

# Relational Study of Technical Education In Scotland and Nigeria for Sustainable Skill Development

E. Kennedy Umunadi<sup>1</sup>, Ph.D

<sup>1</sup> Technical and Business Education, Faculty of Education, Delta State University, Abraka, Nigeria

Correspondence: E. Kennedy Umunadi, Technical and Business Education, Faculty of Education, Delta State University, Abraka, Nigeria. E-mail: kedinad@yahoo.com

Received: August 22, 2012

Accepted: November 12, 2013

Online Published: November 24, 2013

doi:10.5430/ijhe.v3n1p49

URL: <http://dx.doi.org/10.5430/ijhe.v3n1p49>

## Abstract

This paper was designed to look at technical education curriculum and mode of implementation in Scotland in order to adopt the advantageous attributes of the Scottish technical education in Nigeria. The paper x-rayed the staff perceptions of technical education and its roles in Scotland; History of technical education before the advent of British government; technical education and its objectives; objectives of technical education Scotland; technical subject and career path in Scotland; factors affecting effective implementation of technical education curriculum in Nigeria reflecting on Scotland technical education; reforms of technical education for sustainable skill development in Nigeria. It was based on the content of the paper that recommendations were proffered that the government should provide adequate fund, intellectuals in technical education and provision of equipment and materials to achieve the National Policy on Education and Scottish standard of technical education for sustainable skill development in Nigeria.

**Keywords:** Nigeria, Sustainable, Scotland, Skill development, Technical education

## 1. Introduction

The role of Technical Education is often described in Vocational terms, with pupils being provided with knowledge and skills platform for focused career choices (Canavan and Doherty, 2005). These career choices are typically promoted as being craft and technical status jobs within an engineering environment.

With the growing technological innovations, consequently restructuring in industry, economy, occupational patterns and job qualifications, there must of sincerity re-organization in technical education in terms of new programmes, retraining programmes, curriculum designs, training methodologies, learning materials; teacher preparation, management and administration (Osuala, 2004).

Policy makers in Scotland espouse a core curriculum that is supported by vocational training (Scotland Executive, 2003), which is designed to fit the needs of the individual learner. Within this context, the Scottish executive's push to develop an enterprise culture that engenders a spirit of entrepreneurship among young people. The development of enterprise culture that engenders entrepreneurship spirit among youth may be laudable, but raises the question; where does the technical education curriculum sit in relation to this aspiration and are the skills and knowledge promoted by technical subjects exploited appropriately by industry and higher education? The premise that technical education in Scotland has developed as a response to society's need for a technologically literate population (HMIE, 1999) is justifiable one in terms of curriculum development and its promotion of intellectual and practical skills. It has however proved a difficult exercise to promote technical subject in the course arrangement in Scotland. It extremely difficult to promote technical subject as offering more than vocational training for non-academic pupils. Canavan and Doherty (2005) argued that the perception of technical education as a provider of training in preparation for employment through apprenticeships is outdated in relation to the current technical curriculum. Uwaiwu (2008) supported the ideology of Canavan and Doherty when he stated that Nigeria needs a radical break away from the outdated rules, traditions and fundamentals underlying technical education operations. This implies the introduction of automation, computerization, new product lines, new processes and procedures, pursuit of new visions and missions and other novel ideas that can improve and sustain Nigeria as a developing nation. Somewhat disappointingly, however, this perception remains largely unchallenged, and is in actual fact often promoted by Technical themselves.

### *1.1 Introduction to Technical Education in Scotland*

The role and status of Technical Education and constituent subjects was also explored through a survey of 58 practicing teachers. Whilst there may be a strong cultural dimension to the lack of status afforded Technical education, the polarized picture created from teacher perceptions could be said to undermine the role and status of departments through an inability to develop and promote a coherent case for the curriculum on offer. Unlike most other subject areas, the Technical teacher is required to specialize in a number of certificated subjects. This has posed a longstanding challenge to initial teacher educational institutions that are required to develop competence over a diverse range of subject areas, as well as to practicing teachers who may require support in the development of their own competence in line with curriculum development as highlighted by Jone (2003).

Technical education provides a platform for much of society's cultural, economic and educational aspirations. To this extent, the role of Technical departments in providing a diversity of specialist vocational skills as well as a plethora of desirable generic skills such as communicating, problem solving and team working is one which is beyond doubt. So where does the problem lie with Technical education's status as a subject? Doolittle and Camp (1999) highlighted the sociological complexities that link the curriculum and class structure. They also highlighted the behaviourist underpinning of the traditional skills based Technical subjects. The fact that departments now offer a rich, constructivist learning experience is one which is often lost within an environment of misrepresentation, inter-subject positioning, politicizing and downright ignorance of technical departments and the subject taught within them.

The importance of Technical subjects as a key provider for apprenticeships in engineering can be misrepresented within the profession. Whilst the vocational nature of subjects such as practical craft skills offer a valuable set of skills to any pupil, its relationship with modern apprenticeships could be regarded as tenuous at best. From the representative survey of teachers carried out, it can be seen that there are a number of agendas at play in driving the direction Technical education. Worryingly, there seems to be a serious split among staff as to role of Technical departments; whether it be purely vocational, skills based or whether it should encompass the broader intellectual and philosophical learning more associated with technological studies and craft and design/product design.

The technical education in Scotland is: Craft and design; Graphic communication; Practical craft skills; Product design; and technological studies. These subjects mentioned earlier have subjects spelt out with their aims and objective tailored toward actualizing the national goals in Scotland.

### *1.2 History of Technical Education before the Advent of British Government and Beyond in Nigeria*

Even before the advent of the British government in Nigeria, many communities and cultures had developed their own system of informal, formal and vocational education systems. Technical education was done through the system of apprenticeship, whereby young boys and men were attached to master craftsmen where they learnt various trades and skills such as carpentry, masonry, blacksmith, foundry, carving, textile design and dyeing and so on. Such apprentice could spend from three to seven years depending on the trades they were specializing in, the master's skills, competence and exposure and the wards individual ability and performance. At the end of such training, the "graduate" apprentice was assisted by the family to acquire necessary tools, and local equipment to start his own trade. He would recruit other apprentices to work within his new set-up (Odugbesan, 1995).

Independence in Nigeria attracted efforts aimed at achieving rapid national development, innovations, reforms in educational objectives because education in the country was marked with the dominant of literary education than technical education. The educational system remained largely literary in nature with technical education aspects of the entire components not made popular. Guga (1999) stated that despite the various attempts at the regional levels to initiate some new ideas and reforms by the Nigerian political leaders, the structure and aims remained largely literary and static.

After the national independence of Nigeria in 1960, the initial efforts aimed at achieving rapid national development were concentrated on the expansion of formal educational institutions at all levels. A large number of the first and second generation universities and polytechnics were established by decrees in quick succession to fulfill this national objective. Most of the programmes were however concentrated in arts and the humanities.

There was a radical reform in education aims, which was orchestrated in 1969 as a result of the national curriculum conference, earlier scheduled for 1966 was held. The report of the conference later grew into what is known as the National Policy on Education 1977, revised 1981, 1998 as the third edition and now 2004 as the fourth edition. The national policy on education and its various amendments addressed the problems of Nigeria from the technical education and the different needs of Nigerians at different levels. The National Policy on science and Technology

(1986) emphasized the introduction of gainful practical activities in the classroom at all levels. The policy encouraged the use of practical work in making handicraft, gardening, and farming among others as strategies for implementation of technical education curriculum in Nigeria.

## 2. Technical Education in Nigeria

Technical Education is education designed at upper secondary and lower tertiary level to prepare middle level personnel (technicians), middle management and at university level to prepare engineers and technologists for higher management in Nigeria. Technical education includes general education, theoretical, scientific and technical studies and related skill training. The components of technical education may vary considerably depending on the type of personnel to be prepared and the education level.

### 2.1 Objectives of Technical Education in Nigeria

The aims of technical education as stipulated in the National Policy on Education (2004) stated that technical education should be:

- (i) To provide trained manpower in applied science, technology and commerce particularly at sub-professional grades.
- (ii) To provide the technical knowledge and vocational skills necessary for agricultural, industrial, commercial and economic development;
- (iii) to provide people who can apply scientific knowledge to the improvement and solution of environmental problems for the use and convenience of man;
- (iv) to give an introduction to professional studies in engineering and other technologies;
- (v) to give training and impart the necessary skills leading to the production of craftsmen, technicians and other skilled personnel who will be enterprising and self-reliant and;
- (vi) To enable our young men and women to have an intelligent understanding of the increasing complexity of technology.

### 2.2 Objective of Vocational Education in Nigeria

The objectives of vocational education include:

- To provide appropriate skill and competencies.
- To provide career information that will assist individual relate their interests, needs and abilities to occupational opportunities.
- To produce vocational educators who will impact the needed skills and competencies to others.
- To educate individuals for and about vocational education.
- To inculcate the right vocational attitudes and values for the survival of individual in the society.

### 2.3 Objectives of Technical Education in Scotland

The Scottish Technical Education as stipulated by the (Scottish Executive, 2003) gave the breakdown of the aims according to the course aims (Source: (SQA, 2003)).

Craft and Design: The aims of the course at higher level are to:

- Foster understanding of the process of designing in a commercial context and the factors which influence designs.
- Enhance knowledge of industrial manufacturing processes and materials.
- Increase awareness of economic considerations and the social implications of design and manufacture.
- Develop skills in designing related to the industrial context.
- Contribute to personal development in particular to technological capability.

### 2.4 Aims of Graphic Communication at Higher Level in Scotland

- Develop aspect of technological capability.
- Develop technological creativity in relation to selecting information and evaluating its appropriateness for graphic communication.

- Develop an ability to read and interpret a range of drawings and information presented graphically.
- Develop a technological perspective on the role of graphic communication in an industrial context.
- Develop an ability to communicate graphically information using both manual and computer graphic skills and techniques.
- Develop technological confidence in planning and implementing a graphic presentation on a theme, using appropriate samples from a range of manual and computer graphic skills and techniques.

*2.5 Aims of Practical Craft Skills as a Technical Subject in Scotland at Intermediate 2 Level is to:*

- Foster practical skills in the creation of artifacts.
- Develop knowledge, understanding and skills of general aspects of practical engineering/woodworking activity.
- Encourage independence and the ability to make choices.
- Highlight the importance of safety and encourages responsible attitudes in the workshop environment.
- Contribute to personal development, in particular to practical capability.

*2.6 Aims of Product Design as Technical Education Subject in Scotland at Higher Level are to develop:*

- The ability to produce solutions to design tasks by applying knowledge, understanding and problem solving skills.
- Knowledge and understanding of the process and principles of designing.
- The ability to analyze and clarify problems in a design context.
- An understanding of the issues which influence the design of products.
- the application of effective graphic and modeling techniques
- Knowledge and understanding of industrial manufacturing processes and materials.
- The ability to effectively communicate and justify solutions to design tasks.
- An understanding of economic considerations and the social and environmental implications of design and manufacture.

*2.7 Aims of Technological Studies as a Technical Education Subject in Scottish Education*

- Develop an appreciation of selected key issues in technology such as the environment, the contexts in which these key issues may be viewed and the constraints within which solutions or designs must be achieved.
- Instill knowledge of physical principles and of technology and commercial methodologies, and to apply them to solving problems or meeting specifications.
- Encourage development of each candidate's communication and presentation skills.
- Inculcate a receptive attitude towards technological progress and its demands.
- Foster the ability to seek out, research, analyze and apply such information as is necessary for the aims above.
- Foster technologically sensitive attitudes.

The Scottish Executive's identification of core skills in Table 1 illustrated the central to its National Qualifications strategy is one that should be welcomed by Technical education in Nigeria, since most; if not all of the core skills identified are widely promoted within the Technical suite of subjects.

Table 1. Scottish Executive Education Department National Qualification-Core Skills

|                        |   |
|------------------------|---|
| Communication          | <ul style="list-style-type: none"> <li>• Oral communication</li> <li>• Written communication</li> </ul>   |
| Numeracy               | <ul style="list-style-type: none"> <li>• Using graphical information</li> <li>• Using number</li> </ul>   |
| Problem solving        | <ul style="list-style-type: none"> <li>• Critical thinking</li> <li>• Planning and organizing</li> <li>• Reviewing and evaluating.</li> </ul>   |
| Information Technology | <ul style="list-style-type: none"> <li>• Using information technology from access the basic facilities of a computer system to perform simple processing of familiar data and to select information from a local database to.</li> <li>• Making effective, responsible and secure use of a computer system, using software in a context requiring some analysis and design and retrieving information from a range of sources.</li> </ul> |
| Working with Others    | <ul style="list-style-type: none"> <li>• Working with others.</li> <li>• Taking allocated responsibility for tasks, seeking or producing information from/to others as required, and reviewing their own contribution; to</li> <li>• Analyzing tasks and negotiating goals, roles and responsibilities, anticipating and responding to the needs of others and evaluating the effectiveness of their own contribution.</li> </ul>         |

The demand for high quality generic skills as outlined in the core skills is mirrored in the employability template developed by the confederation of British Industry (CBI, Scotland, 2003)

Table 2. Confederation of British Industry, CBI Scotland Employment Template

1. Attitudes compatible with enterprise and work opportunities.
2. Values such as honesty, personal integrity and a regard for others.
3. The basic skills of literacy and basic numeracy.
4. The defined core skills of communication, numeracy, IT, working with others and problem solving aligned to the needs of employers.
5. Customer service skills.
6. Relevant job specific skills and knowledge.
7. The ability to manage one's own career.

A strong and credible case should be made for Technical subjects as providers of the generic skills set promoted by the Scottish Executive and CBI, Scotland. In particular, it could be argued that craft and design (now being replaced by product design) and technological studies provide a rich intellectual experience for pupils, requiring problem solving, communication, team work, negotiation and pragmatism through a number of levels of interaction between pupils and teachers. The rich cognitive learning experience provided through active learning and reflection, as evidenced through the research of De Miranda (2004), goes some way in demonstrating the inherent value of these subjects. When placed alongside the more skills based graphic communication and practical craft skills, technical departments can be seen to offer a range of subjects that encompass both academic rigour and practical skills development.

The trend towards of generic approach to the development of skills and knowledge has been mirrored in the development of the Technical curriculum offered in other countries (Jones, 2003), although many teachers would argue that curriculum development has not always been matched with appropriate support through staff development or rigorous consultation with stakeholders.

### 3. Technical Subjects and Career Path in Scotland

The development of the Technical education curriculum in Scotland (Bryce & Huames, 2000) from the 1970s to today has seen a shift from a primarily skills based model to the enquiry based model of today. This shift was largely driven in the late 1970s and 1980s through a number of initiatives, most prominent the Technical and Vocational Education Initiative (TVEI). The role of TVEI was to promote “TVEI Skills” (Devine et al., 1994 cited in Canavan and Doherty(2005), communicating, working individually and in teams, problem solving, taking responsibility, enterprise and using modern technology. An evaluation of TVEI (Doherty & Leven, 1998 cited in Canavan and Doherty (2005) highlighted the “change in Climate” and “Cultural Shift” achieved through the more focused and relevant “work-oriented” educational provision engendered in the initiative. Subsequent policy on the teaching of “Technology” promoted by the Scottish Council for consultation on the curriculum (SCCC, 1996) advocated the permeation of technology through the wider school curriculum.

These policy decisions have had implications for a number of stakeholders, each of whom have a part to play in defining the role of technical education. These include; policy makers, curriculum developers, teachers; parents; pupils; and further and higher education.

Whilst policy makers have endeavoured to promote a curriculum which encourages enterprise and employability, policy decisions may be influenced by short or median term needs within the market place as well as economics. In recent years, the lack of skilled tradesmen at craft and technician level has been highlighted as being a problem of sufficient magnitude to require a greater emphasis on vocational subjects within the curriculum. To this end, subjects such as practical craft skills have been promoted by some as offering pupils with an aspiration to go on to a craft or technician apprenticeship with an opportunity to develop specific vocational skills within their secondary school experience. This relationship between technical subjects and in particular practical craft skills and career path was explored through examination of a number of major UK companies and training boards, requirements for school leavers wishing to embark on an engineering or construction apprenticeship. The result provided a disparate picture of the role of technical subjects as preparation for crafts and technician apprenticeships.

### 4. Factors Affecting Effective Implementation of Technical Education Curriculum in Nigerian Reflecting on Scotland Technical Education

- In practical terms core curriculum is not designed to fit the needs of the individual learners.
- Large numbers of population in Nigeria are illiterate.
- Lack of sustainable and cumulative intellectual tradition.
- Enlightened political leaders.
- Unstable political system
- Serious financial problems in Nigeria.
- Heterogeneous society with different languages in Nigeria.

#### 4.1 Practical Terms Core Curriculum is not designed to fit the Needs of the Individual Learners

Policy makers in Scotland expose a core curriculum that is supported by Vocational Training (Scottish Executives), which is designed to fit the needs of the individual learners these are well stated in the National Policy on Education but there are serious implementation problems in Nigeria. In real practical terms core curriculum is not designed to fit the needs of the individual learners in Nigeria.

#### 4.2 Large Number of the Population is Illiterate

A large proportion of the population of Nigeria is illiterate. Adults, children, men and women from particularly lower social class and or the rural people cannot read or write. In 1976, the then military government promulgated a decree for universal free primary education to become compulsory in 1979. But due to lack of adequate planning as to the means or mechanism of achieving this noble goal, the programme flopped (Okoli, 1999). Unlike Scotland where the premise that technical education has developed as response to society’s need for a technological literate population.

#### 4.3 Lack of Sustainable and Cumulative Intellectual Tradition

In Nigeria there is lack of intellectual tradition in our society. There is absence of intellectuals or experts in leadership positions who possess the capacity to think critically and evaluate prospectively before drawing valid decisions. Lack of professionals in the field of technical education that can raise hypotheses, collect and collate relevant data upon which concrete generalizations and decisions are recommended to the government.

#### *4.4 Enlightened Political Leaders*

In Nigeria today the political leaders are not elected into the local government, state, senate and federal government position. The intellectuals, the scientists and the enlightened members of the society are not allowed a place in the political leadership of the country. Instead, the illiterates, the incompetent, the inexperienced and unexposed, the crooks who have amassed ill-gotten wealth are accorded higher status and invariably find themselves in leadership position (Okoli, 1999). The Scottish political system is run or operated by persons with great fore-sight, enlightened members of the society duly elected, the intellectual and person with intellectual interests and sense of mission. The opinion of Okoli was further reiterated when she said that people who have the interest and progress of the nation at heart; persons who care for the well being of the masses and not selfish individuals. It is only the presence of such enlightened political leaders in government that the nation can achieve the target of sustainable skill development.

#### *4.5 Unstable Political System*

Nigeria has experienced a great deal of political problems involving change of leadership. The cumulating effect of changes in government resulted in unstable political system. Leadership of the country has shifted from one military government to another and from one civilian government to a military government and vice-versa. The democratic process in Nigeria has been seriously eroded. These events are indicators of under-development. The unstable political system has seriously eroded the education sector and the products of the education in Nigeria. Infact, many scholars including those in government are advocating for better governance through a credible election in Nigeria to solve the problem of education in Nigeria.

#### *4.6 Serious Financial Problems in Nigeria*

Technical Education is a comprehensive term referring to the educational process when it involves, in addition to general education, the study of technologies and related science and the acquisition of practical skills and knowledge relating to occupations in various sectors. Technical education is more costly than most other educational programmes offered by our schools and the government. Kayoma (2009) stated that technical education undoubtedly is quite expensive hence the need for private stakeholders and non-government organization (NGOs) in conjunction with the state and federal government should fund the programme adequately, so that functional laboratories, equipment, implements and tools are adequately provided in the schools for practical training. The implementation of technical education programme is very expensive because it is both labour and capital intensive, and besides, the need for teacher education teacher is on the increase as a result of increase in student's admission in the technical education programme. The expensive nature of the programme calls for adequate provision of funds for implementation of the programme but unfortunately the cumulative effects of inadequate funding of technical education had resulted in different problems for tertiary institutions.

#### *4.7 A Heterogeneous Society with Different Languages*

Nigeria is a heterogeneous society with different languages, tribes and diversified culture. A country with Christian and Muslims ideology. A country segmented vertically and horizontally by tribalistic learning, ethnicity, with members of each group trying to protect the interest of members of their group (Okoli, 1999). She further explained that this type of ethnicity and tribalism, with which national issues were addressed, does not give room for self-sustaining development in a nation. She regretted by pointing out that certain talents that would have contributed immensely to national development are dropped just because they are from a particular ethnic group or geographical location.

### **5. Reforms of Technical Education for Sustainable Skill Development in Nigeria**

Reforms in technical education often come about when the current practices are changed and questions are asked about the ways things are done. The search for a more efficient way of achieving educational objectives may lead to proposals for either a new way of doing the same thing, or restricting the current provisions to enable an improved achievement of the same set goals. Reforms, however, do not normally come about first because some people decide they want a change (Ovute, 2008). He further explained that there must be an event which informs those in charge of technical education that the present system is either not achieving or is incapable of enabling the achievement of developmental goals. Once that decision is made, what remains is the attempt to carefully identify not only why the old system can no longer be continued in its present form, but also how to provide a more acceptable alternative. In other words, given its desired impact on the development of any nation, reform is more often than not, undertaken after very intensive and extensive research, policy analysis and postulations. Reforms package therefore, cannot afford to be erratic, haphazard, inaccurate, inappropriate and irrelevant.

Reform in this context of the present study is that the best aspects of the Scottish technical education that can help to remove poor funding, inadequate equipment and facilities, unstable political system, unlightened leader, core curriculum focus on individual learners and so on should be adopted in technical education curriculum in Nigeria.

## 6. Recommendations

In order to reform technical education for sustainable skill development in Nigeria, the following recommendations should be adopted to improve technical education in Nigeria:

- (1) Technical education in Scotland and Nigeria should be properly implemented to facilitate acquisition of knowledge and skills for sustainable development in Scotland and Nigeria.
- (2) Intellectual, credible individuals in government with technical education background should assist the federal government in formulating policies that can improve the implementation of technical education in Nigeria.
- (3) Government as a matter of urgency should approve and implement adequate funding of technical education. Nigeria should adopt the UNESCO standard of funding technical education for sustainable skill development. There should be provision of fund for the procurement of the needed equipment and facilities for Technical education in Scotland and Nigeria.
- (4) The larger population of Nigerian's should be trained and educated in the area of Technical education to enable them acquire skills and knowledge for sustainable development.
- (5) In Nigeria the skills offered by Technical subjects should be designed and mapped effectively to the Scottish executive and industry's identified needs in terms of key skills and virtues of Technical subjects.

## 7. Conclusion

The rationale for any education system should be the provision of opportunity to learn and to prosper through a career. In this regard, it could be said that technical education in Nigeria is failing to meet the objectives of National Policy on Education. In this paper, the researcher highlighted some of the challenges inhibiting technical education programme as follows: Core curriculum not designed to fit the needs of the individual learners, large number of the population in Nigeria are illiterate; lack of sustainable and cumulative intellectual tradition; unlightened political leaders; unstable political system; financial problems and heterogeneous society with different language. The paper looked at the reforms of technical education curriculum implementation. It was based on these points that the researcher made recommendations that credible individuals in government with technical education background should assist the federal government in formulating policies that can improve the implementation of technical education among others.

## References

- Bryce, T.G.K. & Humes, W.M. (Eds.) (2000). *Scottish Education*, Edinburgh University Press, Edinburgh, pp. 562 – 567.
- Canavan, B. & Doherty, R. (2005). *Technical Education in Scotland – Fit for Purpose?* PATT-15 April 18-22, 2005 Technology Education and research: Twenty Years in Retrospect: University of Glasgow, Scotland.
- Canavan, B. & Doherty, B. (2005). *Technical Education in Scotland – Fit for Purpose*. Technology Education and Perspective. PATT-15-APRIL. 8-22.
- CBI Scotland. (2003). *Scotland Manifesto, Scotland's Economy: An Agenda for Growth*.
- De Miranda, M, A. (2004). The Grounding of a Discipline: Cognition and Instruction in Technology Education, *International Journal of Technology and Design Education*, 14, pp. 61-77. <http://dx.doi.org/10.1023/B:ITDE.0000007363.44114.3b>
- Doolittle, P.E. & Camp, W.G. (1999). Constructivism: The Career and Technical Education Perspective. *Journal of Vocational and Technical Education* 16(1).
- Federal Republic of Nigeria. (1986). *National Policy on Science and Technology*. Federal Ministry of Science and Technology. Abuja: Mamser.
- Federal Republic of Nigeria. (2004). *National Policy on Education*, 4<sup>th</sup> edition. Lagos: Federal Government Press.
- Guga, A. (1999). Basic changes in the aims of education in Nigeria since 1842: *A Historical Survey Nigerian Journal of Curriculum and Instruction* 8(1), 68-75.



- HMIE. (1999). *Effective Learning and Teaching in Scottish Secondary Schools: Technical Education*.
- Jones, A. (2003). The Development of a National Curriculum in Technology for New Zealand. *International Journal of Technology and Design Education* (13) 83-99. <http://dx.doi.org/10.1023/A:1022355410425>
- Kayoma, F.O. (2009). Recreating Vocational Education for Self-reliance and Productivity. *Journal of Qualitative Education in Nigeria (ASSEQEN)* 5(1). 65-74.
- Odugbesan, F.A. (1995). Perspective of an Educational Institution Co-operative between Educational Institutions and Enterprises in Technical and Vocational Education. Berlin: UNESCO Publication.
- Okoli, J.N. (1999). The place of science and technology education in achieving sustainable democracy and political stability. *Nigerian Journal of Curriculum and Instruction*. 8(1), 76-81.
- Osuala, E.C. (2004). Foundations of Vocational Education. Enugu: Cheston Agency Ltd.
- Ovute, A.O. (2008). Issues in the consolidation of tertiary institutions as an aspects of reform in education sector in Nigeria in Nworgu, B.G (Ed) Educational Reforms and Attainment of the MDGs: The Nigerian Experience.
- SCCC. (1996). Technology Education in Scottish Schools – A Statement of Position from Scottish CCC, Scottish Consultative Council on the Curriculum.
- SCCC. (1996). Technology Education in Scottish Schools – A Statement of Position from Scottish CCC, Scottish Consultative Council on the Curriculum.
- Scottish Executive. (2003). Educating for Excellence Choice and Opportunity, The Executive's Response to the National Debate. Edinburg. The Stationary Office.
- Scottish Qualifications Authority (SQA). (2003). Annual Statistical Report – 2002, SQA, Glasgow, Scotland.
- Scottish Qualifications Authority. (SQA, 2003). Annual Statistical Report – 2002, SQA, Glasgow, Scotland
- Uwaifo, V.O. (2008). Industrialization the Nigerian society through creative skills acquisition in vocational and technical education programme in Nworgu B.G. (Ed.) *Education in the information age: Global Challenges and Enhancement Strategies*. Proceedings of First International Conference of the Faculty of Education. University of Nigeria Nsukka.