

## COMPARATIVE ANALYSIS BETWEEN TECHNICAL VOCATIONAL EDUCATION AND TRAINING MODELS OF ASIA WITH NIGERIA

By

***Dahiru Sale Mohammed***

Department of Science and Technical Education,  
Faculty of Education, Northwest University Kano,  
PMB 3220, Kano State, Nigeria

\*Corresponding author email: [dmsale72@gmail.com](mailto:dmsale72@gmail.com)

**ABSTRACT.**

*The purpose of this paper was to compare the strengths and weaknesses of Asian Technical and Vocational Education and Training (TVET) models in relation to their economic developments and to find out what Nigeria may likely learn from them so as to improve Nigeria TVET model for employment generation. Some countries in Asian continent like China, Japan, Singapore and Malaysia have developed their TVET models and recorded increase in human development index. While, Nigeria has developed her TVET model since late 1970's and early 1980's but since 1980 to date, the country is recording increments in unemployment at all educational level including TVET at both secondary and tertiary levels. The idea was to see what makes Asian TVET model successful and how Nigeria TVET problems. The methodology employed in this paper was analytical method that compares the countries education and their social and economic development based on analytical review of literature which includes TVET models and economic developments. Findings revealed that developed TVET models of continent of Asia are likely contributed to their human development, while Nigeria TVET model is likely attributed to its unemployment.*

**Keywords.** Unemployment, Technology Education, Comparative Analysis, Economic Development, Nigeria, Asia

**INTRODUCTION**

Comparative education is a branch of education that analyses the education data and system of a country by means of data and systems of other countries. Lawal (2004), defined comparative education as a field of study that deals with the evaluation of present educational theory and practice in different countries for purposes of broadening and deepening the understanding of educational problems beyond the boundaries of one's own country. In addition, Adeyinka (1994) provides the following definitions of comparative education as a:

- i. study of education systems of two or more countries

- ii. study of countries educational policies, philosophies aims, objectives, and practices influence the policy, practice and general development of education in a particular country
- iii. study the influence of past educational developments of continents on the development of education in specific countries
- iv. study of two or more countries' school systems in terms administrative machinery, government policies and control at different of educational levels

In the light of the above definitions, it is clear that the study of comparative education allows the researchers to be more global and have a better understanding of education system outside their own country. It investigates global perspective of education and determine best educational practices like TVET of Asian continent with Nigeria. Furthermore, since comparative education refers to making judgments on two or more similar topics, areas and factors, it requires evaluation of education systems by reviewing educational documents through critical reading. The evaluation of two or more countries educational systems may reveal the similarities and differences, and strengths and weaknesses of a country educational system over the other countries, for instance educational curriculum, pedagogy and graduates' employability.

## **METHODOLOGY**

The analytical method compares the countries TVET systems and their social and economic development based on critical reading and review of literature of four major economies of Asia which include Japan, China, Singapore and Malaysia in comparison with Nigeria TVET system and her economic developments. The analytical reading and review of educational documents of three major economies of Asian major economies was conducted to determine the similarities and differences as well as strengths and weaknesses of their TVET systems in comparison with their economic development. Also, analytical review of literature of Nigeria TVET was conducted in comparison with her economic developments.

## **COMPARING THREE MAJOR ASIAN TVET MODELS WITH NIGERIA**

In this section, the analytical review of educational and economic documents of three major economies of Asia which include Japan, China, Singapore

and Malaysia was conducted to determine the similarities and differences as well as the strengths and weaknesses of their TVET systems in comparison with their economic development. Through this analysis, Nigeria may likely improve its TVET system. China, Japan, Singapore and Malaysia have dissimilar TVET models and presently their economic are progressing (UNDP Human Development Report. 2013) while Nigeria TVET is fully implemented since 1980's and unemployment is increasing annually (CBN, 2014).

## ***Comparative Analysis between Japan and Nigeria TVET Models and their Economic Development***

Japan is the only country outside Europe that recorded Zero illiteracy (World Competitiveness Yearbook, 1999) The core TVET skill formation might be attributed to it high level of general mathematics, sciences and extensive investment in industry-based education that enhances the productions engineers and related disciplines in the country. Hard work rather than native ability of students is the key to high degree of consistency in successful outcomes (Dore and Sako 1989).

The first and major cause of TVET skills development in Japan is employees' high wages that depend on high levels of TVET expertise including loyalty to employers. The second cause is the KEIRETSU scheme which includes uniform management structures including uniform teamwork abilities and uniform high quality circles which minimize the employees' wages bias between small, medium and large enterprise. The third factor is IEMOTO principles which emphasize on controlling relationship between newer and older workers which contributed to the development of conducive relationship between workers during training session in industry (Dore and Sako, 1989). The fourth factor of TVET skills creation in Japan is the near relationship and smooth transition process from schooling to employment which is properly planned. The

fifth factor of TVET skills establishment system in Japan is MONBUSHO, the principal organization that plan, maintain, control and distribute the curriculum and resources including the rotation of teachers and principals to various schools. Also, MONBUSHO provide direct relationship between schools and industry in Japan (NCVER, 2002).

The education system in Japan provides social cohesion and wealth generation through moral education, social discipline, civil responsibility and civil responsibility which form complementary broad relationship between social and economic goals for instance, those that want to enter into labor market required good basic skills, technical TVET skills and instills the good virtues of loyalty, work discipline, co-operation and teamwork in the workforce which are emphasized in the national economy goals (Green, 2000).

### ***Comparative Analysis between China and Nigeria TVET Models and their Economic Development***

China adopted Canadian Competency Based TVET Model and the German Dual TVET model plus the model of traditional Chinese personal qualities for students which emphasis practical capabilities, abilities of problem solving, innovation and creativity, interpersonal and adaptability. The republic follow mixed method of Canada school based technical competencies and German's apprenticeship for the training of TVET that encouraged the co-operation between schools and industry. The TVET providers in China are vocational schools that are controlled by the Ministry of Education (MOE), technical colleges administered by numerous government departments and ministries, skilled worker colleges that are administered by the Ministry of Labour and Social Security (MOLSS), and apprenticeship training by private industries. These providers provide TVET packages at the primary, secondary and tertiary levels of the country. The main problem of TVET program in

china is the difficulty to control and standardize their certifications due to several TVET providers (NCVER, 2002).

Nigeria traditional skills development was apprenticeship training model. With the introduction of TVET skills development at Yaba Technical Institute, the process of TVET skills development was changed from apprenticeship scheme to British formal training model which strictly demarcate grammar and TVET model (Uyanga, 1998). However, TVET apprenticeship skills training model was successful in Germany that produce highest youth employment which contributed to her economic development. The TVET apprenticeship model of Germany was copied by France, United Kingdom and other European countries and therefore, Nigeria may likely learn from German Dual Training Model of School and industry (NCVER, 2002).

### ***Comparative Analysis between Singapore and Nigeria TVET Models and their Economic Development***

Singapore is one of the smallest nation with limited land and shortage of natural resources but eighth wealthiest country of the world. The country built its economy and the nation through the education process, medium and long-term planning, strategic support for development industries, the rapid development of appropriate infrastructures and provision of adequate manpower by unbroken government policies which prioritize economic development, skilled and disciplined workers, adequate security of peoples and their materials, efficient communication and transportation networks, widespread fluency of English language and high level mathematic abilities as a result, many multinational companies located their headquarters to Singapore and over 50% of the country citizens work in foreign-owned companies (Green, 1999). The need of the labour market from these multi-national companies encouraged the

government of Singapore to enhance the acquisition of high level Mathematics and sciences to accelerate the acquisition of TVET disciplines and in 1995 Singapore ranked first in competition on average achievement of grade eight students in mathematics and science followed by Japan, Australia, France, UK, Germany and lastly USA (World competitiveness yearbook, 1999). The widespread demand of skilled workers for technology-based services was a factor that led the shift in emphasis of educational priorities to the expansion of TVET skills in schools and polytechnics. Also, apprenticeships are available in Singapore as an alternative to full-time TVET model. The Singapore adopted German Dual model of apprenticeship scheme in 1990 which provide quality TVET trainers to develop continuing general education and higher skills in employers (SEAMED, 1994).

Nigeria molded its citizens' good personal qualities through Islam in the North, Christianity in the South and other traditions prior to independence. With the secularization of Nigeria and adoption of British school model, personal qualities development was neglected in the training package (Fafunwa, 2004). Singapore developed her TVET model by inculcating personal qualities of hard work, science and mathematics which may likely contributed to her economic growth. Likewise Japan and China developed their TVET training package by adopting dual apprenticeship training package of Germany with the personal qualities which may likely enhance their economic development (NCVER, 2002). However, Nigeria neglected apprenticeship training system and personal qualities in her TVET model which may likely contributed to her increments in poverty incidence (NBS, 2012 and FGN, 2004).

### ***Comparative Analysis between Malaysia and Nigeria TVET Models and their Economic Development***

Skills Malaysia aspires to raise public awareness and perception in the significance of skills training to enhance quality of the Malaysian workforce. Efforts to standardize the quality of training through rigorous participation of industries to overcome the duplication of training and certification activities and to intensify promotion of skills training will be undertaken to lift the competency level of the workforce to a higher level of performance and productivity (Prime Minister of Malaysia, January 2011 cited in Leong, 2014).

This statement of the Prime Minister marked the implementation of the 10<sup>th</sup> Malaysia Plan (2011-2015). The 10<sup>th</sup> MP was aimed at developing and retaining not only Malaysian but also first world talent base through integrated human capital and talent development framework for Malaysia. Three main strategies were adopted to achieve the plan as follows:

1. Revamping education system to significantly raise the student's outcomes
2. Raising the skills to increase employability
3. Reforming labour market to transform Malaysia into a high income nation (Leong, 2014)

The curriculum designers considered three educational issues identified in the National Philosophy Education Malaysia to reform the education curriculum in the country as follows:

1. Schools must produce not only skilled and knowledgeable but disciplined, honest and dedicated workers.
2. Schools must produce not only efficient workers but also be able to think and act morally and ethically.
3. A rigid division of vocational curriculum in technical schools with academic social sciences was criticized. Hence science and technical students should be exposed to art and humanity and vice versa (Hashim, 2008).

Although there is no empirical analysis to support this axiom but observations of the National Philosophy of

Education Malaysia and the TVET curriculum derived from it may likely contributed to the graduates' employability and the development of life of Malaysian

citizen from 1980 to 2012 as explained by UNDP Human Development Report in Table 2.

**Table 2:** Trends in Malaysia's Human Development Index From 1980-2012

Year	Life Expectancy at Birth	Expected Year of Schooling	Means of Years of Schooling	GNI Per Capita (2005 PPP)	HDI Value
1980	67.4	9	4.4	4,692	0.563
1985	68.8	9.8	5.6	5,099	0.603
1990	70.1	9.7	6.5	6,328	0.635
1995	71.1	10.2	7.6	8,702	0.678
2000	72.1	11.9	8.2	9,378	0.712
2005	72.9	12.6	8.9	11,020	0.742
2010	74	12.6	9.5	12,758	0.763
2011	74.2	12.6	9.5	13,322	0.766
2012	74.5	12.6	9.5	13,676	0.769

Source: UNDP Human Development Report, 2013

Table 2 reveals that the Gross National Income (GNI) per capita using 2005 Purchasing Power Parity (2005 PPP) of a Malaysian citizen has improved from \$4,692 in 1980 to \$13,676 in 2012. The life expectancy at birth, expected year of schooling and means of year of schooling of Malaysian citizens are developing from 67.4 to 74.5 years, 9 to 12.6 years and 4.4 to 9.5 years respectively from 1980 to 2012. Generally, Human Development Index Values has shown wonderful linear development from 0.563 in 1980 to 0.678 in 1995 and finally to 0.769 in 2012.

Nigeria followed British TVET model at pre independence, independence and post-independence until 1969. With adoption of American Comprehensive School System in the 1970s and establishment of polytechnics and universities of technology in Nigeria, initial TVET training begins from secondary school level in Nigeria which lack qualified TVET teachers and the admission requirements into engineering programmes of polytechnics and universities does not require credit pass of engineering technology subjects at ordinary level

rather than five credit passes in sciences, mathematics and English. Therefore, at entry points, Nigerian made engineer lack attitude to handle engineering equipment and tools. During training sessions, Nigerian engineering were prepared mostly for design principle as required in US and not maintenance principle as required by Nigerian industries. The lack of maintenance expertise of engineering graduates may likely contribute to their rate of unemployment and poverty incidence of Nigeria. Similarly, Mexico and Chile adopted German maintenance culture in the dual training model of school and industry.

## IMPLICATIONS AND RECOMMENDATIONS

The implications of these findings include the review of Nigeria TVET model to incorporate best practices of TVET model for graduate employments and poverty alleviation. It is recommended that Nigeria TVET model should be incorporated with German Dual Model in the training package; should have strong collaboration between school and industry in policy like UK and to have good certification and industrial recognition like US. The

personal qualities of hard work and cultural disciplines, honesty and dedication of Singapore, China and Japan should be considered to produce skilled, knowledgeable workers are morally and ethically sound.

## CONCLUSION

The TVET apprenticeship model of Germany was copied by France, United Kingdom and other European countries. Similarly, Mexico and Chile adopted German maintenance culture in the dual training model of school and industry (NCVER, 2002) and therefore, Nigeria may likely learn from German Dual Training Model of School and industry which was neglected in Nigeria by adopting American TVET model. Nigeria trained engineers at entry point lack attitude to handle engineering equipment and tools and during teaching periods, Nigerian engineers were equipped commonly for design attitude as essential in US and not maintenance attitude as mandatory skills for Nigerian industries. The absence of maintenance capability by Nigerian engineering graduates may likely contribute to their rate of unemployment and Nigeria poverty incidence (NBS, 2012). Singapore established her TVET model by teaching personal qualities of hard work, science and mathematics which may probable attributed to her trade and industry development. Likewise Japan and China established their TVET teaching package by accepting dual apprenticeship teaching package of Germany with the personal qualities which may likely enhance their economic development (NCVER, 2002). However, Nigeria neglected apprenticeship training system and personal qualities in her TVET model which may likely contributed to her percentage increase in poverty incidence (Uyanga, 1998).

## REFERENCES

Adeyinka, A. A. (1994). *Popular topics in comparative education for Nigerian tertiary education students*. Lagos: Raytel Communication Ltd.  
Central Bank of Nigeria, CBN. (2014). Central Bank of

Nigeria, Statistical Bulletin, vol. 2, February, 2014. Pp.106 -108.

- Fafunwa, A.B (2004). *History of Education in Nigeria*. London: George Allen and Unwin.
- Federal Government of Nigeria, FGN. (2004). *National Policy on Education (4<sup>th</sup>ed)*. Lagos: Nigeria Educational Research and Development Council Publishers. ISBN-978-054-7.
- Dore, R and Sako, M. (1989). *How the Japanese learn to work*. London: Athlone.
- Green, A. (1999). East Asia Skill Formation Systems and the challenge of globalism, *Journal of Education and Work*, 12(3), 253-79.
- Green, A. (2000). 'Singapore', draft paper for the High Skills Project. London: Institute of Education.
- Hashim, (2008). *Educational Dualism in Malaysia- Implications for theory and practice (2<sup>nd</sup> ed.)*. Kuala Lumpur: Oxford University Press
- Lawal, B. O. (2004). *Comparative education*. Osogbo: Swift Publishers Nigeria Ltd
- Leong, P. C. (2014). TVET capacity development, career and life skills for 21<sup>st</sup> century. Being a key notes presenter at 4<sup>th</sup> World Congress on Technical and Vocational Education and Training organized by FPTV and ACTIVE between 5<sup>th</sup> and 6<sup>th</sup> November, 2014 at Equatorial Hotel Malacca, Malaysia.
- National Bureau of Statistics, NBS. (2012). *National Manpower Stock and Employment Generation Survey 2010*. Abuja: NBS.. Available at [www.nigerianstat.gov.ng](http://www.nigerianstat.gov.ng)
- NCVER (National Centre for Vocational Education Research). (2002). *Review of Research on Comparative Study of Vocational Education and Training Systems Across Three Regions Under Pressure of Change*. Australia: NCVER LTD Under the License of Australian National Training Authority (ANTA).

SEAMEO (1994). Management of business and industry cooperation programmes in vocational and technical education. Singapore: SEAMEO VOCTECH.

UNDP Human Development Report. (2013). The Rise of the South: Human Progress in Diverse World. Explanatory Note on 2013 HDR composite Indices. Malaysia HDI Values and Rank Changes in 2013 Human Development Report. Retrieved on 23<sup>rd</sup> October, 2013 from [www.hdrstats.undp.org/images/explanations/mys](http://www.hdrstats.undp.org/images/explanations/mys)

Uyanga, R. E. (1998). *Indigenous and Western Education: An interpretative History*. Lagos: Hall of Fame Educational Publishers.

World Population (2014). World Population Statistics. Retrieved on 14/07/2014 from <http://www.worldpopulationstatistics.com/world-population-2014/>

World Yearbook (1999) *World competitiveness yearbook* 1999. New York: United Nation