

# Dual Education System as Intervention Strategy for Enhancing Employability of Technical and Vocational Education (TVE) Graduates in Nigeria

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## Abstract

Nigeria is a country blessed with rich human and material resources, the most populous country in Africa and ranked 7<sup>th</sup> most populous nation in the world. The country has a very high level of unemployment in spite of the fact that it boasts of a large number of educational institutions, running from the primary, through secondary and tertiary levels. The high rate of unemployment in the country can be attributed to a number of factors, but prominent among these is the fact that majority of the products of the education system do not possess the requisite skills to take up available positions in the labour market. This scenario is largely due to the fact that the education system operates in isolation from the industrial sector thus creating skills differentials. The paper was thus designed to review the dual education system as intervention strategy for enhancing the employability of school graduates. The paper discussed the concept and history of dual education and training, elements of a dual education system, potentials of dual education, and the stages in the implementation of dual education system. From the review, it was concluded that the dual education system has great potentials, and if adopted in the Nigerian education system, has the ability to reduce the skills gap in the system and enhance relevance of school learning to industrial skills needs. It was recommended among others that the ministry of education should constitute a high powered committee to under study the dual education system in countries such as Germany, Netherlands, Norway among others with a view to adopting the system.

**Key words:** dual education, skills, employability, strategy, technical and vocational education

## Introduction

Nigeria is a country blessed with rich human and material resources, the most populous nation in Africa ranking 7<sup>th</sup> most populated in the world. In 2017, Nigeria's population was estimated to be 199 million compared to about 193 million in 2016. It is considered as the giant of Africa both in terms of her teeming population currently estimated at over two hundred million and the rich natural endowments and arable land. With a population growth rate estimated at 3.2 per cent, it has one of the highest populations of young men and women of school age, and a large number of unemployed youths.

The country has a large number of educational institutions cutting across primary, secondary and tertiary levels. The number of educational institutions in the country has been on a constant increase with private individuals, religious organizations, state and federal governments competing in the establishment of educational institutions. The number of tertiary institutions accorded to the regulatory agencies, as contained in the National Bureau of Statistics [NBS] (2019), indicate that there are about eighty-two colleges of education, one hundred and nineteen polytechnics and over one hundred and seventy-four universities. These admit a large number of young men and women (with a corresponding number turned out to the labour market annually) who, in most cases, are unable to secure places in the labour market thus creating the problem of unemployment.

Unemployment has been a characteristic feature of the economy increasing from 22.70% in the second quarter of 2018 to 23.10% in the third quarter of the same year. Regarding the youths, the figure decreased from 38% in the second quarter of 2018 to 36.50% in the third quarter of 2018 - a figure that is still high considering the huge youth population (NBS, 2019). Although several factors may account for high rate of unemployment in an economy, one factor that stands out in the Nigerian case is lack of skills among graduates as most school graduates are considered unemployable. The situation of unemployment is not mostly as a result of non availability of vacancies, but in most cases, the non availability of skills required to take up available positions

in the labour market as employers often complain about the lack of technical skills of their young employees (Muhambetaliev & Kasymova, 2016)

The above is often attributed to the fact that the education and training programmes in most tertiary institutions and the curriculum in general are tailored along the system bequeathed the country by her erstwhile colonial masters, which does not provide opportunities for the students to experience hands – on learning in real life work environment. In the face of lack of relevant facilities and equipment in most tertiary institutions constrained by paucity of funds and the obsolete nature of available ones, it becomes near impossible for the institutions to equip students with skills they need to secure and sustain employment in the work place. Apart from the hard skills needed to manipulate equipment, machines and sustain the production process, graduates will also require soft skills, especially as the nature of work is becoming more and more knowledge based with advent of globalization and information and communication technology. Skills such as communication, teamwork, adaptability, problem solving, critical thinking, conflict resolution, leadership skills, among others, are key to building relationships, gaining visibility, and creating more opportunities for advancement. These are skills and qualities which can only be acquired under real life work situations through interaction with experienced people in the workplace and involvement with work processes in the industry.

The above scenario calls for the design of an education system that will allow for integration of classroom learning and some forms of hands - on learning experiences in real life work situations. One system that holds the prospect of providing opportunity for students to interact with real life work environment is the dual system of education. According to Muhambetaliev and Kasymova (2016), one of the global solutions for the education system to improve the quality and competitiveness of human resources is to maximize the practical implementation of a dual mechanism of learning in the national education system.

The major problem of the education system, not only in Nigeria, but in most third world countries, is the isolation of theoretical knowledge gained by the student in a college from the reality they face after graduation. According to Dietrich (2012) and Otero (2012), even the most diligent student is not ready to solve the tasks set before him by the employer. This, according to the authors, may not be unconnected to the fact that the theory obtained in school is just a set of terms and formulas, not backed by practice. Further, the discrepancy between theory and practice is a threat to the profitability and survival of business enterprises. According to Muhambetaliev and Kasymova (2016), young professionals, having a job, are forced within 2-3 years to learn the specifics and the basics of production, to acquire new knowledge and necessary skills, thus requiring additional training representing additional costs for the company. The employers in such instances will be left with no option than to seek for experienced hands, often through importation of expatriates rather than engage someone who will need additional time to obtain the necessary skills, thus worsening the domestic unemployment situation. Adopting the dual system holds a great potential as it is a system of training which combines workplace experience and practice with college-based education.

Such exposure is expected to bridge the gap between skills and knowledge acquired in schools and those required for employment in industries. The adoption of dual system of education, as practiced in most developed economies such as Germany, Switzerland, Austria, Netherlands, etc, appears to be a veritable tool for arresting the widening gap in the education system. According to Hoeckel and Schwartz (2010), the good economic performance and low levels of youth unemployment in countries with dual VET systems have provided good arguments to the advocates of dual apprenticeships in international debates. This paper, therefore, espoused the concept of dual education, the basic features of a dual education system, its potentials in enhancing the employability of graduates, and the imperatives for adopting dual education system.

## **Methodology**

This review was designed to explore dual education system as intervention strategy for enhancing employability of technical and vocational education (TVE) graduates in Nigeria. A literature search was conducted through databases such as Scopus, ISI Web of Knowledge, google scholar, directory of open access journal (DOAJ) and research gate. The search terms included keywords such as ‘dual education’, ‘elements of dual education’, ‘implementation of dual education’, and ‘Nigeria’. A total of 112 results were returned from the search, 76 papers were relevant to the study, while the author was unable to access 12 of the papers. The reviewer assessed the full texts of all the available articles through narrative synthesis. Eligibility and inclusion criteria in the review included the dual education, implementation strategies, and end elements of dual education. Most of the papers reviewed included studies carried out between 2000 and 2018.

## **Concept and History of Dual Education System**

The dual education system has long been adopted by countries, particularly Europe and other developed countries, as a means of upscaling the skills of graduates and bridging school – industry skills gap. According to Muhambetaliev and Kasymova (2016), educational institutions of Europe have long used the dual system of education as effective way of training highly qualified specialists. The advent of the dual system is as a result of employers' complains about lack of technical skills of their young employees. According to Violaine (2012), the introduction of dual training contributes to solving the basic problem of vocational education – the gap between theory and practice.

According to Xu (2013) and Anikeev and Arthur (2012), the dual system of education is being implemented in some countries, especially in Germany, Austria, Switzerland, Denmark, the Netherlands and France, Croatia, Serbia, Slovenia, Macedonia, Montenegro, and in recent years in China and other Asian countries. According to Muhambetaliev and Kasymova (2016), Germany is one of the pioneer countries in the organization of the dual training system, where vocational education has distinctive features – a well-developed mentoring, training, practice-oriented, active participation of business in training. According to Anikeev and Arthur (2012), vocational trainings in the dual system originated in Germany and is based on the interaction of two distinct areas: organizational and legal, within the framework of officially recognized vocational training, which is carried out according to the legislation on vocational education. This system comprises two different training and production environments: private enterprise and public vocational school, which operate with the aim of professional training of students (Anikeev & Arthur, 2012). A key feature of the dual system is the close cooperation between the business world and government (Euler, 2013)

In the dual education system, there is optimal combination of theoretical and practical training in the college and in the enterprise. Students are availed the opportunity of receiving better knowledge and skills for their chosen profession. According to Dual Training Implementation Guidebook, 2012-2014, cited in Muhambetaliev and Kasymova (2016), the dual system is a training system in which most of the training time is devoted to practice on the enterprise, where trainees will work after the college graduation. In dual vocational education and training (VET) systems, there is a strong component of school-based education and well-organized employers' associations and unions that are actively involved in the assurance of the quality of relevance of in-the-job training (Ryan, 2001 and Wolf, 2011).

Designer (2007) described dual systems as specific structural and didactical patterns of vocational learning which could take place in three basic forms: by attending a full-time Vocational Education and Training (VET) course in a (vocational) school, college, or higher education institution with neither a training or an employment contract involved; by gaining specific skills or competences in a company based on contractual employment (trainee or employee) – and therefore in a job-specific environment (learning on the job); or by entering a VET program, which uses (part-time) school-based and company-based modes of learning and therefore works as a dual system in a wider understanding of the term. A dual education system, therefore, combines apprenticeships in a company and vocational education at a vocational school in one course. This system is practiced in several countries, notably Germany, Austria, Hungary, Bosnia and Herzegovina, Croatia, Serbia, Slovenia, Macedonia, Montenegro and Switzerland. Others include Portugal, Denmark, the Netherlands, France and Egypt, and for some years now in China and other countries in Asia. As one part of the dual education course, students are trained in a company for three to five days a week. The company is responsible for ensuring that students get the standard quantity and quality of training set down in the training descriptions for each trade. While in the training institutions, students are exposed to the theory behind the skills while the industries allow the students to practice the skills under real life work situations, thus providing for better appreciation of the relationship between school learning and work requirement.

Bauer and Gessler (2016) identified two different types of Dual VET Systems: (1) unified Dual VET System under state responsibility with shared competence between state and economy (e.g. Switzerland) and (2) divided Dual VET System under state responsibility but mainly directed by the economy (e.g. Germany). Whichever model or type adopted, the important thing is that both aim at bridging the gap in the skills acquired in schools and skills needed by industries. Various countries and nations have devised means of ensuring that students at various levels have experience of happenings in the world of work. Some of these initiatives in Nigeria include Students Industrial Work Experience Scheme (SIWES), teaching practice, internship, housemanship, job shadowing, school-based enterprise, youth apprenticeship and cooperative work programme among others. However, one distinctive feature of dual education system which also represent the shortfall of other VET systems is the fact that learning combines formal education with training and experience at the workplace, and result in an externally recognised vocational qualification. Further, the blending of learning of technical knowledge in the classroom and practical skills in the workplace distinguishes the dual system from other forms

of vocational learning. According to Valiente and Scandurra (2017), the dual system differ from full-time vocational schooling because such schooling typically lacks any workplace-based component that is more substantial than short spells of work experience, and differ from dif-fer from on-the-job training and labour market training programmes that typically lack a classroom-based component.

### **Elements of a Dual Education System**

For the success of the dual vocational training system, the following key elements or features are necessary recipes:

**Training is occupations based** – training under the dual vocational system is based on recognized occupations which serve the purpose of providing young people with vocational qualifications. This is to provide students/trainees with opportunities for securing permanent employment, while business enterprises are provided with qualified skilled labour in the long term. Key actors in the industrial sector collaborate to ensure smooth training. The private (the companies), semi-private (chambers of commerce and industry) and public interests and responsibilities (the government), including the trade unions, merge. This helps to ensure that vocational training is clearly ‘occupation - led’ and not ‘company-based’. In most countries where the dual system is practiced such as Germany (Noah & Ecstein, cited in Deissinger (2015), there is a ‘long-standing and highly regulated participation of business/industry in training’ in the initial training sector, which is certainly ‘an outstanding feature of the German system. In the dual system, there is always a specification of the contents of a training ordinance (Deissinger, 2007) which specify the name of the skilled occupation; the duration of the training period; the skills to be provided by the company in the course of training; a specification of the syllabus to be followed for the purpose of imparting the relevant abilities and knowledge; and the examination standards.

**Cooperating learning venues** – there are two cooperating learning venues in the dual system of vocational education and training - the company and the vocational school. The company-based training, “the learning at the workplace,” has to be predominant in relation to the training time for the student at the vocational school. According to Deissinger (2010), the company offers and funds the apprenticeship while at the vocational school; the student receives theoretical instruction and acquires basic soft skills necessary for success in life.

**Establishment of strong partnerships** – for the implementation of dual education to be successful, a strong partnership between the company, the government and the social partners (public and the private sectors) is needed. This will help in the development of the necessary policy and structural framework as well as the necessary funding instrument required for smooth implementation. Such partnership should spell out clearly defined roles for each partner.

**Legal framework for the system** – the legal framework should determine the role of the stakeholders, their rights and duties, define organizational infrastructure through competent bodies: accreditation of training companies, registration of training and work experience agreements, examinations and certification among others.

**Cooperation between various education levels:** There should be a strong cooperation between secondary school, other levels of the education system and companies, and a wide consensus in society to provide all school leavers with vocational education and training.

**Quality assurance strategy:** there should be a strategic concept for training young workers in cooperation with the enterprises, while the industrial/private sector should be willing to accept quality control of its education and training activities.

**Public sector acceptance of private sector:** The public sector (government, schools) should be willing to accept the private sector as an equal partner in vocational education and training. This is essential because it will promote trust among the partners in the training process and enhance the quality of training and employability of graduates.

**Provide essential training components:** the necessary components of vocational training standards, such as the training agreement, rules for recognition of previous learning, rules for apprenticeship pay should be instituted.

**Clear financing rules:** there should be a clearly defined rule for financing the training process and funding of the vocational institutions. Such agreement could include the need for the private enterprises to cover their own

training costs (e.g. trainees' pay, cost of trainers, material), while the government funds the vocational schools. This type of arrangement will help reduce government burden in funding training and promote quality vocational training.

**Quality teachers and trainers:** Both in school and in the company, instructors who teach and train should be skilled and have good knowledge of the industrial and other proceedings in the enterprises. There should be an aptitude examination for trainers.

**Strong Research culture:** a strong research culture should be instituted and aimed at evolving ways of enhancing the training programmes and promoting sustainability of acquired skills. Constant research will ensure that training and the education sector in general keep pace with the challenges posed by globalization and knowledge economy.

### **Potentials of the Dual Education System**

The dual system of vocational education holds enormous potentials compared to the traditional general education system. According to Bozumbaev (2015), the dual system in the training eliminates the shortcoming of traditional learning by bridging the gap between theory and practice; provides for expertise and the formation of a new psychology of the future specialist; promotes high motivation to acquire knowledge and skills in work; and enables institutions to work in union with the industrial players thus, be able to take into consideration the requirements that apply to future professionals in the learning process. The system anticipates future skills needs, thus preparing the worker to fit into workplace skills changes due to technological innovations.

The dual system has the potentials to positively impact on the employment situation of a country. According to Bauer and Gessler (2016), the lowest youth unemployment rate can be found in countries such as Norway, while the smallest discrepancy between the total unemployment rate and the youth unemployment rate (for persons 15 - 24 years of age) exists in Germany, both countries with strong dual education systems. This position was earlier held by Organization for Economic Co-operation and Development [OECD] (2010) when it stated that youth unemployment certainly tends to be less often a problem (relative to adult unemployment) in countries like Germany with strong 'dual' education systems. The reason for the low youth unemployment rate according to Bauer and Gessler (2016), is because if the education system and the employment system are structural linked, the individual transition is much easier than it would be if the two systems were not linked or if they were opposite to one another. The low youth unemployment rate under such a system is because of the structural linkage between the education system and the employment system. The school to work transition is much easier under the dual system than it would be if the two systems were not linked or if they were opposite

Reduction in the level of unemployment has the potential of producing a multiplier effect on the level of poverty and insecurity in a country. It is an unarguable fact that countries with reduced level of youth unemployment are likely to record lower rates of criminal and antisocial behaviours, thus enjoying higher levels of security, peace and development. There is increased motivation to learn and also lower rates of drop out under the dual education system. According to Gonon (2009), the 'situated learning' that characterizes dual education system is for some learners both more motivating and easier to undertake than the less situated learning that characterizes classroom-based programmes. The on - the - job skills developed by students from the closeness of learning to production benefits both the learners and the companies that collaborate in training provision. Learners are exposed to both the production methods and the work requirements of actual workplaces rather than to classroom substitutes. The companies are able to access labour at cheaper rates as the productivity of trainees increase with their level of training, and have opportunity to recruit high quality labour, thus reducing the cost of re - training for newly-engaged staff. Dual education system is associated with smoother school-to-work transitions. Taken an apprentice seems to have a positive impact in early labour market outcomes because the worker is already familiar with the production processes of the company and because of the acquisition of superior information and contacts in the labour market (Ryan, 2001).

### **Stages in the implementation of the dual system**

Muhambetaliev and Kasymova (2016) identified three main stages in the implementation of the dual system, though these may vary from country to country due to variations in institutional and policy framework, socio-cultural, economic and religious factors, among others. Basically, the stages include the preparatory stage, organizational stage and the final stage. The preparatory stage is the implementation of the dual system of education through preparation of regulatory documents, development of educational programs of study for particular faculties, signing contracts with companies, and the establishment of contingent of students. The organizational stage involves identifying ways of training for the established professions, preparation of class schedules and monitoring of learning outcomes; while the final stage includes pilot test training of the students

in this learning system, systematization, generalization of the study results, and data processing, introduction of results into practice.

Finally, it is worthy to make the dual system attractive for students and employers. This according to Valiente & Scandurra (2017), include ensuring the right balance of generic and specific skills in the curriculum and effective regulatory and evaluation mechanisms that ensure the high quality of the training in the workplace. The tension between general and specific skills is one of the key elements to constructing a quality dual education system. In terms of labour market insertion, companies require an optimal combination of general and specific skills. More and more the labour market demands a workforce with sound general skills, such as the ability to work in teams or the ability to learn, rather than just a series of specific tasks to be performed following pre-established processes (Heinz, 2000).

## Conclusion

The dual education system as seen from the example of countries such as Germany, Norway, Netherlands, among others, holds enormous potentials for the Nigerian economy in the face of increasing youth population and unemployment. This system, if adopted in the Nigerian education system, has the ability to reduce the skills gap in the system and enhance relevance of school learning to industrial skills needs. The companies and industries are likely to record production cost due to locally available quality skill manpower and reduced cost of staff training as the products of the school system are more likely to be familiar with the production processes in the industries.

## Recommendations

- The ministry of education should constitute a high-powered committee of experts to under study the dual education system in countries such as Germany, Netherlands, Norway, among others, to equip them with the requirements of adopting the system.
- Legal framework should be put in place to facilitate interface between the government, private sector/industrial sector, the communities and other stakeholders in the provision of education services
- Awareness campaigns should be embarked upon by government agencies, education-based Non-governmental Organizations and other interest groups on the relevance of technical training to the economic development of a nation.

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