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Influence of Students Industrial Work Experience Scheme (SIWES) On Vocational and Technical Education Students' Skills Development in Oyo State

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Abstract
The high rate of unemployment of vocational and technical education graduates in Nigeria was one of the major reasons for the introduction of the Students Industrial Works Experience Scheme (SIWES). This study was undertaken to x-ray the influence of SIWES programme on the development of students' employability skills. The study adopted a survey research design. The population for the study comprises 159 200level students of tertiary institutions offering vocational and technical education in Oyo State. The study was guided by three research questions and one hypothesis. Random sampling was employed to select the sample size. The instrument for the data collection was a structured 15 items questionnaire which was established using Cronbach Alpha which gave reliability co-efficient of 0.71. The data collected were analyzed using mean and standard deviation and the hypothesis was tested at 0.05 level of significant using t-test. It was found among others, that SIWES programme influences the students' practical skills in the workshop/library practice helped the students to understand the concepts used in their course programme and enable the students to make appropriate choice of career. The study concluded that SIWES is relevant to the course of study in vocational and technical education and influence the student to choose the appropriate career in their area. It is recommended among others, that SIWES programme should be made an annual exercise to allow students acquire all the relevant skills, attitudes, competencies through the training period, that government should encourage the SIWES scheme by funding the programme adequately.

Keyword: Vocational and Technical Education, Students Industrial Work Experience Scheme, Skills Development.

Introduction

The growing demand for well-trained craftsmen by industries and the need to produce technical and vocational education graduates with entrepreneurship skills made the researchers and policymakers to evaluate the influence of SIWES programme in Nigeria to ensure the quality of technical education and training (Okoye & Arimonu, 2016). Vocational and Technical Education (VTE) is a standard form of education and training to acquire practical skills, know-how and understanding necessary for employment in a particular occupation. The conceptual definition of VTE cut across educational levels and sectors. Osito (2011) submitted that VTE is an intellectually based form of education that goes beyond manual dexterity. It's aimed at providing the manpower who will apply acquired knowledge and skills in solving problems. Also, Olawale, Jegede and Olamide (2013) defined vocational

and technical education as the type of education that emphasize the application of skills, knowledge and attitudes required for employment in a particular occupation or cluster of related occupations in any field of social and economic activity.

Vocational and technical education equips people with a broad range of knowledge, skills and attitudes that are now recognized as indispensable for meaningful participation in work and life. Owelle in Ogbuanaya, Kemi and Ogunkelu (2018) expressed that no nation can develop to its fullest and keep pace with trends in science and technology without effective and efficient technical and vocational education and training. The authors concluded that acquisition of practical skills involves the development of new skills, practice and ways of doing things or performing a task, usually gained through training or experience.

Students' Industrial Work Experience Scheme (SIWES) according to Oyeniyi (2011) is a programme designed to expose and prepare students of institutions of higher learning for industrial work situation which they are likely to meet after graduation. In another development Oyedele in Ukwueze (2011) also stated that work experience is an educational programme in which students participate in work activities while attending school. A major reform in Nigerian higher education is the establishment of the student industrial work experience scheme (SIWES) - an industrial work-placement or workplace learning programme of the Industrial Training Fund. The Industrial Training Fund is Nigeria's premier human capital development agency, established in 1971 with the mandate to promote students' acquisition of technical and soft skills, stimulate human performance, improve productivity, and induce value-added production in industry and commerce (Industrial Training Fund, 2013). The compulsory student skills development programme contains workplace learning activities that every undergraduate student in the fields of science, management, business, technology and technical and vocational education must undergo in the industry while schooling (Akerejola, 2008; Omonijo et al., 2019; Olugbenga, 2009). SIWES is a six months on-the-site training that aims to expose students to the development of real-life skills (technical and soft) that they require for entry into the labour market upon graduation (Industrial Training Fund, 2013). Both male and female students of tertiary institutions participate in the SIWES programme and there is no bias against females engaging in technical occupation. The above is in line with Remmars (2011) who reported that a female student is equal, similar and desirous as their male counterparts in perception, disposition conformity and popularity despite class distinction. The authors claimed that female did not shy away from any job perceived as male oriented.

The objective of SIWES as stated by the Industrial Training Fund (2013) is to:

1. Provide an avenue for students in higher institutions of learning to acquire industrial skills and experience in their course of study.
2. Prepare student for the industrial work situation they will meet after graduation.
3. Expose students to work methods and techniques in handling equipment and machinery that may not be available in their institution.
4. Make the transition from school to the world of work easier and enhance student's contacts for job placement.
5. Provide students with an opportunity to apply the bridging in a real work situation to their training thereby bridging the gap between theory and practice

6. Enlist and strengthen employer's involvement in the entire education process and prepare students for employment in industry and commerce. .

The importance of SIWES is to equip the participating students with needed skills and competencies for employment and employment generation. Ojokutu, Emeahara, Aboyade and Chris-Israel (2015) expressed that SIWES is an effort to bridge the existing gap between theory and practice and expose students to necessary skills for a smooth transition from the classroom to the world of work. The authors expressed further that SIWES enables students to acquire technical skills and experience for professional development in their studies.

Alagbe (2007) stated that SIWES emerged as a stimulating factor in making students' practical experience real and their education meaningful. The authors expressed further that the scheme was aimed at the opening to the participants a wide range of gates to entrepreneurial training and skills development which will not only lead to their transition from the classroom to the office of employees but also create a job, reducing the level of unemployment. Active participation in SIWES enables vocational and technical education students to gain experience in handling equipment and machinery which may not be available in their institutions. The programme (SIWES) prepares the students to contribute to the productivity of their employers after graduation and as well creates enabling environment where they can develop and enhance their attributes such as critical thinking, creativity, initiative, resourcefulness, leadership, time management, presentation skills and interpersonal skills among others.

Ojokutu, Emeahora, Aboyade and Chris-Israel (2015) stressed that the programme (SIWES) is a planned, supervised training and intervention programme based on stated and specific learning and career objectives, leading to the development of occupational competencies of the participants. It also exposes and prepares students in institutions of higher learning for the industrial work situations which they are to meet after graduation. The authors also mentioned that the scheme helps to familiarize students with work methods and expose them to the necessary experience to handle equipment and machinery that are not available in their institutions. The authors goes on to say that SIWES also bridges the existing gap between theory and practice and expose students to necessary skills for a smooth transition from the classroom to the world of work.

Griffin and Celhoso (2018) added that SIWES provide students with an opportunity to interact with others that can assess their abilities and performance. More recent studies continue to cite many benefits for students that complete industry experience, including the improvement of teamwork, problem-solving and other vital employability skills. The authors expressed further that such experience (SIWES) leads to greater employment for graduates. The authors concluded that SIWES having gained a better understanding of the skills required in the workplace and their ability to perform such skills. In another development, Ugumanyi and Ezema (2010) noted that SIWES plays a significant role in human resources development in Nigeria. The authors expressed that SIWES is a food strategy for sustainable skills development and utilization in Nigeria.

Despite the importance of SIWES in the professional development of students over the years, there has not been evidence that students acquiring the basic skills through SIWES particularly as it relates to vocational and technical education students. Njoku (2014) pointed

out that there are pieces of evidence of the inability of the tertiary institutions to meet the set standard of the quality of education for some years now; leading to the situation where tertiary institutions graduates now parade the streets with paper qualifications and lack the needed saleable skills for gainful employment. Tymon (2013) submitted that employers find graduate unprepared "for the world of work and lack some of the most basic skills needed for successful employment" Likewise, respondents to a study of Business graduates agreed that graduates were deficient in vital non-technical skills. The above expression indicates that graduates are often found lacking not necessarily in technical skills-but those skills typically considered soft such as communication and teamwork.

Also, studies have shown that SIWES has not formed a needed bridge to close the gap between the theories studied in the classroom on the other hand, and the practice as obtained in the actual work situation. Orikpe (2013) argued that the inability of SIWES to meet the objectives of its introduction was because only a little attention is paid to the training value of the scheme. The author expressed further that the students did not take the scheme serious and only a few employers are interested in employing the students not even as learning workers but as producing workers. Okolocha and Ibik (2014) opined that the major problems of SIWES in Nigeria are lack of proper implementation and lack of commitment by tertiary institutions, industries, government and the coordinating agencies. Ikechukwu (2016) stated that SIWES has failed in meeting the practical production skills, attitudes, abilities and competencies required to make Nigeria technological, engineering, business and other vocational education graduates readily employable or to be self-reliant. Vocational and technical education programme has been in existence in Nigeria for years and presume not to have achieved the desired result. This could also be the case with tertiary institutions in Oyo State that offer vocational and technical education. It is against this background that the researchers sought to find out whether vocational and technical education students of tertiary institutions in Oyo State who have taken part in SIWES develop their practical skills; whether SIWES helps the students to develop important concepts in their area of study and whether SIWES facilitate the students' classroom situation. These questions, therefore underline the need for this study.

Research Questions

This study is guided by the following research questions:

1. Does SIWES experience influence the students' practical skills development in their workplace?
2. How far has the SIWES helped students in understanding the concepts used in their course programme?
3. Does SIWES enable students to make an appropriate choice of career?

Null Hypothesis

The null hypothesis was tested at 0.05 level of significance.

There is no significant difference in the mean rating of male and female vocational and technical education students on how SIWES enable them to make appropriate choice of career.

Methodology

Descriptive research design was adopted in this research work. Questionnaire titled “Influence of Students Industrial Work Experience Scheme (SIWES) in the development of

students employability skills in Oyo State" was the instrument used for collecting data. The study used total enumeration comprising vocational and technical education students in Oyo State tertiary institutions. These are Emmanuel Alayande College of Education, Oyo; College of Education, Lanlate and Federal College of Education, Oyo. The population of the study was 530 200Level students and random sampling techniques were employed to select a total of 159 students which represent 30% of the population. The sample size was determined by the idea of Musonda (2012) who postulated that the larger the population, the lesser the sample. The questionnaire used to consist of three sections with fifteen (15) opinion statement designed in a 4-point rating scale. The instrument was validated by three experts in measurement and evaluation and vocational and technical education in the Faculty of Education, Alex Ekuweme Federal University, Ndufu-Alike Ebonyi State, Nigeria. Cronbach Alpha was used for testing the reliability of the instrument and a reliability coefficient of 0.71 was obtained. The researchers administered the questionnaire to ensure that proper explanation was given to the respondents in order to generate the needed data. Data collected were analyzed using mean and standard deviation in answering research question and t-test to test the null hypothesis at a probability level of 0.05level of significance and the decision rule to agree any item was based on the mean of 3.50 and above while to disagreed any item mean below 3.50.

Results

The results for this study were obtained based on the research questions answered and the hypothesis tested. The research questions and hypothesis tested are presented in Tables 1, 2, 3 and 4 as follows.

Research Question 1: What is the influence of SIWES experience on students' practical skills development in the workplace?

Table 1: Vocational and Technical Education students' perception of SIWES as it influences practical skills development in the workplace**.**

S/N	Items	$\bar{X}$	SD	Remarks
1.	The SIWES experience enhances students' performance in the workplace.	4.46	0.61	Agreed
2.	SIWES exposes students to new work methods.	3.96	0.98	Agreed
3.	SIWES makes a transition from school to work easier.	3.75	1.44	Agreed
4.	SIWES promote employers involvement in educations process and prepares students for employment.	3.73	1.18	Agreed
5.	SIWES experience enhances students' knowledge of handling tools and equipment in workplace.	4.38	0.49	Agreed

Table 1 showed that all the 5 items on the influence of SIWES on practical workplace skills had their mean values range from 3.73 – 4.46 which were above the cut-off points of 3.50. The standard deviation indicates that the responses do not vary widely from the mean.The above responses revealed that SIWES influences students' practical skills in the workplace.

Research Question 2: How far has SIWES helped students in understanding the concepts used in their course programme?

Table 2: SIWES and Concepts in students Areas of Study

S/N	Items	$\bar{X}$	SD	Remarks
1.	SIWES enhance industrial visitation organized by VTE school so that the students can reflect on the actual job practice in demand.	4.32	0.78	Agreed
2.	SIWES encourages schools to use tools/equipment found in the industry in their schools' workshop and laboratory.	4.14	1.12	Agreed
3.	SIWES provide a collaborative provision of employment opportunities to the students by the industry.	4.55	0.51	Agreed
4.	SIWES experience makes teaching concepts in related courses easier.	4.32	0.78	Agreed
5.	SIWES input greatly in curriculum development through industry expert.	4.57	0.55	Agreed

Table 2 showed that all the 5 items on how far SIWES has helped students in understanding the concepts used in their course programme had their mean values ranged from 4.14 to 4.57 which were above the cut-off point of 3.50 and the standard deviation indicates that the responses do not vary widely from the mean. This revealed that SIWES has helped the vocational and technical education students understand the concepts used in their course programme.

Research Question 3: How does SIWES enable the students to make the appropriate choice of career?

The data for answering research question three are presented in table three below.

Table 3: Distribution of SIWES and Students Choice of Career

S/N	Items	$\bar{X}$	SD	Remarks
1.	The experience of SIWES exposes students to the intricacies in their areas of specialization in vocational and technical education.	4.65	0.44	Agreed
2.	SIWES experience serves as added advantages to employment opportunities.	4.48	0.63	Agreed
3.	SIWES experience gives the students the opportunities to make suggestions to the institutions regarding new charges in the world of work.	4.65	0.44	Agreed
4.	Professionals and resource persons organize seminar/workshops on career and industry related issues.	4.40	0.61	Agreed
5.	SIWES makes industries provide job opportunities for outstanding students after the internship programme.	4.63	0.60	Agreed

From the data presented in table 3 above all the 5 items on how SIWES enable the students to make appropriate choice of career had their mean values ranged from 4.40 to 4.65 which were above the cut-off points of 3.5. The standard deviation indicates that the responses do not vary widely from the mean. The above responses show that SIWES enable vocational and technical education students make an appropriate choice of career.

Test of Hypothesis

Null Hypothesis 1: There is no significant difference between the male and female students rating on how SIWES enables them to make an appropriate choice of career.

Table 4: t-test analysis of the mean ratings of responses of male and female vocational and technical education students on how SIWES enable them to make appropriate choice of career

Gender	No.	$\bar{X}$	SD	df	LS	t-cal	t-tab
Male	85	3.19	0.68				
Female	110	4.21	0.62	193	0.05	1.33	1.96

The table above shows that the calculated value was lower than the t-table value of 1.96. This shows that there was no significant difference in the mean rating of the male and female vocational and technical education students on how SIWES enables them to make appropriate choice of career.

Discussion of Findings

The findings of the present study on research question one identify the influence of SIWES on students practical skills in workplace practice which were the enhancement of students performance, exposes students to new work methods, make the transition from school to work easier. Others include: promote employers involvement in the education process and prepare the students for employment and enhance vocational and technical education students' knowledge of handling tools and equipment in the workshop and laboratory among others. The findings in this study are in agreement with the findings of Raimi (2015) who x-ray in her study that students were able to learn about development in their courses of study through their participation in SIWES that is added a good deal to their knowledge and they were able to apply the knowledge gain at school to the real-life situation. Also, the findings of the study agree with the findings of Mofe (2009) who stated that when students conscientiously participate in SIWES they acquire skills competencies leading to their professional development. The implication of the result shows that SIWES influences skills acquisition and professional development.

The findings of the study in respect to research question two identified how SIWES helped the vocational and technical education students to understand the concepts used in their study areas which were the enhancement of students visitation to industry to reflect the actual job practice in demand, encourages schools to use tools/equipment found in the industry in their school workplace, provide collaboration of employment opportunities to the students by the industry, making teaching concept in related courses easier and improve greatly in curriculum development through industry expert. The findings of Akerejola (2008) affirmed the findings of this study where the authors stressed that SIWES experience is an educational programme where students participate in the work activities while still attending school. The scheme gives the students the opportunities to be directly involved and be part of an actual work situation outside the classroom. The findings were also in consonance with the assertion of Mafe (2010) who stated that someone who has been exposed to both the

theoretical and practical methods and the hands-on experience would and should be better in the real work.

The findings of the study in respect to research question three showed how SIWES enable the vocational and technical education students to make appropriate choice of career which exposed the students to intricacies in their different areas of vocational and technical education, serve as an added advantage to employment opportunities, give the students the opportunities to suggest the institutions regarding the new changes in the world of work, organizes seminar/workshop on career and industry-related issues, provide a job for outstanding students after the internship programme.

The findings of this study agree with Mafe (2009) who stated that the benefits accruing to students who participate in SIWES acquired the require training and become relevant when required to perform job or functions. In the same vein Ojokutu, Emeahora and Adeboye (2015) also in line with the study and said that SIWES prepare the students for employment and making the transition from school to the World of work after graduation. The authors stressed that participation in SIWES enhances students contacts with potential employers while on training.

The finding from the hypothesis showed that the calculated value is 1.31 at 157 degrees of freedom and at 0.05 level of significance. Since t-calculated value is less than the t-critical value of 1.96, the null hypothesis is not rejected as postulated. Therefore, there are no significant differences in the mean responses of male and female vocational and technical education students on how SIWES enable them to make appropriate choice of career. The finding is in line with Remmars (2011) who reported that a female student is equal, similar and desirous as their male counterparts in perception, disposition conformity and popularity despite class distinction. The author claimed that female did not shy away from any job perceived as male oriented.

Conclusion

This study adds to the previous research that suggests that undergraduates work experience and SIWES programme in particular, has a positive influence on a students' early career success. SIWES is a model of school-industry relationship. It exposes and prepares the students for industrial working situations, working methodology and experience that will be needed in handling machines and equipment that may not be available in the school. Conclusively, SIWES enhances and facilitates theoretical learning. Based on the analysis of data and findings of this study, it can be concluded that the SIWES programme is relevant to the course of study in vocational and technical education in tertiary institutions in Oyo State. This empirical investigation has revealed outstanding findings and based on that, the following recommendations are important; the government should make SIWES programme an annual exercise to allow students profession and achievement of the need work habits, skills, attitudes and competencies through the training periods. Also, students research projects must be based on solving a particular industry problem as identified during the period of training. There should be a post attachment seminar to review SIWES programme regularly and the administrators of vocational and technical education in tertiary institutions in Oyo State should organize orientation to industrial supe5rvisors to fully understand the role they need to play in the students' attachment programme. Lastly, government should encourage the SIWES scheme by funding the programme adequately.

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