



## Research Article

© 2019 Omonijo et al.  
This is an open access article licensed under the Creative Commons  
Attribution-NonCommercial-NoDerivs License  
(<http://creativecommons.org/licenses/by-nc-nd/3.0/>).

# The Review of the Student Industrial Work Experience Scheme (SIWES) in Four Selected Countries

Dare Ojo Omonijo<sup>1</sup>

Michael C. Anyaegbunam<sup>2</sup>

Victoria Ajibola Adeleke<sup>3</sup>

Stella Obinna Nnatu<sup>4</sup>

Samuel Ejoh<sup>5</sup>

Adedamola O. Oluwunmi<sup>6</sup>

Elizabeth I. Olowookere<sup>7</sup>

Chioma Agubo<sup>8</sup>

<sup>1</sup>Department of Student Industrial Work Experience Scheme, Covenant University /  
Department of Sociology, Olabisi Onabanjo University, Ago-Iwoye, Nigeria

<sup>2</sup>Department of Psychology, Nnamdi Azikiwe University, Awka, Nigeria

<sup>3</sup>Department of Student Affairs, Covenant University, Nigeria /  
School of Law, University of KwaZulu-Natal, South Africa

<sup>4</sup>Department of Sociology and Anthropology, Nnamdi Azikiwe University Awka, Nigeria

<sup>5</sup>Department of Estate Management, Covenant University, Nigeria

<sup>6</sup>Department of Biological Sciences, Covenant University, Nigeria

<sup>7</sup>Department of Psychology, Covenant University, Nigeria

<sup>8</sup>Department of Political Science and International Relations, Covenant University, Nigeria

Doi: 10.36941/ajis-2019-0014

### Abstract

Recently, SIWES has attracted studies from scholars in higher educational systems in Nigeria due to the deficiency or lack of proficiency of many graduates, mostly in the natural sciences. This shows that the scheme has not been effective in ensuring impartation of practical knowledge on students. Consequently, many employers of labour view this challenge as one of the causes of unemployment, an obstacle to achieving corporate goals and a serious obstacle to national development. Although SIWES stakeholders have been primarily indicted for its dysfunction, most especially, the Government, and the management of tertiary institutions, but none of such studies have compared SIWES in developed countries with a developing society like Nigeria with the aim of identifying the missing gap that needs to be filled to ensure students proficiency at work after graduation. Being a descriptive article, the present study used data from secondary sources to analyze and synthesize SIWES in four purposefully selected countries. By synthesizing SIWES activities in these countries, the study identifies factors responsible for the dysfunction of SIWES in Nigeria. These include poor quality of education from the elementary school to higher educational systems; short duration apportioned to SIWES in the curriculum of tertiary institutions; insufficient industries and closure of some of the few existing ones due to unfavourable environmental factors; inadequate equipment / facilities in existing few industries for effective practical training and poor leadership of SIWES stakeholders. The study concluded that SIWES in Nigeria could improve if these flaws could be effectively addressed.

**Keyword:** Review, SIWES, four, selected, countries

## 1. Introduction

Studies have shown the importance of quality education in developed and developing countries (Coleman, 1990; Zamiralova, Molchanov, Karpunina, Kvitkovskaya, Akhtyan & Bereza, 2019; Serpa & Sa, 2019; Sota, 2019). One of such significances is hinged on students' proficiency or competency or employability in work organisations after graduation (Kyunghwa & Heyjin, 2019; Kim, 2019; Sergeeva, 2019).

Employability or proficiency has to do with students' subjective assessment of work-related preparation or self-conception of securing work and its preservation (Cuyper, *et al.*, 2008; Okay-Somerville and Scholarios, 2017, cited in Kim, 2019). The ability to secure work in societies that lay much emphasis on merit depends largely on skills and knowledge acquired in the course of studentship. Skills and knowledge are considered essential by employers of labour because it could impact positively on production of goods and services, corporate goals, well-being of the populace and societal development.

The foregoing must have been the main reasons why several rigorous stages of recruitment are put in place for selecting applicants for employment in many organisations. However, it may not be ideal to restrict the discussion on this subject to the rigorous stages of workers recruitment, ensuring impartation of quality education on students' right from the elementary level to higher citadels of learning should also be considered imperative. The quality of theoretical knowledge imparted on students and practical training exposed to them in industries, mostly those in the natural sciences, could equally determine their employability (Bradley, 2012; Fitzgerald, 1992, cited in Ming, *et al.*, 2019).

While theoretical knowledge is acquired in academia, practical training is acquired in industries through partnership between the industry and academia. Knowledge could be regarded as the awareness of valuable information on a particular subject of interest obtained by subscribing to teaching, engaging private reading or study, observing how things are been done as a lifestyle. It could equally be attained by engaging in active practice either by the use of hands or tools, or observing the routine of work mechanism under experienced tutors. So, in order to achieve students employability after graduation, the combining theoretical knowledge with practical training for students becomes essential.

Previous studies have shown that such combination has become the priority of leadership in many developed nations (Atchoarena, 1995), and it could be responsible for the high proficiency and employability of their graduates in work organisations. In such countries, imparting knowledge on students in classroom may not be cumbersome due to the availability of well-paid, competent, effective and efficient tutors (Sapril, *et al.*, 2018), up-to-date facilities or state-of-the-art-facilities. While the process of imparting practical training in industries might not be intricate, judging from the availability of industries, well remunerated manpower, conducive environments, adequate equipment etc.

In many developing societies, studies have shown the contrary due to several problems in educational and industrial sectors. In academia, the prevailing poor remuneration and conditions of service for faculty and staff, poor state-of-the-art facilities, poor funding of education could hinders quality education (Nwafor, *et al.*, 2008; Adeyemi, 2011; Adewuyi & Okemkinde 2013; Omonijo, Anyaegbunam, Nnatu, Uche, Adeleke & Okunlola, 2019). While in industries, the poor level of economic development seemed to have hindered industrial development, which is not only crucial for students practical training but for employment of a life time (Onuba & Okon, 2016). Besides, the poor conditions of service in most industries, underemployment, out-sourcing of workers, underpayment, lack of standard equipment, insufficient industries etc. impartation of practical knowledge on students has become difficult (Ejiogu-Okereke & Onu, 2007; Rasool, & Botha, 2011; Omonijo, Oludayo, Eche, Uche & Ohunakin, 2015).

In Nigeria, the situation is not different but the importance of combining theoretical knowledge with practical training in natural, social and behavioural sciences is emphasized in the nation's school curriculum and other educational policies (Uyah, 2004; Ani, *et al.*, 2006; Asikogu & Okopu, 2008). This informed the introduction of the Students Industrial Work Experience Scheme (SIWES) in tertiary institutions (Uyah, 2004). Nevertheless, the successful implementation of SIWES in

producing proficient or employable graduates to bail the nation out of its economic underdevelopment has been a major challenge (Ifejika, *et al.*, 2008; Wodi & Dokubo, 2009; Ukwueze, 2011; Akanmu, 2011; Sodipo, 2014; Adetiba, *et al.*, 2012; Mofesola, 2012; Ukwueze, 2011; Ojokuku, *et al.*, 2015). The contributions of these authors to the body of knowledge are commended but it could be observed that none of them endeavoured to compare SIWES in developed societies with developing societies in order to identify the missing gaps that needs to be filled.

It is on this note that this study was conceived. Its importance at this crucial stage of the Nigerian economy, where innovative and competent manpower is needed for the attainment of sustainable development cannot be disaffirmed. The study is divided into three parts which include introduction; literature review; summary and concluding remarks.

### 1.1 Student Industrial Work Experience Scheme (SIWES): A Global Overview

The origin of industrial training could be traced to the advent of industrial revolution which ushered in steam engines, power-driven machines and a new system of production in Europe (Eurich 1985, cited in Mafe, 2010). To function satisfactorily then, workers needed to depart from their craft capabilities and embrace knowledge and understanding which the new technologies offered in work-settings via practical training. Therefore, the need prompted higher citadels of learning to commence application of practical and technical affairs (Eurich 1985, cited in Mafe, 2010)

The concept thrived between 1824 and 1830 extensively to warrant the creation of technical and engineering courses. These courses were established first at the Rensselaer Polytechnic Institute, USA, secondly at Colombia University based on the new scientific curriculum that necessitated the Greek or Latin, language inclusion (Mafe, 2010). The effect of this concept as argued by Mafe, (2010) successfully led to the spread or escalation of science, engineering and technical education in several tertiary institutions in America and Europe, towards the end of 19<sup>th</sup> century.

The products of these institutions were trained through systematic instruction with a body of knowledge in engineering and science which was theoretical and universal. Hence, they had broad ideas on fundamental knowledge to the workability of various engineering systems but lacked an in-depth foundation on practical knowledge needed for effective production in certain jobs.

The gap between theoretical knowledge and practical training was therefore noticed for bridging and it necessitated science and engineering students complementing their theoretical knowledge with practical training in industries so as to become productive in their career after graduation. This prompted the innovation that later took place in the 20<sup>th</sup> century with the introduction of cooperative education through Herman Schneider, the Dean, College of Engineering, University of Cincinnati (Eurich 1985, cited in Mafe 2010). Therefore, engineering students started attending classes to acquire theoretical knowledge and also engaged in trainings with the same duration in companies for practical experiences.

Although studies have shown some variations in cooperative education in work-settings across the globe till date, but it is still a striking fact that Schneider's innovation of 1906 serves as the foundation for all training in science, engineering and technology in developed nations such as North America and Western Europe, with little impact in some developing countries (Mafe, 2010).

### 1.2 Student Industrial Work Experience Scheme (SIWES): A National Overview

In Nigeria, SIWES was introduced in 1973 to enable undergraduate students in Science and engineering acquire practical skills needed to function satisfactorily in work-settings. According to Mafe (2010), industrial training commenced in the country due to the reliance of companies or industries on technical proficiencies, for production process and preservation of company resources.

In practice, it originated from the then Yaba Technical Institute, now Yaba College of Technology. At that point, students were being sponsored by various government owned institutions and other private firms. The practice permitted students to return to work with their employers during long vacations. Through this, students were having work-related experience

which they usually integrated with their learning in classes (Uvah, 2004). The quality of education and the training available in companies then must have been responsible for the quality of graduates in organizations in those early days.

However, it could be observed that the quality of the Nigerian graduates began to diminish afterwards due to the dearth of faculties to impart quality education on students in tertiary institutions. As military imperialists began to unleash terror on social critics, most of which were faculty members, they decided to find greener pastures abroad (Mahmood, 2017). To fill the vacuum, unqualified faculty members' were recruited into the academics (Ojedokun & Aladejana, 2012). To worsen the situation, most of the expatriates left Nigeria for their countries of origin; the vacuum created could not be filled satisfactorily with the skills of fresh graduates from the nation's educational systems.

Given this, multinational companies in Nigeria such as Flour Mill Nigeria Plc, Bagco Plc, Nigerite, Nigerian Breweries Plc, Unilever Nigeria Plc, Texaco Overseas (TO), Chevron Nigeria Limited (CNL) established training schools: Also, Shell Petroleum Intensive Training Programme was established in 1998 for technical skill acquisition through hands-on experience

## 2. The Comparative Analysis of SIWES in Four Selected Countries

### 2.1 United States of America

The United States of America is regarded as the most developed country worldwide, with high level of industrialization and quality education to warrant the success of SIWES activities. SIWES emerged from apprenticeships which greatly assisted in building America right from the early stages of colonialism till contemporary times (American Department of Labour, 2012). Some of the foremost apprentices were Silversmith - Paul Revere; Surveyor-George Washington; Printer-Benjamin Franklin (American Department of Labour, 2012). Others who assisted in developing the American economy to its present state include shipwrights, carpenters, masons and a host of other renowned Americans who participated actively in the scheme (American Department of Labour, 2012)

Of all tertiary institutions in the US, Wisconsin was the first to establish registered apprenticeship scheme in 1911. That was when the Congress endorsed the National Apprenticeship Act which is equally known as Fitzgerald Act, just like the decree of 1973 that established SIWES in Nigeria. Hence, just like the Industrial Training Fund (ITF) act in Nigeria, the National apprenticeship Act of the United States was responsible for regulating apprenticeship programmes.

Dwelling on the work of Muhamamadu, (2017), apprenticeship in the United States involved job observation, which involves interns observing the real-worker for a short period and spending a lot of time which ought to have been spent in classes on the job with normal remunerations. Apprentice electricians engage in work activities 37 to 40 hours per week. They are usually under the supervision of journeymen electricians, who receive emoluments and benefits regularly. Apart from this, such apprentices spend additional six hours per week engaging in trainings in their classrooms. Upon the completion of their training, that is to say 5 years for commercial and industrial construction and less for residential construction, such apprentices attain the status of journeymen and women free of charge except the cost of books which must be paid. From this stage onward, such persons are considered highly skilled remunerated by employers of labour.

### 2.2 SIWES in Turkey

Turkey is situated in Europe, between Western Asia and Eastern Europe. However, its larger physical area is within Asia while only the small area is within Europe. Apprenticeship in Turkey was generally recognized as a part of small scale business culture since the time of Seljuk Turks in the eleventh century (Muhammadu, 2017). However, Tansel and Ogawa, (2008) contended that apprenticeship training in Turkey was established in 1977 for the first time with the establishment of Law number 2089 and captioned it Apprenticeship and Vocational Education Law. Tansel and

Ogawa (2008) argued that the law was amended twice. The first amendment took place in 1997, while the second amendment occurred 2001 to accommodate formal apprenticeship, non-formal vocational and technical training which was regulated by the Country's ministry of education.

However, Muhammadu (2017) presented 3 levels of apprenticeship in Turkey which are: (i) 'Cirak'; (ii) 'Kalfa'; and (iii) 'Usta'. Out of these three however, 'Usta' was the greatest level of achievement. Persons in this category operate as masters and they are competent to accept the junior ones in 'Cirak' for training and proper upbringing

The training process commence with small children, mostly boys from the age of ten to eleven, even before they get admission to study in higher educational systems. Such children will later become full-grown masters at the age of twenty to twenty five.

Just like America and Germany, Turkey apprenticeship entails many years of hard work and discipline under the tutelage of Masters. This serves as the key to the young apprentice's education and learning process (Muhammadu, 2017). Further to that, there were many vocational schools that trained young ones to gain skills to learn a new professions.

### 2.3 SIWES in Germany

Studies have shown that practical training or learning by doing is the cornerstone of the German educational system (Muhammadu, 2017). Irrespective of career, students it was mandatory for students to go through the dual education system, which emphasized on the combination of time spent in classroom with practical training in work organisations. However, it should be noted that it was not a basic type of vocational training, but a combination of the bureaucratic practice with market model.

Although, it is evident in literature that many countries operate different models but Muhammadu, (2017) contended that German educational system operate 3 major models:

- a. Regulation by tradition which consists of traditional craft trainings
- b. Regulation by the market which connotes vocational training as a private engagement in firms and other organisations, and
- c. Regulation by bureaucracy or government that entails school-based vocational training.

The above stated models integrate two different regulatory controls, which involve the private sphere of the market and the public laws of the government.

In Germany, the dual system of vocational education pairs practical learning with class room academic activities to grant young ones a leg-up in work organizations (Muhammadu, 2017). In most cases, high school students usually complete their degree education between the ages of 15 and 18. However, the completion depends on the type of school attended but students have the opportunity of specializing in universities while others engage the dual training scheme. Hence, most students graduate with both degrees, job experience and profound knowledge of their profession.

Further to the above, students spend 3 to 4 days in a week at work with professionals in companies. Also, they spend 1 or 2 days of the week engaging in conversation at vocational schools. However, it is essential to note that trainees must pass 2 major examinations which involves written or oral elements as well as practical exercises

### 2.4 SIWES in Nigeria

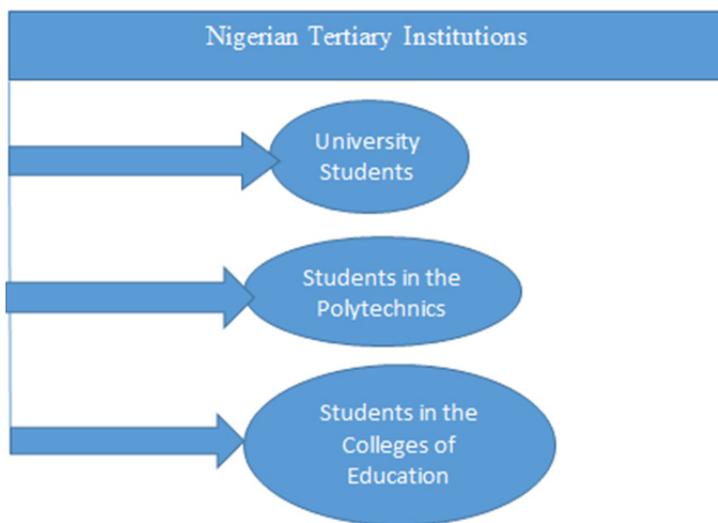
Nigeria is regarded as the most populous country in Africa. According to the Information and Guideline for SIWES Folarin (2012), The ITF policy of No. 1, 1973 established SIWES to equip students with skills necessary for industrial work after graduation and to make provision for higher education students to procure practical knowledge prior to graduation. The scheme was meant to familiarize tertiary institutions students in science and technology with the work methods and techniques. This is necessary to enable them handle new equipment and machinery, which they are not used to in the course of theoretical studies on campus.

In addition to the above, it ensured easy transition from the educational systems to work settings and provided available contact for future job placements, granted students ample

opportunities to apply educational knowledge in practical work settings, so as to be able to bridge the gap between theory and practice syndrome. Lastly, it was established to ensure that employers of labour were actively engaged in the country's entire educational process and to make students fit for employment in relevant industrial set-ups and commercial centres.

SIWES is an acceptable skills acquisition scheme, generally regarded as a cogent aspect of ratified least educational criterion in different programmes of study for obtaining degrees in Nigerian tertiary institutions (Onwuji, 2004, cited in Nse, 2012). Besides, it is a plausible endeavour from the Federal Government to bridge the inherent or obvious gap between theory and practice in programmes of study mentioned above. Among other things, the importance of SIWES as explored in several studies is hinged on exposing students to equipment, complex machines, professional work ethics and safety at work as well as workers in industrial settings (Onwuji, 2004, cited in Nse, 2012)

SIWES is also considered a three-way scheme that involves tertiary institutions/Universities, Polytechnics and Colleges of Education, and various companies / organisations and students. The programme is funded by the Nigerian Government under her agencies which include the Industrial Training Fund (ITF), supervising organizations such as: National Universities Commission (NUC); National Board of Technical Education (NBTE); and National Council for Colleges of Education (NCE) Mafe, (2010). The Structure of SIWES in Nigerian Tertiary Institutions is as Follows:



**Fig. i:** The Structure of SIWES in Nigerian Tertiary Institutions

**Source:** Researchers compilation, 2019)

**Table i:** Tertiary Institutions, Duration of SIWES and No. of Programmes

SN	Tertiary Institutions	Durations	Programmes	Source
1	Students in Universities	6 months	Sixty and above	Mafe, 2010
2	Students in Polytechnics	1 year	Forty and above	Mafe, 2010
3	Students in Colleges of Education	6 months (teaching practice)	About ten programmes	Mafe, 2010

**Sources:** Researchers compilation, (2019).

To ensure the success of SIWES, the following bodies were mandated to oversee its activities by performing specific functions stated under them (Folarin, 2012):

#### 2.4.1 The Industrial Training Fund (ITF)

Industrial training fund is the agency created by the government to provide logistics and resources necessary for the success of SIWES, gather the list of companies and identify training available for industrial attachment and circulate the same to tertiary institutions. The ITF is also saddled with the responsibility of supervising SIWES students, vetting and processing their log books and the returned ITF form 8 for prompt payment of the students and staff supervisory allowance. The agency is also in charge of organizing orientation programmes for prospective I.T students, seminars and biennial conference for SIWES personnel and the head of tertiary institutions, and others (Folarin, 2012)

#### 2.4.2 The Supervising Agencies

There are three SIWES supervising agencies in Nigeria, namely: the NUC, NBTE and NCE. The NUC is in charge of universities while NBTE and NCE are in charge of polytechnics and colleges of education respectively. They are to ensure the establishment and functioning of SIWES unit in all tertiary institutions, support the appointment of engineers or scientists as coordinators or directors of SIWES in tertiary institutions, vet and approve Master and Placement Lists for onward transmission to the ITF. Moreover, they are expected to monitor and review programmes of study eligible for SIWES and ensure adequate funding of SIWES unit in each tertiary institution (Folarin, 2012).

#### 2.4.3 The Industries

The major function of the industries is to provide students with opportunity to observe their industrial training and assign them to relevant areas of on-the-job training with competent supervisors. The Chief Executive Officers of industries are to ensure prompt payment of student allowances, they also allow supervisors from tertiary institutions and ITF to visit students on regular intervals. In addition to the above, they are to make medical and transportation facilities available for staff to students. They are expected to equally ensure grading of students at the end of their industrial training as indicated in the ITF form 8 and form C and apply the same disciplinary measures available for staff to students (Folarin, 2012).

#### 2.4.4 The Federal Government

Federal government is to ensure sufficient provision of funds for the ITF to implement SIWES activities through the Ministry of Commerce and Industry and to mandate government parastatals and ministries, as well as private companies and commercial ventures to provide placement for students to carry out their industrial training. Moreover, Nigerian Government is saddled with the responsibility of providing policies for SIWES activities and to also guide and regulate those policies within the country (Folarin, 2012).

#### 2.4.5 The Tertiary Institutions

Tertiary institutions ensure that a well-designed SIWES unit is available, organization of orientation programmes for prospective SIWES students through the ITF nearest to the institution, ensuring that students who participated in SIWES defend their report at the end of the scheme, supervising students on industrial attachment thrice before the expiring of the six-month duration and signing their logbooks, engaging a full-time coordinator to oversee SIWES activities (Folarin, 2012). Assessing the performance of students at the end of IT, ensuring placement of students on industrial training, ensuring preparation and submission of Master and Placement Lists to the appropriate supervising agency, allocating credit loads to SIWES as directed by the ITF and maintaining a separate account for SIWES activities (Folarin, 2012).

#### 2.4.6 The Students

Compulsory participation in orientation programmes organized by his or her institution in conjunction with the IT before proceeding on IT, be frequent at work all though the period of IT, except on permission from the company's supervisor and the SIWES institution of learning, protection of employers property throughout the duration, provision of self-accommodation throughout the IT (Folarin, 2012).

Ensuring proper record of activities via their logbooks during the IT, submission of the ITF form to the nearest ITF office to the company where the student is observing the IT, ensuring full compliance with the industries rules and regulations and submission of necessary documents SIWES office at the end of IT (Folarin, 2012).

### 3. Synthesis of SIWES

Dwelling on the above analysis of SIWES in four selected countries, it could be reasoned that the level of development in each country has strongly affected SIWES. Apart from possessing the status of the most developed nation globally, SIWES had been in existence for a long period in America before its introduction in tertiary institutions in other countries (American Department of Labour, 2012). Moreover, SIWES in the U.S places more emphasis on students observing the real workers for a short time while the normal time that ought to have been spent in classes are spent in work-settings with normal remunerations, which has never been in existence in Nigeria. Furthermore, the hour spent on training by the student apprentice is between 37 and 40 hours per week in addition to six hours training per week in the class room. This as well is not comparable with other nations, especially Nigeria, and it gives SIWES in America an edge over SIWES in other countries sampled.

SIWES in Turkey is in three stages: (i) 'Cirak'; (ii) 'Kalfa'; and (iii) 'Usta', with specific guidelines for quality training in each of these stages. This gives SIWES in Turkey an edge over SIWES in other countries in this study, mostly in Nigeria where such stages do not exist, but the German dual model has an edge over the Turkish model in the following ways:

- i. It offers efficient ways of producing graduates of value to be engaged in high technological professions;
- ii. It considers students as employees from the beginning and also grant such students an opportunity to develop their abilities and be integrated into the work force;
- iii. It offers a strong collaboration between companies and institutions of learning. As such various institutions have access to the requirements of the companies, and
- iv. It enables companies to get employees who are skillful not only in the theoretical aspect but also in practical training.

The practice of pairing practical training with academic activities in class rooms in Germany is also similar to that of America and it gives youths a leg-up in industrial settings. Moreover, the engagement of students in 3 to 4 days in a week and 1 or 2 days conversation at vocational schools in a week is also very similar to the American style, but it seems to be better than that of America. However, it should be noted that the German system is very distinct in the sense that students graduate with degrees, job experiences and profound knowledge of their careers.

Although, it could be observed that SIWES has elaborate structures and agencies in Nigeria but it appears ineffective and inefficient and may not be compared with that of the USA, Turkey and Germany because developed countries are highly industrilised hence, there are several industries for students to undertake their industrial training. Also, studies have shown that sophisticated machines are in existence in these countries to practically train interns by highly competent and well remunerated workers (Gillaspy, 2018; International Labour Organisation, 2019) but Nigeria is one of the under-developed nations in the world (Adedeji, 2014) with low level of industrialization. Besides, studies have shown that some of the nation's industries, most especially manufacturing companies have closed down while some other companies have relocated to the neighbouring countries due to several problems confronting national development (Onuba & Okon, 2016). To make the situation worse for students seeking places for their industrial training, most of the

existing companies have downsized (Onuba & Okon, (2016). It therefore becomes difficult for many students to get placement for industrial training.

The point of difference in SIWES between the above mentioned countries and Nigeria could further be identified in the leadership. While the leaders in the USA, Turkey and Germany seem to be committed in empowering their youth for sustainable development, Nigerian leaders are not innovative in their approach and actions (Curristine, *et al.*, 2007; Gberevbie, *et al.*, 2017 cited in Omonijo, Anyaegbunam, Nnatu, Uche, Adeleke & Okunlola, 2019; Yu-Hsia, *et al.*, 2019) towards youth empowerment and sustainable development. Thus, it could be difficult to exonerate the leadership of SIWES stakeholders from its ineffectiveness in producing competent students for employment after graduation.

Moreover, the period set apart for industrial training in tertiary institutions in Nigeria is too short as observed by Olugbenga, (2009). Thus, among the countries sampled, the SIWES duration in Nigeria is the shortest. Apart from the Covenant University that engages her students in compulsory industrial training, irrespective of discipline, for a period of two months during summer holiday, the period attached to industrial training in other tertiary institutions across Nigeria is not adequate to secure practical training needed to function satisfactorily.

In the case of Covenant University, students on five-year programmes have the opportunity of embarking on two months training for three years while students in four years programmes have the opportunity of engaging in industrial training for three years.

However, it should be noted that Covenant University's Industrial Training Scheme (CUITS) is quite different from the 6 weeks Students Work Experience Programme (SWEP) and six months Students Industrial Work Experience Scheme (SIWES) and it does not affect any of them. The time frame for each of them in the academic calendar of the University has been clearly specified. The duration, which is clearly different from other institutions might have helped students in acquiring training before graduation more than students from other institutions. This might have been responsible for the ranking of Covenant University as the first in her studies on employment in Nigeria and Nigerian Universities by the Stutern, a Lagos-based startup and an online platform that connects interns with employers with available internship positions (Jones, 2016). And it may not be unconnected with the poor ranking of other tertiary institutions in the study (Sodipo & Agboola, 2014).

#### 4. Summary and Concluding Remarks

Studies have shown a major concern for poor employability of the Nigerian graduates, mostly in natural and social sciences. The concern brought about the introduction of SIWES in tertiary institutions to bridge the gap between theoretical and practical training. In spite of this, the question of employability of Nigeria graduates has not improved (Hind & Moss, 2011, cited in Asuquo & Agboola, 2014). Most studies have traced the root of its inability to improve to poor implementation of SIWES, among other things. Upon this background, the study analyzed SIWES activities in four selected countries, which include the United States of America, Turkey, Germany and Nigeria, and also synthesized SIWES activities and concluded that SIWES in Nigeria could improve if the issue of: (i) poor quality of education; (ii) short duration of industrial training; (iii) insufficient industries and closure of some of the few existing ones; (iv) poor leadership of SIWES stakeholders could be properly addressed.

#### 5. Acknowledgements

The authors of this paper acknowledge the support received from the Covenant University Centre for Research, Innovation and Discovery (CUCRID) to ensure the success of this study.

#### References

Adedeji, G, (2014). Top 10 Reasons for Nigeria's Undeveloped Economy. Available on <http://witles.com/top-ten-reasons-for-nigerias-undeveloped-economy-117.html>. Accessed on December 19, 2017

- Adetiba, E., Egunjobi, V. O., Matthews, V. O. & Olajide, A. T. (2012). Development of e-SIWES Portal: A Web based Platform for Student Industrial Work Experience Scheme (SIWES) Management. *International Journal of Applied Information Systems (IJAIS)*, *Foundation of Computer Science FCS*, 3(8): 10-17
- Adewuyi, J. O & Okemkinde, T. (2013). Higher education financing in Nigeria: Issues and trends. *International Journal of Educational Administration and Policy Studies*, 5(7):121-127. DOI: 10.5897/IJEAPS12.033
- Adeyemi, T. O. (2011). Financing of education in Nigeria: An analytical review. *American Journal of Social and Management Sciences*. doi:10.5251/ajms.2011.2.3.295.303
- Akanmu, O. (2011). Graduate Employment and Employability Challenges in Nigeria. This paper was also presented at the British Council Global Higher Education Conference in Hong- Kong, on the 12<sup>th</sup> of March, 2011. Available on <http://olusfile.blogspot.com.ng/2011/01/putting-nigerian-graduate-to-work.html>. Accessed on February 3, 2016
- American Department of Labour, (2012).History and Fitzgerald Act. Available on <<https://www.doleta.gov/OA/history.cfm>> Retrieved on September 3, 2017 and Opportunities.OECD *Journal on Budgeting*, 7(1): 1-42
- Ani, A. O., Ogunbameru, B.O, Gaya, H.I.M & Ibrahim, A. (2006). Assessment of Students' Industrial Work Experience Scheme: Focus on Faculty of Agriculture Students, University of Maiduguri, Borno State, Nigeria. *Journal of Agricultural Extension*, 9: 38-42
- Asikogu, L. O & Okopu, N. P. (2008). Students Industrial Work Experience Scheme (SIWES) In Architecture: The Need For Appropriate Job Specification. *AARCHES Journal*, 8(1): 30-38
- Asuquo & Agboola, (2014). Nigerian Universities Outputs and Their Employability in the Labour Markets in South- South, Nigeria. *American Journal of Educational Research*, 2(12):1244- 1249. DOI:10.12691/education-2-12-18
- Atchoarena, D. (1995). Lifelong learning in Selected Industrialized Countries. International Institute for Educational Planning National Institute for Educational Research, Tokyo, Japan. UNESCO
- Bradley, S. (2012). The Value of Theoretical and Practical Knowledge. Vanseo Design. Available on <http://vanseodesign.com/whatever/theoretical-practical-knowledge/>. Assessed on Dec. 27. 2015.
- Coleman, J. S. (1990). *Equality and Achievement in Education*. Boulder, CO: Westview
- Currstine, T., Lonti, Z and Joumard, I. (2007). Improving Public Sector Efficiency: Challenges Development and the Challenges of Leadership in Nigeria, 1999-2015. *Sage Open*, 7(4)1-10. DOI: 10.1177/2158244017742951
- Ejiogu-Okereke, N. E & Onu, D. O. (2007). Perceived Factors Affecting Performance Of Extension Workers In Imo State, Nigeria. *Global Approaches to Extension Practice: A Journal of Agricultural Extension*, 3(1):21-29. <http://dx.doi.org/10.4314/gaep.v3i1.34894>
- Folarin, G. S. (2012). A Technical Report of the Students Industrial Work-Experience Scheme (SIWES). Department of Agricultural Economics and Extension, School of Agriculture and Agricultural Technology. Federal University of Technology (FUTA). Akure.
- Gillaspay, R. (2018). Industrial Development of Emerging Nations and the Environment. Available on <<https://study.com/academy/lesson/industrial-development-of-emerging-nations-and-the-environment.html>>
- Ifejika, F. C., Odunze, J. O., Ayanda and Sado, V. A. K. (2008). Analysis of Students Industrial Work Experience Scheme (SIWES) in NIFFR and the Challenge of Skilled Fishery Extension Manpower Development in Nigeria. *Journal of Agricultural Extension*, (12): 1: 59-65
- International Labour Organisation, (2019). Guidelines on occupational safety and health management systems, ILO-OSH 2001. Available on < [https://www.ilo.org/safework/info/standards-and-instruments/WCMS\\_107727/lang--en/index.htm](https://www.ilo.org/safework/info/standards-and-instruments/WCMS_107727/lang--en/index.htm)>
- Jones, C. (2016).Top 20 Nigerian universities with most EMPLOYABLE graduates. Available on < <https://www.naija.ng/1102905-top-20-nigerian-universities-employable-graduates.html#1102905>>.
- Kim, K. T. (2019). Core Competencies and Employability: The Mediating Roles of Digital Literacy and Learning Strategies. *The Journal of Social Sciences Research*, 5(1): 190- 200. DOI: <https://doi.org/10.32861/jssr.51.190.200>
- Kyunghwa, L & Heyjin, Y. (2019). Analysis of Differences in Core Competencies According to Major, Grade and Gender of Korean University Students. *The Journal of Social Sciences Research*, 5(1): 139-144. <https://doi.org/10.32861/jssr.51.139.144>
- Mafe, O. A. T. (2010). Effectiveness of SIWES with Respect to Chemical Engineering. Available on [http://www.nsche.org.ng/cms/publications/cms/uploads/lecture\\_nsche\\_engr\\_mafe.pd](http://www.nsche.org.ng/cms/publications/cms/uploads/lecture_nsche_engr_mafe.pd). Assessed on December, 27, 2015.
- Ming, R. C. T., Roslan, N. H., Abdullah, H & Mohamed, R. (2019). Morale, Training, Commitment and Safety of Malaysian Army Infantry Officers during Flood Disaster Response Missions. *The Journal of Social Sciences Research*, 5(1): 159-169. <https://doi.org/10.32861/jssr.51.159.165>
- Mofesola, A. (2012). An Appraisal of the Student Industrial Work Experience Scheme (Siwes) in Federal College of Agriculture Akure, *Greener Journal of Agricultural Sciences*, 2 (4):162- 166,

- Muhamamadu, B. A. (2017). Current Trends in Students Industrial Work Experience Scheme: A comparative Analysis of Nigeria, United States of America, Turkey and Germany. A Paper presentation in the Course of 2017 Student Industrial Work Experience Scheme Biennial Conference, Held at ShehuYaradu conference centre, Abuja between August 15 and 16, 2017
- Nse, J. (2012). Evaluation of Student Industrial Work Experience Scheme (SIWES) in Library School: The Federal Polytechnic Nekede Experience. *Library Philosophy and Practice (e- journal)*, Paper 728. Available on <http://digitalcommons.unl.edu/libphilprac/728>
- Nwafor, N. E., Uchendu, E. E & Akani, C. O. (2008). Need for Adequate Funding in the Administration of Secondary Education in Nigeria. *Global Journal of Educational Research*, 14(1): 119-124. <http://dx.doi.org/10.4314/gjedr.v14i1.6>
- Ojokuku, B.Y; Emeahara, E. N; Aboyade, M. A & Chris-Israel, H. O. (2015). Influence of Students' Industrial Work Experience Scheme on Professional Development of Library and Information Science Students in South-West Nigeria. *Library Philosophy and Practice(e-journal)*. 1330
- Ojedokun, O. E & Aladejana, F. O. (2012). Standards Responsible for the Decline in Quality of Secondary Education in Nigeria. *World Journal of Education*, 2(2): 76-84. doi:10.5430/wje.v2n2p76
- Olugbenga, A. F. (2009). "Towards Effective SIWES Curriculum Development in Applied Sciences for Adequate Skills Utilization: A Case Study of the School of Applied Science, NuhuBamalli Polytechnic, Zaria". *Pacific Journal of Science and Technology*. 10(1):234- 239.
- Omonijo, D. O., Oludayo, O. A., Eche, G. O., Uche, O. C & Ohunakin, F. (2015). Intentional turnover of the administrative staff in a private faith-based higher institution, Southwest Nigeria. *Mediterranean Journal of Social Sciences*.6 (2): 424-434. <https://doi.org/10.5901/mjss.2015.v6n2s1p424>
- Omonijo, D. O., Anyaegbunam, M. C., Nnatu, S. O., Uche, O. C.O., Adeleke, V. A & Okunlola, O. B. (2019). Exploring social problems associated with citations to ensure academic integrity. Proceedings of the 32nd International Business Information Management Association Conference, IBIMA 2018 - Vision 2020: Sustainable Economic Development and Application of Innovation Management from Regional expansion to Global Growth, 2019, Pages 7465-7474
- Onuba, F & Okon, A. (2016). 272 firms shut down in one year – MAN. Available on <http://punchng.com/272-firms-shut-one-year-man/> Accessed on December 19, 2017
- Rasool, F., & Botha, C.J. (2011). The nature, extent and effect of skills shortages on skills migration in South Africa. *South Africa Journal of Human Resource Management*, 9(1). doi:10.4102/sajhrm.v9i1.287
- Sapril, H., Saraka, J & Sjamsir, H. (2018). Secondary School Teachers' Performances at Sandaran Sub-District of East Kutai District East Kalimantan Indonesia. *The Journal of Social Sciences Research*, 4(5): 80-83.
- Sergeeva, S. A. (2019). Monitoring of Educational Programs for the Development of Professional Competencies by Procurement Specialists in Procurement Statistics. *Academic Journal of Interdisciplinary Studies*, 8(2): 239-246. Doi: 10.2478/ajis-2019- 0035
- Serpa, S. & Sa, M. J. (2019). Exploring Sociology of Education in the Promotion of Sustainability Literacy in Higher Education. *The Journal of Social Sciences*, 5 (1): 101-116. <https://doi.org/10.32861/jssr.51.101.116>
- Sodipo, O. O. (2014). Employability of Tertiary Education Graduates in Nigeria: Closing the Skills-Gap. *Global Journal of Human Resource Management*, 2(3): 28-36
- Sota, J. (2019). An Overview of the Main Phenomena and Trends that Accompanied the Development of Higher Education (1990 - 2013). *Academic Journal of Interdisciplinary Studies*, 7(3): 43-54. Doi: 10.2478/ajis-2018-0057.
- Talabi, A. S. (2012). Employee's Training and Development for Optimum Productivity: The Role of Industrial Training Fund (ITF), Nigeria. *Developing Country Studies*, 2(4): 50-58
- Tansel, A & Ogawa, K. (2008). The Effects of Apprenticeship Training Scheme on Employment Probability in Turkey. The World Bank for the Education Sector Study project. Available on
- Ugwuanyi, C. F. & Ezema, J. U. (2010). Challenges of Students' Industrial Work Experience Scheme (SIWES) in Library and Information Science in the ICT Environment. *Library Philosophy and Practice*, July, 1-6
- Ukwueze, F. N. (2011). Impact of Student Work Industrial Experience Scheme (SIWES) on Development of Graduate Employability Skills. *Nigerian Vocational Journal*, 16(1): 118-124
- Uyah, I. I. (2004). The Place and Relevance of SIWES in the Curricula of Science, Engineering and Technology (SET) Programmes. Workshop on the Student Industrial Work Experience Scheme, University of Lagos. Lagos
- Wodi, S. W and Dokubo, A. (2009). Appraisal of Students Industrial Work Experience Scheme (SIWES) in five Tertiary Institutions in Rivers State Nigeria: *European Journal of Social Sciences*, 7(3).
- Yaghoubi, M., Javadi, M., Rakhsh, F., & Bahadori, M. (2013). A study of determining factors affecting the performance of nurses based on the achieve model in selected hospital of Isfahan (Iran). *Journal of Education and Health Promotion*, 2, 49. <http://doi.org/10.4103/2277-9531.119033>
- Yu-Hsia, H., Shieh-Liang, C & Ting-Hao, H. (2019). A Study on the Mediating Effect of Learning Orientation on the Relationship Between Transformational Leadership and Employee Lifelong Learning. *The Journal of Social Sciences Research*, 5(1): 48-50. <https://doi.org/10.32861/jssr.51.48.50>

Zamiralova, T. A., Molchanov, K. V., Karpunina, A. V., Kvitkovskaya, A. A., Akhtyan, A. G & Bereza, N. A. (2019). On the Question of Inclusive Education in Higher School: Problems and Prospects. *Academic Journal of Interdisciplinary Studies*, 8(2): 261-266. Doi: 10.2478/ajis-2019-0037