

Vocational Education in the 21st Century for Skills Development and Self-Reliance Among Youths:

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Abstract—This paper discussed education of the 21st century in the area of Vocational Education. It was informed as a result of the hue and cry of the general public over the lingering unemployment issues of young graduates in the society. Literatures were reviewed and a questionnaire tagged 'handling unemployment issues among the youths' (HUIAY) was administered to a population of 64 graduates drawn from the researcher's local community and it was founded that high level of youth unemployment can lead to increased poverty, social unrest, great burden on public resources, can stifle the economy, as well as reduce the interest for education, among others. Recommendations were also made which included: restructuring the curriculum to include more of skills acquisition, training and equipping of teachers to be able to teach the skills, government provision of finance and take-off supports to graduates etc.

I. INTRODUCTION

Education in its general sense is a form of learning in which the knowledge, skills and habits of a group of people are transferred from one generation to the next through teaching, training or research. Whitehead as cited by Iwuchukwu C.B. (1993) defines education as the art of acquisition and the utilization of knowledge. He further defines education as a process of acculturation, which helps an individual to attain the development of his potentials and maximum activation when necessary and according to right reasoning towards achieving his perfect self - fulfillment. Ogamba (2018) defines education as a form of learning in which the knowledge, skills and habits of a group of people are transferred from one generation to the next through teaching, training or research. Mbakwem (2019) posits that education is an act of acquisition of knowledge through many devices, methods and processes in order to form a better personality in a man. The importance of education in socio-economic development of a country cannot be over-stressed. The activity in education process leads to the development of the individual in the society. Education gives the individuals the opportunity to fulfill their potentials and contribute meaningfully to societal development. Achunine (2010) from a broader concept stated that

education is of two types, formal and informal and that in any of the two, education means to pass on members of a community, culture, experiences and knowledge developed and preserved over time for the enlightenment and strengthening of the citizenry. Fafunwa (2003) in a similar definition, presents education as efforts, conscious and direct, incidental and indirect, made by a given society to accomplish certain objectives that are considered desirable in terms of the individual's own needs as well as the needs of the society where that education is based. Okafor (1984:16) opines that education enables an individual to acquire appropriate competencies in terms of skills, new ideas and guided-orientation and so on, to be rationally responsive to life changes, situations and choices. Education therefore, serves as an instrument that prepares people for useful living in the society. Education goes beyond schooling, rather schooling at all levels help to achieve the aims and objectives of education. Education is systematic instruction for the development of character or mental power. Education gives the individuals the opportunity to fulfill their potential and contribute meaningfully to societal development.

From the above scholarly opinions and discussions, education means different things to different people. However, from a generic perspective, it means the transmission of knowledge or skill from a source to a receiver and enables the moulding of individuals in a society in order to develop their potentials. Isiozo et al in Uwazurike C.N (2019). Education is therefore a change in behavior acquired through conscious or unconscious instruction, observation, socialization, achievement, acculturation or acclimatization. Education is believed to occur in two forms. Agabi (1997) agrees that education is a process involving teaching and learning which may occur in a formal setting as in artisan training centers, or in an informal setting as in families and peer groups. Iwuchukwu C.B (2003) affirms that education is of two types, formal and informal and confirms the agreement of many scholars that non-formal and informal education are synonymous and means unstructured

method of acquiring knowledge and skills. The two forms are: - Formal and Non-formal methods of education.

Education of the 60s: Education of the 60s was mainly characterized with classroom teaching and little or non-skill acquisition but the opponents of schooling, prominent among them were Ivan Illich and Paulo Freire in Lawrence E. E. (2008) in their respective publications: 'deschooling the society' and "pedagogy of the oppressed" have sought to portray the deficiencies inherent in formal education. Their alternative propositions have continued to draw strong support for non-formal education. What can be said here is that as early as the dawn of the 20th century in Europe and America, the aristocrats were advocating for liberal education for the upper-middle class children in the society, children from the lower or working class were to be content with the form of education that would be useful to all: a vocational related one. It is right here to say that the democrats who wanted equal educational opportunities for the lower class in the society were indirectly pushing for liberal education, which they in the first place regarded as ornamental, for that class. Though viewed from a more rational perspective, the democrats were really advocating for the type of education that had utility to all. This was the case with Nigeria which dwelt and laid more emphasis on liberal education till the dawn of the 19th century.

Formal Education: Formal education can be understood simply as the type of education that goes on in the school. Schools are often referred to as the micro – society because the entire curriculum which includes all the learning tasks which the learner is exposed to is drawn to reflect the goals and aspirations of the wider macro society. Unlike the nature of non-formal education, where the functions of the two parties (teacher and learner), involved in education are not clearly distinct, the roles of teachers and learners are specifically distinguishable from one another in formal education. With regard to this description, Page and Thomson in Iwuchukwu (1993) defines formal education as education in which the roles of teachers and pupils can be defined and in which one party accepts responsibility for educating the other.

In other words, formal method of education takes place in a school that has organized management and guided by clearly specified guidelines and

curriculum. It runs an open system of administration with laws and policies that define and enforce compliance to guidelines. Iwuchukwu(2003) in confirmation states that formal education is an art, properly organized and systematically executed for the purpose of helping the individual to develop, and achieve self-realization as a true social, moral economic and political human being. It is associated with compulsory curricular activities and an adherence to time schedules. This system involves learners who gain admission through formal process with stipulated entry requirements acquiring attitudes, skills and knowledge from formally trained and certified teachers in different fields of education. This formal method of education usually takes place in a classroom with authorities supervising the activities of the teacher and the learner to ensure actualization of aims and objectives, Isiozor et al in Uwazurike(2010) and there is always periodic assessment to evaluate the performance of the learner and certification to confirm attainment of desired goal.

Non – Formal Education: Non-formal education is the education given in an unofficial setting, improper structure or non-strict system and the curriculum not clearly defined. Another major feature of non-formal education is when neither the teacher nor the learner can clearly be distinguished from one another. Another form of non-formal education is the acquisition of education through reading, observation, real life experience and forms of incidental knowledge skills transfer with the learning objectives and expected outcomes not defined. Iwuchukwu (1993) states that any form of education that the system is not formally structured is non-formal education. He further stated that before the introduction of western education, non-formal education was the method of imparting cultural heritage in Africa which led to growth, continuity, social control and rational direction of the society. Agabi (2012) states that non-formal form of education includes on-the-job training, apprenticeship in artisan workshops, education as provided in skill acquisition centers and others. In this form of education, the administrator may not have any stated content of the programme he is administering only a high knowledge/mastery of the desired skill and ability to transmit to the learner are the major qualifications, Uwazurike C.N (2019). In this form of education teaching and learning may or may not be conscious and deliberate. Here it is

noteworthy that the aim of informal education is to develop the capacities of the learner with skills, attitudes and other forms of behavior that would lead to positive values to the learner and the society in general.

The intrinsic value of non- formal education is that its aims and objectives are, however, interrelated with those of formal education. The objectives are achievable within the bounds of socialization and acculturation. Before the introduction of formal westernized educational system, non-formal education had been the method of transmitting the cultural heritage of a people, especially of Africans, so as to ensure growth, continuity, social control and national direction of the society. Hence Fafunwa as cited in Iwuchukwu (2003) declares that:

After- all education is the aggregate of all the processes by which a child or young adult develops the abilities, attitudes and other forms of behavior which are of positive value to the society in which he lives.

Kinds of Non-formal education:

1. On-the Job Training. Here participants are given specialized training which is directly related to their jobs. Activities here include field-trips, workshops, demonstration, projects and technical assistance and training.
2. Adult education or continuing education program. These are program of education designed for the adults. The intention is to remove the educational deficiencies which inhibit their progress in pursuit of high goals. Adults benefit from this type of non-formal education program which can be designed and provided without disrupting the production activities of the adults. The program is catalyzed with functional activities where learners participatorily execute their learning task while at the same time achieving rewarding objectives
3. Community Development education: This is a form that is geared towards identifying social problems, of a society and the solution of such problems, including the identification of means of progress and their development in a community. Some of the activities involved in this form of education include brain-storming search for all sorts of community problems, tracing of their history, tracing the regularity of the problems occurrence, the solutions

previously obtained, the costing of means of other solutions, design to achieve higher goals for the community and searching for various methods of solving present problems. Matters and means to socio-economic development of the community are also of great importance in this form of non-formal education, youth training and development, cultural and social-control systems and strategies are also functional targets of community education.

CONCEPT OF UNEMPLOYMENT:

Unemployment occurs when individuals who are actively searching for work are unable to find employment, meaning the labor market has more job seekers than available positions. When this is the situation, you see many youths and able bodied persons sit out every day without being gainfully employed.

Causes of unemployment

- Economic Recession: During economic recession, businesses cut production, leading to widespread layoffs. //PPRDS <https://internationalpolicybrief.org>
- Structural Unemployment: Occurs when there is a mismatch between the skills workers possess and skills employers needs, which is worsened by rapid technological advancements, automation, or jobs moving overseas: Investopia <https://www.investopia.com>
- Frictional Unemployment: Occurs when people voluntarily change jobs. After a person leaves a company where he is working, it naturally takes time to find another one. In the same way graduates just starting to look for jobs to enter the work force adds to this type of unemployment.
- Cyclical Unemployment: This is the variations in the number of unemployed workers over the course of economic upturns and downturns.

CONCEPT OF SELF RELIANCE:

Self-reliance means being less dependent on others by using available human and material resources. That is, being able to find what to do for self sustenance and being able to cater for oneself. It is the ability to depend on your own efforts, skills, and judgement to meet your needs and solve your personal problems. Key aspects include personal independence, trust in your own decisions, and taking

responsibility for your life. (Scribd <https://www.scribd.com>)

What is Vocational Education:

Vocational Education, is the form of education that prepares individuals for specific skilled craft, trade, or occupation. Unlike traditional academic degrees, it focuses on hands-on practical skills rather than broad theory. Towards the end of the 18th century, great men of learning had started to exhibit broader views and emphasis on the need for vocational education hence John Locke (1632-1704) in his curriculum for boys included writing and drawing which as Boyd and King (1975) suggested, should include shorthand, one or two manual skills which included gardening, woodwork and book keeping. Joachim Heinrich Campe in Ekpeyong (2008) was advocating for an education which would lay greater emphasis on the “knowledge about things” that is practical activities such as games and handicraft. Liberal education as the search after ‘Truth’, ‘Wisdom’ and ‘Leisure’ was regarded as the right type of education for ‘rulers’ and ‘gentlemen’, the aristocratic class. Its overall usefulness to life and living was beginning to be seriously questioned by the democrats, who did not only try to show the relationship between liberal and vocational/technical education but also sought to demonstrate that both have common aims, when it comes to determining their usefulness to living.

Vocational education in the 21st century: This is the education which transforms traditional trades into dynamic technology-driven pathways. It equips youths with hands-on, highly demanded competencies, replacing degree-centric reliance with entrepreneurship. It serves as a vital tool for sustainable livelihoods and poverty reduction across developing nations

Education we need in the 21st century: Education we need must be the education that its curriculum is shaped to address the issues and matters of the society on ground. This calls for a careful adjustment of the curriculum which is the only way to address the issues. The education we need today is one that should foster human capacity building, equip the students with every possible skills needed to thrive, given the increased unemployment. Individuals should not go through schools and yet be unproductive, it is counter intuitive and mocks the essence of education. While this might be the case of few in our society today, there is an urgent need for

prioritization of a wholesome education in human capacity building which greatly contributes to the wealth of a nation. Graduates of schools of different levels, ranging from primary to secondary and to tertiary should be able to be self-reliant and make a living independently. Hence, 21st century learning can be defined as student – centred learning. One thing that defines 21st century learning is the emphasis on the students roles as active discoverers who take ownership of their experiences. Many advocates of active learning consider it more adequate to prepared students to deal with situations that require something other than memorized response. John Dewey said, “Give the pupils something to do, not something to learn, and the doing is of such a nature as to demand thinking, learning naturally results. The 21st century learner according to Stauffer (2022) often refer to the need to shift away from 3Rs - reading, writing and Arithmetic - to developing skills in the 4C.

- Creativity
- Creative thinking
- Collaboration
- Communication

While the 3Rs emphasize repetition, memorization, and recall, the 4C focus on strengthening a students ability to evaluate information and to combine that information with imagination and ingenuity to create something new and innovative.

Curriculum we need in the 21st century: Before we dive into finding out the curriculum we need in the 21st century that will help to close the gap in our education sector, we will try to find out what curriculum is:

The word curriculum is derived from Latin verb ‘curere’ meaning to run or ‘currus’ which means ‘race course. That is to say that curriculum is an academic and social learning race. Curriculum is a cultural reproduction in a structural way. It is also ‘value independent thinking in the context of the widest sense of social responsibility (Smith, Stanley & Shore, cited in Olurundare(2018). Curriculum is dynamic, ever changing series of official and Bilboa (2016) defined curriculum as the total experiences with which the school deals in educating young people. Scholars view curriculum in various ways such as objectives of learning outcome, as a race experience, as a plan of the content, as a systematic group of courses or subjects required for graduation,

as a ground pupils and teachers must cover in order to achieve the objectives or goals, as a way of developing abilities, as things to be done as an attempt to communicate the essential principles and features of an educational proposal, and as a reconstruction of knowledge and experiences. Hass (2014) and Mkpa (2010) see curriculum as all of the experiences that individual learners have in a programme of education whose purpose is to achieve broad goals and related specific objectives which is planned in terms of framework of theory and research or past and present professional, Mbakwem (2009) opined that 'curriculum is that organized knowledge which the school presents to the learner in order to achieve predetermined goals of education. Jadhav and Patankar (2013) defined curriculum as the planned interaction of pupils with instructional content, materials, resources and processes for evaluating the attainment of educational objectives. Taba (2015) sees curriculum as consisting of all the experiences offered to learners under the auspices of the school whether planned, or not. This implies that curriculum statement aims and specific objectives, some selection and organization of content manifest certain patterns of learning and teaching and program of evaluation of the outcomes. Curriculum is as all planned activities/experiences which a school wants its students to have, so that the students at the end of schooling would have realized the optimum development to function in their social environment (Awotua- Elebo cited in Mbakwem (2012). This definition focuses on the subject matter to be taught, the learning experiences to be provided, the learning environment, the staff, teachers, and students as they combine their efforts towards the achievement of the educational goals.

Vocational Education as Education For Living: From the forth going assessment, it is difficult to discuss education in the context of living without reference to vocation-Technical education. The assertions here are that when we make a critical assessment of the aims of education within the general framework of living, it is difficult to separate vocational-technical education from the general aspect, and it is in the consideration of these that Beaumont(1971) has in his philosophy of vocational education stated instead of treating the two aspects of education as separate forms of enterprise, vocational and technical education should be seen as a means of making academic education concrete and understandable. Therefore this calls for ability to combine the concrete with the abstract in real life situation, the

liberal education with the vocational to strike a balance.

What the Curriculum of 21st Century should look like:

Vocational and Technical Education (VTE) in the 21st century focuses on equipping individuals with practical, employable skills, advanced digital literacy and critical problem-solving abilities to thrive in a rapidly changing, technology-driven global economy. It goes beyond traditional manual trades to blend technical expertise with the essential soft skills required for modern industries.

A 21st Century vocational and technical education (VTE) framework blends hands-on trade skills with the 4C's of the 21st Century learning – critical thinking, creativity, communication and collaboration. The curriculum is project driven, the scheme of work integrates digital literacy and the timetable is flexible to all for extended real-world industry internships.

The 21st Century VTE Curriculum:

Modern Vocational training relies on Problem-Solving Learning (PBL), rather than memorizing rote facts, students learn by solving authentic, real-world problems, which embraces the following:

- Digital and Technical Literacy:

Integration of CAD/CAM, CNC, 3D printing, IoT (Internet of Things) and AI troubleshooting relevant to the trade.

- Entrepreneurship and Business Acumen:

Skills in Project Management, cost estimation, financial literacy, and marketing to prepare students for self-employment.

- Green Technology:

Sustainable and eco-friendly practices intrinsic to modern industries (eg. Renewable energy systems, waste reduction)

- Soft Skills:

Interpersonal Communication, Conflict Resolution and teamwork. (Journal of Engineering Researcher and Lecturer: - <https://jerel.risociety.org>)

Scheme of Work

The scheme shifts away from isolated shop classes into multidisciplinary modules that mirror modern workplace environments. (Nnamdi Azikiwe University - <https://journals.Unizik.edu.ng>)

Phase I: Foundational Theory and Safety (Week 1-4)

Basic Principles; Hazard Identification; and Safety Protocols taught alongside digital literacy.

Phase II: Simulation and Micro - credentials (Week 5-12)

Use of Virtual Reality (VR) simulations and targeted, step-by-step modular assessments.

Phase III: Interdisciplinary Capstone Project (Week 13-16)

Students from multiple trades eg. Plumbing, electrical, carpentry, collaborate to design and complete a functioning structure or product, evaluating for both function and cost.

Phase IV: Industry Externship (Week 17+)

Mandatory on-the-job training, dual-system apprenticeships, or remote freelancing.

The 21st Century Vocational Lecture Time table:

Traditional 50 minutes lecture-heavy schedule are ineffective for practical trades. A modern VTE timetable features block scheduling or “hybrid flex” modules to accommodate deep, uninterrupted hands-on work.

An example of a week extended block-schedule might look thus:

Time	Monday	Tuesday	Wednesday	Thursday	Friday
08:00 – 10:00	Theory & Design Concepts				Seminar: Business/Soft Skills
10:00 – 10:30	Break				
10:30 – 13:00	Practical Shop/Lab Block				Capstone/Collaboration Project
13:00 – 14:00	Lunch				
14:00 – 16:00	Practical Shop/Lab Block 2				Industry Mentorship/Fieldwork

Key Scheduling Advantages:

- Extended Blocks: 2.5 hour to 3 hour practical blocks give students enough time to set up equipments, execute complex tasks, test their work, and clear out the workspace without feeling rushed.
- Friday Mentorship: Designating Friday afternoon for industry speakers, site visits, or mentorship ensures training does not disconnect from real-world industry standards.
- Self-Directed Learning: This incorporates time for students to do independent e-learning or use simulators to perfect a specific skill outside of regular instruction hours. (UNESCO Digital Library- (<https://unesdoc.unesco.org>))

How to actualize an all round education in the 21st century:

Upgrade the curriculum of the 21st century to include all the subjects/courses that emphasizes on hand work with long period of industrial Training (IT), longer period should be allocated to practical aspect than the theory to acquaint the learner with adequate knowledge of practicals so that he can acquire hand work with enough experience and so that he can start off work immediately after graduation from school. Such hand work will include- block moulding, brick laying, barbing, baking, welding ,weaving, designing/sewing , electrical and every aspects of building , agriculture trading etc.

Here the benefits of education are enumerated:

- Develop abilities, attitudes, and other forms of behavior. All educational systems whether traditional or western – oriented, seek to achieve these goals, irrespective of curriculum, methods and organizations designed for the purpose.

Traditionally, the aim of Greek education was to train a mentally and physically well balanced man. Also the traditional Roman education emphasized oratory and military training. Training to be a knight, a priest or a lord was the aim of English education in the middle Ages and training to be a scholar was the educational aim of France. While practicing patriotism was the hallmark of education in German. In old Africa, traditional education emphasized the acquisition of skills as hunter, warrior, man of noble character and a combination of these skills to make a community an outstanding one. All of the above aims and objectives of traditional education share common characteristics. These characteristics include practical orientation, a certain period of tutelage or skill acquisition session, as well as the passing of prescribed examinations. Various measures within the stated period are often applied on the learners to prove their competence and learning ability. Within these circumstance, learners pick up new ideas and stabilize in other skills acquisition. In the same way in the present day education, participatory education for skill acquisition still stand out as the fundamental process of effective non-formal education.

II. CONCLUSION

From the analysis of the questionnaire administered to 64 students of a college of Education in South East Nigeria, they were all of the opinion that the education that is needed for the 21st century must be education that allows for adjustment of curriculum to be able to address the issues at hand for the decade, education that gives room for skills acquisition from beginning to end of school, the type that allows for self employment, education that holds all for the learners and not one sided education.

Questionnaire:

Answer : Strongly agree, Agree, Disagree, Strongly disagree (SA – 4, A - 3, D - 2 , SD -1)

The Education we need for the 21st century should include the following:

1. Education characterized with theory from the beginning of school to end of school (SA , A, D, SD)

2. Education that emphasizes on skill acquisition from the beginning of school to the end of school (SA ,A, D, SD)
3. Education that is characterized with both theory and skill acquisition from beginning of school to the end of school.
4. Education that can be adjusted to address the needs of the society per time.
5. Education that gives room for realization and expression of oneself
6. Education that gives room for furtherance of study
7. Education for white collar jobs only
8. Education for self employment
9. Education that allows for enough practicals and IT/skills acquisition
10. Education that has all.

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