject teachers to grow from teaching behaviours they manifested as novice TVET subject teachers to more competent teaching behaviours throughout their career as TVET subject teachers. It is considered important as a means to the achievement of sustainable development and poverty alleviation. Ogunsola and Dada (2007) described it as the art of enhancing the instructional activities of TVET subject teachers to ensure that they conform to generally accepted principles and practice of education and are in line with the stipulated policies and guidelines of the education authority which controls the system of education. According to Woodward (2004), it is about TVET subject teachers acquiring professional knowledge over time in order to improve the conditions, which affect teaching, learning and competence of TVET subject teachers.

Professional development of TVET teachers also involves facilitating knowledge building environments. Studies have shown that information and knowledge sharing among teachers are important for sustainable education (Hung, Ng, Koh & Lim, 2009; Jarvis, 2009). Skills that are borne from specific practices are usually learned and picked up through participation, information sharing, exchange of materials, open critique of ideas, modeling and apprenticeship, verbal dialogue and instruction, and other forms of social behavior and interactions. Scardamalia & Bereiter (2003) observed that in knowledge-building environments, ideas are publicly available so that all members of a group can build on the ideas, improve them, challenge them, and justify them. Knowledge-building environments require the building of strong relationships for people to work together. In the context of these relationships – over time and in a learning environment that supports risk-taking and fosters a level of trust – teachers grow in their confidence as learners and creators of knowledge. Relationships such as these develop people’s ability to connect with one another, work together across their differences, and add value to each other. By building such knowledge environments, diversities of all kinds (languages, disciplines, abilities, interests, and more among the teachers) become a necessity, something to be welcomed, appreciated and explored into school communities.

TVET subject teachers’ professional development could also be described in terms of the ability of TVET subject teachers to enhance their teaching competencies, understand and implement school policies and goals, generate positive concepts about the teaching profession, strive to acquire continuous learning, interact effectively with super-ordinates, colleagues and subordinates, implement schools decisions, be committed and effective in curriculum delivery. It is the academic, ethical, moral and psychological job orientation of TVET subject teachers towards work roles that they are presently occupying. TVET subject teachers’ professional growth is therefore as important as the TVET subject teachers are in the educational process. To effectively participate in professional development therefore involves taking part in professional organisational life, reading professional write-ups, attending professional lectures, conferences, seminars, and all other activities that continuously enhance their TVET subject teachers’ job competencies.

The aim of teacher participation in professional development tasks is the elevation of teaching to a more respected, more responsible, more challenging and professionally recognised occupation. According to Ogunsola and Dada (2007), the claim that TVET subject teachers need to be nurtured to continue improving their professional knowledge, skills, recognition and professional status, however, is based on a more fundamental premise: that TVET subject teachers must be influenced and nurtured to develop a more professional practice career.

## **5. DEMANDS OF SUSTAINABLE DEVELOPMENT ON TVET TEACHERS’ CURRICULUM TASK PERFORMANCE**

Sustainable development demands a lot from teachers to improve their curriculum task performances. These demands include:

**TVET Teachers’ Involvement in Curriculum Development:** A key demand on teachers in the context of sustainable development is to explore ways of giving teachers more control over

the curriculum, while at the same time ensuring this does not result in unacceptable variations in quality and standards within and between schools. One way of doing this is to involve the TVET subject teachers in curriculum review. Their involvement would reduce curriculum prescription and give schools greater flexibility in curriculum implementation.

**Teacher Training and Retraining in Curriculum Delivery:** TVET teachers should be trained for their role as deliverers of the curriculum and as facilitators of learning (for example through questioning skills and injecting the element of fun into teaching and learning). TVET teachers should be trained to develop a toolbox of teaching methods and use a repertoire of teaching strategies and several methods to devise an interactive curriculum delivery which meets learners' needs. Such training could be through conferences, seminars, workshops and other forms of in-service training. In providing such training, in-service training providers should focus on building a culture of sharing and conferencing among teachers in schools and clusters.

**Training TVET in Information and Communication Technologies (ICT):** Until teachers are trained in ways to integrate ICT into the curriculum, computers and other ICT tools will be viewed as added burdens rather than teaching tools. Teachers should be trained on the several applications of ICT in teaching. The aim is for ICT to be infused in the instructional programme to support the learning of curriculum content. This, in turn, would aim to help students to become confident users of ICT who are able to harness its potential for effective learning. The training should focus on both general ICT competence (general knowledge on computers and informatics) enhancement and developing special competences needed for pedagogical application. They should be able to use handy technologies especially text messages and telephones to share information about sustainable development. They should be capable of developing rich digital media content to complement existing materials, such as textbooks. TVET subject teachers should use cell-phones to discuss breaking news on sustainable development issues such as environment/climate change; use instant text messages for information sharing and use telephone calls to inform one another of speculations on sustainable development. They should also use Information and Communication Technology (ICT) such as computer-assisted instruction, as well as other software that integrate with their curriculum in order to implement computers as learning tools in the classroom.

**Interpersonal Communication:** TVET subject teachers in each school should work as a team. They should have positive influence, attitudes and seek knowledge about sustainable development. They should use team collaboration to work with and learn from one another. The subject teachers should use interpersonal communication to build their professional knowledge of emerging global issues. Teachers need to interact by exchanging reading materials and seeing one another as a critical friend and resource for knowledge on sustainable development. They should also advance information on sustainable development issues during sharing assemblies, and communicate with visiting experts and brainstorm on sustainable development issues. They should share newspapers, posters, magazines and bulletins on global sustainable development issues. TVET teachers should therefore share knowledge and information with other teachers. This would enable them understand how students learn and to design, implement and assess educational activities that meet the needs of individuals and all students.

**Classroom Interactions:** To facilitate students' acquisition of knowledge extends beyond curriculum policies. It includes delivering the curriculum using appropriate classroom interactions. In delivering the curriculum, the TVET teachers should foster positive interaction as the most powerful factor for achievement. They should enrich their lessons and improve the quality of interactions between teachers and learners, for learning, motivation and feedback. They should use classroom discussions as networks for open talk, sharing and collaboration on new ideas including global warming. They should make out time to plan for learning–designs for facilitating students' knowledge of sustainable development issues.

**Leadership Support from Principals:** Leadership support involves all direct or indirect behaviours of principals that significantly affect teacher instruction and, as a result, student learning. Sustainable development requires continuous improvement of teaching –learning activities. What principals do to support TVET subject teachers' curriculum task performance is crucial in this regard. For instance, supervision of TVET subject teachers by principals is important for ensuring sustainable development through education. Strategic supervision is meant to ensure continuous identification and solving instructional problems. Principals should make regular classroom visitations and communicate supervision feedback appropriately to TVET subject teachers.

In addition, principals should set aside time at staff meetings to discuss TVET subject teachers' relationships with parents and help TVET subject teachers develop warm and friendly relations with students. They should be generous in praising TVET subject teachers' achievement, discussing staff problems in a warm and friendly manner, employing appropriate interaction skills to improve self-concept of TVET subject teachers, acknowledging TVET subject teachers' exceptional performance by writing memos for their personal files, actively supporting TVET subject teachers to attend in-service training and mobilizing to obtain the participation of the whole school staff in important school activities. The principals should also seek teacher's opinion on school reform implementation strategies; provide instructional materials needed for teaching newly introduced sustainable development issue in the school curriculum.

**Engagement in Multiple Strategies and Tasks for Teaching and Learning:** TVET teachers should be multi-skilled in order to perform the range of tasks required for sustainable development. To foster sustainable development, the teachers should learn and endeavor to :

- a) the teachers should de-emphasise traditional methodological repertoire, which includes frontal work organised and led by the teacher. Rather they should engage in activities that are capable of nurturing active, independent learners, who can articulate their strengths and areas for improvement, and who can monitor their learning to achieve better performance
- b) teach in a way that places student learning at the centre
- c) set high expectations for academic and social development of all students in their class
- d) use innovative methods and materials in teaching deliver curriculum content and instruction that ensure student achievement of agreed upon academic standards
- e) create classroom environment and culture of continuous learning for students tied to student learning and other school goals

- f) Use multiple sources of data (tests, examinations, checklists) as diagnostic tools to assess, identify and apply instructional improvement; actively engage the community to create a shared responsibility for student and school success.

## **6. CONCLUSION AND RECOMMENDATIONS**

Effective curriculum tasks of TVET subject teachers are important in ensuring that education is relevant to societal needs for sustainable development. This paper has provided insights to the demands of sustainable development for TVET subject teachers and the implications of the demands for the subject teachers. There is a need for TVET subject teachers to acquire more knowledge of diverse curriculum delivery tasks. They should seek for more knowledge using research and scholarship for improved teaching and learning. Every TVET subject teacher should appreciate the benefits of using e-mail and should understand the procedures involved in sending and receiving messages. In addition to teachers' use of technology, the teachers must be supported, through a high quality leadership support from principals. The teachers should also facilitate and nurture teaching and learning environments that provide students with supportive learning experiences. Finally, the teachers should be trained to become multi-skilled in order to perform the range of tasks required for sustainable development.

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