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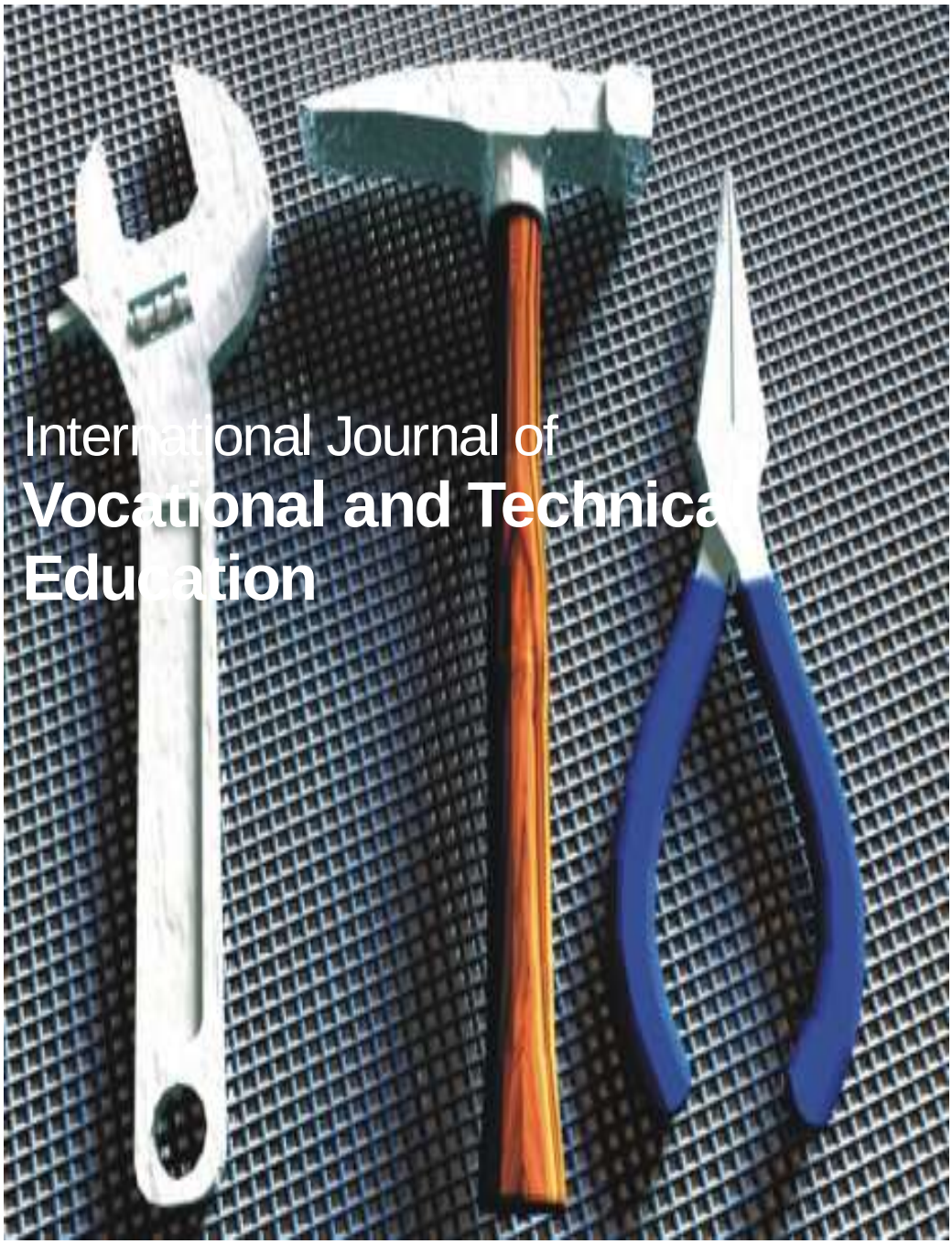

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Full Length Research Paper

An evaluation of equipment for the teaching and learning of Business Studies in Public Junior Secondary Schools in Enugu State

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Received 9 April, 2018; Accepted 3 October, 2018

This study seeks to evaluate the equipment for teaching of business studies in Public Junior Secondary Schools in Enugu North Local Government Area. It adopts the survey design. Two research questions and one hypothesis tested at 0.05 level of significance were used. Population and sample consisted of 82 business studies teachers and principals. A validated questionnaire with coefficients of 0.86 and 0.90 was used for data collection. Mean, standard deviation and z-test were used for analysis. Findings showed that business studies equipment needed for effective teaching and learning of business studies are mostly not available, the available ones are grossly inadequate in most schools. Gender has no significant effect in the respondents mean ratings on the adequacy of equipment for teaching of business studies. The researcher concludes that students will acquire more theoretical knowledge than the practical skills required of them since the equipment that will be used for hands-on experience are not available. Based on the findings and conclusion, it is recommended, among others, that the state government should make provision for the supply of business studies equipment to the schools. Parents Teachers Association should assist in the provision of some of these equipment needed for the teaching and learning of business studies.

Key words: Evaluation, equipment, business studies, Junior Secondary Schools.

INTRODUCTION

The ultimate aim of education is to bring about desirable goals and outcome for sound education. The quality of education an individual receives determines the extent of his usefulness to himself and the nation at large. Nigeria today is experiencing mass unemployment rate unlike in the past when people are employed on graduation. In an attempt to find a lasting solution to this unemployment saga there has been a series of review of educational policies aimed at job creation, self-employment after graduation, acquisition of appropriate skills that could be transformed to economic, social, physical and mental competencies and contribute to the development of the nation (Federal Republic of Nigeria, 2012).

In line with these, Business education which is escribed as an education for business and about business could make a person to acquire skills for social and economic transformation. With the introduction of the 6-3-3-4 stem of education (now 9-3-4), Business Studies at the

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Junior Secondary School gained prominence. It is aimed at making education more functional. At the Junior Secondary School level, Business Studies include the following subjects: typewriting, shorthand, book-keeping, office practice and commerce (FRN,2012). These business subjects consist of skill and non-skill business subjects.

The Comparative Education Study and Adaptation Centre (CESAC) revised 2007 listed the general objectives of Business Studies as follows:

-Provide the orientation and basic skills with which to start an occupation for those who will not go for further training.
-Provide basic business skills for personal use now and in the future.
-Prepare students for further training in Business Studies.
-Relate the knowledge and skills to the national economy.
-Develop basic skills in office occupation.

Topics under each theme were analyzed to enable the learner start from simple to complex and so encompassing and robust in preparing the student better for a reform-driven environment and business world.

Educational evaluation is a method to prove whether the expectations and aims of educational process reflect reality. It is used to obtain information which is used to draw conclusions which assist in decision making. It is an on-going process which includes researching and collecting information from different sources about the learning process, about the content of a programme, about the method, the context, and the outcomes of an educational activity. Based on the evaluation one can draw conclusion and recommendations. Evaluation is the process of making value judgments on the basis of pertinent information that can be gathered about any significant aspect of the educational programme. Evaluation in Business Education is to make value judgment on the adequacy or otherwise of a business education programme. Oluwodun (2010) described evaluation as a process or cluster of processes enacted to provide data so that decision can be made as to whether something should be accepted or changed, modified or eliminated. Evaluation is designed to equip students with the necessary skills and competencies required to learn in the learning environment. Evaluation is a systematic and continuous process of assessing the contents, learning experiences and instructional objectives (Dabbari and Ibe, 2012). Enwemasor (2016) defined business education as a part of vocational education that prepares individuals for gainful employment through the acquisition of skills and knowledge that prepare individuals for the world of business. Ijarshar and Ayidiowu (2015) saw business education as a fundamental theory of business which helps an individual to perform well in the world of business. It is that aspect of education that provides the knowledge, skills, understandings and other attitudes needed to perform well in the world of business as providers and/or consumers of goods and services that business offer. Okoro (2015) noted that business education is a type of education that assists individual to acquire skills, which they can apply to solve problems in business and office occupations.

Equipment of any course of study constitutes one of the principal determinants of the competence of the graduates. Provision of equipment and other teaching and learning materials is of paramount importance in teaching/learning of business studies. It is only when these needed equipment are provided that the products will become proficient in the world of work, through the acquired skills, without being re-trained by the employers of labour. When the necessary equipment for teaching and learning of Business Studies are not provided, teaching and learning become theoretical and ineffective. Esene and Ohiwerei (2005) defined equipment as business appliances or office type machines that we use in teaching and practice of business subjects. These include typewriters, computers, dictating machines, stencil duplicators, telephone, filing cabinets, etc. Provision of equipment for the teaching and learning of Business Studies is a necessity. The knowledge and skills acquired are expected to prepare the learners to acquire basic practical knowledge required to function well in the society or progress successfully in their education. The classroom is expected to prepare students for the office through adequate, practically oriented training with the use of various equipment as instructional materials.

Statement of the problem

The introduction of business subjects at the Junior Secondary School levels in Nigeria is principally aimed at equipping the students with skills that will make them employable in the world of work (Esene, 2001). In order to achieve the objectives of Business Studies at this level, the Junior Secondary School curriculum listed some equipment that will aid in the impartation of these skills to the students. However, some scholars have noted that the objectives of business studies cannot be achieved without the adequacy of these equipment. Due to poor performance of students, some scholars have attributed that to non-equipment. Akume and Miller (2009) noted that inadequate provision of equipment in our secondary schools have negative effect on the academic performance of the students. Oladeji and Ojewale (2011) noted that some of our secondary schools are not provided with equipment and this resulted to poor preparation and delivery of lessons by teachers. The worry of the study is the poor performance of junior secondary school business studies students in both internal and external examinations. There is need to

evaluate the equipment for the teaching of these subjects in line with the curriculum. These and other issues form the basis for this study.

Purpose of the study

The main purpose of this study is to evaluate the equipment for the teaching and learning of Business Studies at Junior Secondary Schools. Specifically, this study sought to:

1. Ascertain the physical equipment available for the teaching and learning of Business Studies in the Junior Secondary Schools.
2. Determine the adequacy of the equipment as required from the curriculum.

Research question

1. Are the equipment available for the teaching and learning of Business Studies in the Junior Secondary Schools.
2. To what extent are the equipment adequate for the teaching and learning of Business Studies in the Junior Secondary Schools as required by the curriculum.

Hypothesis one

1. There is no significant difference between the male and female teachers on the adequacy of equipment in the Junior Secondary Schools in Enugu North LGA.

METHODOLOGY

The design of the study is a descriptive survey as recommended by Nworgu (2006) for studies that seek opinion of a population or its representative sample on an existing phenomenon using questionnaire or interview. The study was conducted in Junior Secondary Schools in Enugu North LGA of Enugu State Nigeria. The area comprises of fourteen (14) public secondary schools, which are located at: Trans-Ekulu, Abakpa Nike, Enugu Town, G.R.A., and Independence Layout. The entire population was studied without sampling because the size is not too large. A validated 5-point rating scale questionnaire with 54 items was used for the study. The reliability of the instrument was determined with the split half method. The instrument was administered to 20 Business Studies teachers in Annunciation Secondary School in Enugu East and the data collected were analyzed with the Spearman Rank Order Correlation Coefficient formula to determine the relationship between the two scores and the reliability coefficients of 0.86 and 0.90 were obtained for the two sections of the instrument which indicated that the instrument was reliable. Copies of the questionnaire were administered directly by the researcher. Contacts were established with the Heads of Department to know when to re-visit the institutions to retrieve the completed instrument. This procedure ensured careful completion of the instrument by the respondents as well as a high response rate as 80 copies (representing 98%) were retrieved and used for the study. The arithmetic mean and standard deviation were used to analyze data to answer the research questions and establish the homogeneity or otherwise of the respondents' means while z-test was used to test the hypotheses at 0.05 level of significance.

A mean rating that is equal to or greater than 2.5 would be regarded as available and adequate while any item with a mean rating that is less than 2.5 would be regarded as not available and not adequate. A hypothesis will be upheld if the calculated value is less than the significant level of 0.05 and rejected if the calculated value is equal or greater than the significant level of 0.05.

Research Question 1

To what extent are the equipment available for the teaching and learning of Business Studies in the Junior Secondary Schools.

Data in Table 1 show that eleven equipment have mean scores ranging from 2.50 to 3.50 meaning that the respondents noted that these equipment are available in the school for teaching and learning of Business Studies. The rest with mean scores between 1.4 and 2.4 indicate that the respondents noted that the equipment were not available The grand mean score of 2.00 indicate that, generally, the respondents noted that the equipment for the teaching and learning of Business Studies are not available in their respective schools. The standard deviation scores indicate that the respondents were homogenous in their assessment.

Research Question 2

To what extent were the equipment adequate for the teaching and learning of business studies in the Junior Secondary Schools.

Data in Table 2 showed that seven equipment have mean scores ranging from 2.50 to 3.50 which means that the respondents noted that these equipment are adequate in the school for teaching and learning of Business Studies. The rest with mean scores between 1.4 and 2.4 indicated that the respondents noted that the equipment were not adequate. The grand mean score of 2.00 indicates that, generally, the respondents noted that the equipment for the teaching and learning of business studies are not adequate in their respective schools. The standard deviation scores indicate that the respondents were homogenous in their assessment.

Hypothesis

1. There is no significant difference between the male and female teachers on the adequacy of physical equipment in the Junior Secondary Schools in Enugu North LGA.

To test the hypothesis, the z-values of the two groups of respondents were computed at 0.05 level of significance. The result of the computation is shown in Table 3.

Result in Table 3 showed that with 102 degrees of freedom and testing at 0.05 level, the critical z-value of 2.0 is more than the z-calculated value of 0.38. This means that no significant difference existed between male and female respondents on the adequacy of equipment in Junior secondary schools in Enugu North LGA. The hypothesis was, therefore, upheld.

RESULTS AND DISCUSSION

The result of the data analysis revealed that the Business Studies' equipment needed for the effective teaching and learning of Business Studies at the Junior Secondary Schools are mostly not available and even the few

Table 1. Mean and standard deviation of respondents on the extent of availability of equipment for the teaching and learning of business studies in the Junior Secondary Schools (N = 80).

S/N	Availability of equipment for the teaching and learning of Business Studies in Junior Secondary Schools	Mean	SD	Remarks
1	Typing room	3.0	1.2	Available
2	Domwell desks	2.2	0.8	Not available
3	Swivel typing chairs	1.8	0.5	Not available
4	Typewriters	2.2	0.8	Not available
5	Ink duplicating machine	2.4	0.8	Not available
6	Photocopier	1.9	0.4	Not available
7	Filling cabinet	1.9	0.4	Not available
8	Stapling machine	2.0	0.6	Not available
9	Perforator	2.2	0.8	Not available
10	Guillotine	1.8	0.3	Not available
11	Stop watches	1.8	0.3	Not available
12	Tape recorder	2.0	0.8	Not available
13	Alarm clock	2.0	0.8	Not available
14	Bulletin boards	2.0	0.8	Not available
15	Adding/Listing machine	2.2	0.8	Not available
16	Punch	2.0	0.8	Not available
17	Incoming register	2.2	0.8	Not available
18	Dispatch book	2.2	0.8	Not available
19	Visitor’s book	2.2	0.6	Not available
20	Telephone message pad	2.2	0.6	Not available
21	Request form booklet	2.4	0.8	Not available
22	Store record book	2.5	1.0	Available
23	Postage book	2.0	0.6	Not available
24	Shorthand pens	2.0	0.8	Not available
25	Chalkboard	3.5	1.5	Available
26	Sound tapes/cassettes	2.0	0.8	Not available
27	Shorthand note books	2.0	0.8	Not available
28	File Jackets	3.0	1.0	Available
29	Carbon paper	3.0	1.0	Available
30	Reams of plain typing sheets	3.2	1.4	Available
31	Filmsies for carbon copies	2.2	0.8	Not available
32	Typewriter eraser	3.0	1.0	Available
33	File tags	3.5	1.6	Available
34	Booklets of ruled Ledger sheets	2.0	0.6	Not available
35	Analysis sheets for trial balancing	1.8	0.2	Not available
36	Duplication paper	1.8	0.2	Not available
37	Typing papers	2.0	0.6	Not available
38	Business document specimen	2.2	0.8	Not available
39	Stencil	2.2	0.8	Not available
40	Computer	2.2	0.8	Not available
41	Charts of shorthand outlines	3.0	1.4	Available
42	Liquid correction fluid	2.2	0.8	Not available
43	Newspapers	3.0	1.0	Available
44	Films	2.1	0.6	Not available
45	Posters	2.2	0.8	Not available
46	Cartoons	1.8	0.2	Not available
47	Calculator	1.8	0.2	Not available
48	Magazines	2.0	0.4	Not available
49	Radio	2.0	0.6	Not available

Table 1. Cont'd.

50	Television	2.0	0.6	Not available
51	Printers	2.2	0.8	Not available
52	Fax machine	1.8	0.4	Not available
53	Books	2.5	0.9	Available
54	Account Ledgers	2.0	0.8	Not Available
-	Grand Mean	2.2	1.4	Not Available

Table 2. Mean and standard deviation of respondents on the adequacy of the equipment for the teaching and learning of business studies in the Junior Secondary Schools (N = 80).

S/N	Adequacy of the equipment for the teaching and learning of Business Studies in Junior Secondary Schools	Mean	SD	Remarks
1	Typing room	3.0	1.2	Adequate
2	Domwell desks	2.0	0.6	Not Adequate
3	Swivel typing chairs	1.8	0.5	-
4	Typewriters	2.2	0.8	-
5	Ink duplicating machine	2.2	0.8	-
6	Photocopier	1.8	0.4	-
7	Filling cabinet	1.6	0.2	-
8	Stapling machine	2.0	0.6	-
9	Perforator	2.2	0.8	-
10	Guillotine	1.8	0.3	-
11	Stop watches	1.6	0.4	-
12	Tape recorder	1.8	0.6	-
13	Alarm clock	2.0	0.8	-
14	Bulletin boards	2.0	0.8	-
15	Adding/Listing machine	2.4	2.1	-
16	Punch	2.0	0.8	-
17	Incoming register	2.4	2.1	-
18	Dispatch book	2.2	0.8	-
19	Visitor's book	2.2	0.6	-
20	Telephone message pad	2.2	0.6	-
21	Request form booklet	2.4	0.8	-
22	Store record book	2.5	1.0	-
23	Postage book	2.0	0.6	-
24	Shorthand pens	2.0	0.8	-
25	Chalkboard	3.0	1.5	Adequate
26	Sound tapes/cassettes	2.2	1.4	Not adequate
27	Shorthand note books	2.0	0.8	-
28	File jackets	3.2	1.0	Adequate
29	Carbon paper	3.0	1.0	Adequate
30	Reams of plain typing sheets	3.0	1.4	Adequate
31	Filmsies for carbon copies	2.2	0.8	Not adequate
32	Typewriter eraser	3.0	1.0	Adequate
33	File tags	3.5	1.6	Adequate
34	Booklets of ruled ledger sheets	2.0	0.6	Not adequate
35	Analysis sheets for trial balancing	1.8	0.2	-
36	Duplication paper	1.8	0.2	-
37	Typing papers	2.0	0.6	-
38	Business document specimen	2.0	0.8	-
39	Stencil	2.2	0.8	-

Table 2. Cont'd.

40	Computer	2..4	0.8	-
41	Charts of shorthand outlines	2.0	1.4	-
42	Liquid correction fluid	2.2	0.8	-
43	Newspapers	3.0	1.0	Adequate
44	Films	2.1	0.6	Not adequate
45	Posters	2.2	0.8	-
46	Cartoons	1.8	0.2	-
47	Calculator	1.8	0.2	-
48	Magazines	2.0	0.4	-
49	Radio	2.0	0.6	-
50	Television	2.0	0.6	-
51	Printers	2.2	0.8	-
52	Fax machine	1.8	0.4	-
53	Books	2.5	0.9	-
54	Account ledgers	2.0	0.08	Not Adequate
	Grand mean	2.00	1.2	Not Adequate

Table 3. z-test analysis of the difference between respondents' mean ratings on the adequacy of equipment in the Junior Secondary Schools in Enugu North LGA, based on gender (male and female).

Gender	N	X	SD	z-cal	A	Df	z-crit	Remark
Male	08	2.5	1.82	0.38	0.05	102	2.00	NS
Female	72	2.8	1.82	-	-	-	-	-

available ones are grossly inadequate in most schools as required by the curriculum. This shows that the teaching of business studies are more of theory than practical since the equipment that will be used for hands-on experience are not there for the students to use. Not even a single school out of the 14 schools had photocopying machine, radio, television, etc.

The findings agreed with that of Miller and Akume (2009) which revealed that business studies equipment needed for effective teaching and learning of Business Studies at the Junior Secondary School in Delta State were grossly inadequate and in most cases unavailable in most schools. This finding disagrees with the studies of Esene and Ohiwerei (2005) which revealed that instructional materials and teaching equipment were available for use in the teaching and learning of business studies in public secondary schools in Delta South Senatorial District.

However, the status of equipment in most of the secondary schools visited is appalling. Most of the schools had no electric typewriters, functional computers, television, photocopier, even manual typewriters. In some cases, where the equipment are available, they are not adequate in relation to the number of students enrolment or not even functional at all.

Conclusion

Based on the findings of the study and the discussion, it is concluded that equipment for the teaching and learning of business studies in Enugu North Local Government Area as stipulated in the curriculum are grossly inadequate and unavailable in most schools.

RECOMMENDATIONS

Based on the findings and conclusion, the following recommendations are made:

(1) The state government should make provision for the supply of Business Studies' equipment to the schools, where Business Studies are taught for effective teaching and learning.
(2) The Parents Teachers Association (P.T.A) should also assist in the provision of some of these equipment needed for the teaching and learning of Business Studies.
(3) The obsolete equipment should be replaced or maintained to make teaching interesting and effective.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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Full Length Research Paper

Evaluating the effectiveness of Students Industrial Work Experience Scheme (SIWES) programme to ensure quality of technical, vocational education and training in technical colleges in Lagos State

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This study evaluated the effectiveness of SIWES Programme in Lagos State to ensure quality of technical, vocational education and training. Three research questions and two hypotheses guided the study in which survey research design was used. The entire population of 130, comprising 120 teachers of technical vocational education and training in Lagos State and also 10 industrial supervisors from Reckit and Benkiser in Ogun State was used for the study. A 35-item questionnaire was used for data collection. The instrument was validated by three experts. Cronbach Alpha reliability method was used to determine the internal consistency of the instrument at a coefficient of 0.86. A total of 130 copies of the questionnaire were administered but only 127 copies were retrieved and analysed using mean, standard deviation and t-test. The study found out that there exist 10 challenges of Student Industrial Work Experience Scheme in developing the needed skill in the industry, 15 strategies that can be adopted in evaluating the effectiveness of SIWES in Nigeria and 10 remedies to the challenges faced by TVET student on their industrial attachment programme were identified. The paper recommended that government should grant tax relief and other incentives to private sector organizations who implement the SIWES programme satisfactorily, and that the administrators of TVET in technical colleges in Lagos State should organize orientation to industrial supervisors to fully understand the role they need to play in the student attachment programme. The paper concluded by saying that most of the students admitted to TVET programme found themselves in a helpless situation of securing a place of industrial attachment and also employment in the industry, hence the need for the evaluation of the SIWES programme.

Key words: Technical and vocational education and training (TVET), Students Industrial Work Experience Scheme (SIWES), evaluation, graduates, and practical skills.

INTRODUCTION

The growing demand for well-trained craftsmen by industries and also the need to produce technical and vocational education graduates with entrepreneurial skills who can be employers of labour and also add to the development of a nation have made researchers and policy makers to evaluate the effectiveness of SIWES programme in Nigeria to ensure quality of technical vocational education and training. Okoye and Arimonu

(2016) in Momoh (2012) stated that technical vocational education and training is a form of education whose primary purpose is to prepare persons for employment in recognized occupation. The concept of technical, vocational education and training is used as an all-embracing term in the educational process involving, in addition to general education, the study of technologies and related sciences and acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life (Federal Government of Nigeria - FGN, 2014). Eze (2013) also opined that technical, vocational education and training is that type of education that emphasizes 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. Audu et al. (2013) opined that technical vocational education and training are those aspects of education which involves general education; the study of technologies and related science; and the acquisition of practical knowledge, understanding, attitudes and skills relating to occupations in various sections of economic and social life. For the purpose of clarity, technical, vocational education and training is that skill-based programme designed for sub-professional level education and based on a specific vocation. Technical, vocational education and training education develops in the individual capacities for decision making and the qualities necessary for active and intelligent participation, team work and leadership at work and in the community as a whole and also for the industrial development of the nation. TVET equips people with a broad range of knowledge, skills and attitudes that are now recognized as indispensable for meaningful participation in work and life (Okwelle, 2013). This is because no nation can develop to its fullest and keep pace with trends in science and technology without effective and efficient technical and vocational educational and training (TVET) system (Imogie, 2014). In line with this, Idoko (2014) explained 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) is a skill development program designed to prepare students of Nigerian tertiary institutions for transition from the college environment to work (Akerejola, 2008) as cited in Abraham- Ibe (2014). The need for this arises as a result of global competitiveness in the industry and also the need to produce graduates of TVET who have the skills needed in the industries in Nigeria and the world at large (Njoku, 2014). Students' Industrial Work Experience Scheme (SIWES) is a skill development programme established by Industrial Training Fund (ITF) in 1973 with the headquarters in Jos Nigeria. It is meant to enable students in tertiary institutions in Nigeria acquire technical skills and experience for professional development in their course of study as it bridges the gap between theory and practice. It is the accepted skills training programme in institutions of higher learning in Nigerian that forms part of the approved academic requirement in various degree programmes. It is a three credit unit course, which must be met by students in technical and vocational education before graduation. Nsu (2012) in Ojokuku et al. (2015) opined that the scheme 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 expose and prepare students in institutions of higher learning for the industrial work situations which they are to meet after graduation. The scheme equally 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. In the same vein, Ojokuku et al. (2015) is of the opinion that SIWES also bridges the existing gap between theory and practice and expose students to necessary skills for smooth transition from the classroom to the world of work. It enables students to acquire technical skills and experience for professional development in their study. Before the inception of the Scheme, there was a growing concern among Nigerian industrialists that graduates of institutions of higher learning lacked adequate practical background experience necessary for employment. Employers were of the opinion that the theoretical education provided by higher institutions did not meet nor satisfy the needs of the economy. It was against this background that the Industrial Training Fund during its formative years introduced SIWES to provide students with the opportunity of exposure to handle equipment and machinery in industry to enable them acquire prerequisite practical knowledge and skills. The Student Industrial Work Experience Scheme (SIWES) is also a skills training programme designed to expose and prepare students of universities and other tertiary institutions for the industrial work situation they are likely to meet after graduation (Elijah, 2017). Abraham-Ibe (2015) stated that students' work experience scheme is an educational programme where students participate in work activities while still attending school. This gives students the opportunity to be directly involved and be part of the actual work situation outside the classrooms. It was specifically designed to provide students of tertiary

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institutions in specific courses, with the opportunity of acquiring practical skills and experiences on the jobbefore graduation so that they can graduate as professionals. The scheme aimed at promoting the much desired technological know-how for the advancement of the nation, in addition, to developing a well-skilled and articulated human resources needed for self-reliant economy. Student Industrial Work Experience Scheme in this context can be defined as a practical training programme organized for the students of tertiary institutions and technical colleges in vocational and technical education department and engineering to enable them acquire practical skills so as to be employable in the labour market and also job creators.

The objectives 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 institutions.
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 knowledge in 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 student for employment in industry and commerce.

A cursory look at this scheme have continued to pilot public concern over the issue of evaluating the effectiveness of Student Industrial Work Experience Scheme (SIWES) in boosting the standard of performances of students in the labor market. This is because the objectives of establishing the scheme has not been met since the student finds it difficult to secure a place for the programme and in a situation where a place is secured, most students are not in the department relevant to their field of study. This warranted Taiwo (2016) to state that securing a placement in an organisation that has modern equipment and facilities is very difficult; therefore most students settled for organisations that are not well equipped for the training, hence the need for its evaluation.

Evaluation is the appraisal of the worth or values of a thing or action and the making of appropriate decisions on the basis of such appraisal. It involves the collection of data and the use of such data to assess the effectiveness or quality of a programme or performance. SIWES programme improvement should be the most important functions or purpose of evaluating the effectiveness of SIWES to ensure quality of technical, vocational education and training in Nigeria.

This is because vast sums of money were being spent on the programme by Nigeria government and this money is supposed to produce good SIWES programmes for students. Programme that would serve the needs of the country and also bring about whatever changes are expected in the behavior, character, skill level and social life of students who pass through technical and vocational education and training. Evaluation makes it possible for data and information relating to programme and students to be collected. Such collected data are used in judging the effectiveness of the programme and in detecting deficiencies in the programme that need to be removed. Shittu et al. (2017) in Coombs (2008) is of the view that evaluation is the process of establishing the value of behavioural change in students and it determines how much knowledge, skills and attitudes students had acquired or obtained in a measurement processes. Ebere et al. (2017) stated that evaluation is the collection, review and use of information about a course to improve students learning. This means that evaluation of course according to Monday (2012) in Ebere et al. (2017) focuses on what the students knows, as they are able to demonstrate values acquired when they graduate. Evaluation in this work can be seen as the process of attainment of the stated objectives by comparing what is to what should be so as to impact the required skills to the graduates to enable them manipulate tools and equipment. In Nigeria, because of a growing number of institutions producing TVET graduates each year and the diminishing employment opportunities in the country, many employers have raised the bar by looking for those graduates who are boots- trappers that have acquired the needed knowledge in industry through the industrial attachment programme. There has been much concern on the quality of practical experience the students gain on the job market in their industrial attachment which has resulted to unemployment since the objectives of the programme has not been met.

The high rate of unemployment among the graduate of TVET which is as a result of lack of skill acquisition and also mismatch of skill from what is happening in industry and also the school have given policy makers a source of concern. This growing impression informs a compelling need to evaluate the effectiveness of SIWES to ensure quality of technical, vocational education and training with a view to determining their proficiency so as to acquire practical skills. Idoko (2014) explained that acquisition of practical skills involves the development of new skills, practice and way of doing things or performing a task, usually gained through training or experience. From the foregoing, practical skills acquisition could be referred to as an organized process of training which eventually leads to effectiveness in a given trade. It is an ability to do a given job better and faster with enhanced output. Muhammad and Rufai (2014) were of the view that in the contemporary Nigeria, quality of technical college

graduates has been a major source of concern by most employers who express their dissatisfaction on the level of technical skills possessed by these technical college graduates. In the same vein, Njoku (2014) pointed out that there are evidences of the inability of the technical colleges to meet the set standard of the quality of education for some years now; leading to the situation where technical college graduates now parade the streets with paper qualifications and lack the needed saleable skills for gainful employment. Okwelle and Ojutule (2018) in Nwolu-Elechi (2013) asserted that the shabby performance of technical education graduates in Nigeria is no longer news as very important projects in the country, particularly the construction industries are now run by technicians and craftsmen from neighbouring West African countries. Okwelle and Ojutule (2018) stated that lack of these skills is frustrating to the industrial sector and its effects are equally grave on the society in all spheres of the economy. In the same vein, Oluwatumbi (2015) asserted that it is appalling that many students graduate yearly from technical colleges without acquiring relevant practical skills due to some constraints in the technical colleges. This could also be the case with technical colleges' graduates from Lagos State of Nigeria. It is against this background that the researchers sought to evaluate the effectiveness of students industrial work experience scheme (SIWES) programme to ensure quality of technical, vocational education and training. A number of researchers have attributed lack of these practical skills to some issues of constraints in the technical colleges among which are the constraint to the achievement of the objectives of SIWES. Specifically, the study will determine the challenges and remedies of Student Industrial Work Experience Scheme and also the strategies that can be adopted in evaluating the effectiveness of SIWES to ensure quality of technical, vocational education and training in Nigeria. Two null hypotheses were also tested using the student's t-test of independent population at 0.05 levels of significance.

METHODOLOGY

The study adopted the survey research design. Nworgu (2015) stated that a survey research design typically employs interview and questionnaire to determine the opinions, preferences, attitudes and perceptions of peoples about issues. The study therefore adopted this design as it sought the opinions of technical college teachers and industrial workers on the challenges and remedies of achieving the objectives of Student Industrial Work Experience Scheme and also the strategies that can be adopted in evaluating the effectiveness of SIWES to ensure quality of technical, vocational education and training in Nigeria. The study was carried out in the five technical colleges in Lagos State. Lagos was chosen because it is one of the commercial nerve centres in Nigeria and has a lot of industries where the graduates of TVET can work or gain experience during the course of their training. The population for this study comprised all the 120 vocational and technical education teachers in the five technical colleges in Lagos State and 10 industrial supervisors from Reckit and Benkiser industry in Ogun State. There was no sampling for the study because of the small size of the populace.

A structured questionnaire was the instrument for data collection. The items used a 5-point Likert scale of highly agreed, agreed, undecided, disagreed and highly disagreed, which were assigned numerical values of 5, 4, 3, 2, and 1 respectively. The instrument was subjected to face and content validation by two lecturers from the School of Vocational and Technical Education, Adeniran Ogunsanya College of Education Lagos State to attest the appropriateness of the instrument in measuring what it is intended to measure. The instrument was trial tested on 20 vocational and technical education teachers in Government Technical College, Aiyetoro, Ogun State. This yielded a reliability co-efficiency of 0.86 using the Cronbach Alpha formula.

One hundred and thirty (130) copies of the questionnaires were distributed to the technical vocational education and training teachers in the five technical colleges in Lagos State and the industrial workers. The 130 copies of the questionnaires were returned yielding a 100% return rate. The data were collected by administering the questionnaire directly on the respondents by the researchers and two research assistants. The data collected from this study were analyzed using mean and standard deviation in answering the research questions and t-test to test the hypotheses at a probability level of 0.05 degree of freedom. Any item with a mean value of 3.50 and above was regarded as agreed while any item with a mean below 3.50 was regarded as not agreed. When the calculated t-value is greater that the t-table value, the null hypotheses was rejected.

RESULTS

Research Question 1

What are the challenges of Student Industrial Work Experience Scheme in developing the needed skill in the industry?

Table 1 showed that all the 10 items on the challenges of Student Industrial Work Experience Scheme in developing the needed skill in the industry had their mean values ranged from 3.80 to 4.67 which were above the cutoff point of 3.50. The standard deviation indicates that the responses do not vary widely from the mean.

Research Question 2

What are the strategies that can be adopted in evaluating the effectiveness of SIWES in Nigeria?

Table 2 showed that all the 15 items on the strategies that can be adopted in evaluating the effectiveness of SIWES in Nigeria had their mean values ranged from 3.73 to 4.69 which were above the cutoff point of 3.50. The standard deviation indicates that the responses do not vary widely from the mean.

Research Question 3

What are the remedies to the challenges faced by TVET student on their industrial attachment programme?

Table 1. Challenges of Student Industrial Work Experience Scheme in developing the needed skill in the industry.

S/N	Item Description	X	SD	Remark
1.	Challenge of finance to the student and teachers, to ease their burden during the programme.	3.80	1.09	Agreed
2.	Challenge of securing a place for attachment.	4.14	0.74	Agreed
3.	Poor programme monitoring from Industrial Training Fund.	4.20	0.79	Agreed
4.	Lack of proper planning of SIWES programme	4.67	0.87	Agreed
5.	Failure by the SIWES administrators to prepare the master list and placement list of student on time.	4.57	0.55	Agreed
6.	Absence of orientation programme for SIWES participating students.	4.51	0.55	Agreed
7.	Inadequate training facilities	4.47	0.66	Agreed
8.	Lack of free access to machines and equipment during training.	4.55	0.51	Agreed
9.	Lack of modern facilities/machineries in training stations.	4.14	1.12	Agreed
10.	Limited number of well-equipped industries to absorb SIWES students.	4.32	0.78	Agreed

Table 2. Strategies for evaluating effectiveness of SIWES in Nigeria.

S/N	Item Description	X	SD	Remark
1.	There should be great input in curriculum development from the industry expert.	4.46	0.61	Agreed
2.	In-depth development of student practical skills should be accessed with the set standard.	4.48	0.50	Agreed
3.	There should be collaborative provision of employment opportunities to the student by the industry.	4.34	0.48	Agreed
4.	Tools with high degree of closeness to those found in the industry should be used in the school workshop.	4.10	1.18	Agreed
5.	Industrial visitation should be organized by the TVET schools so that the students can reflect on the actual job practice in demand.	4.34	0.48	Agreed
6.	There should be occasional visitation of professionals and resource persons to speak on career and industrial related issues.	4.19	0.74	Agreed
7.	There should be set objectives to be achieved at the end of the practical session.	4.46	0.61	Agreed
8.	There should be prompt assessment of student knowledge on the identification of appropriate tools and equipment.	3.96	0.98	Agreed
9.	There should be a proper documentation of checklist for assessment.	3.95	0.49	Agreed
10.	There should be follow up studies in order to give the graduate's opportunities to make suggestions to the institution regarding new changes in the world of work and also changes in the programme to suit the new changes in the dynamic business world.	3.75	1.44	Agreed
11.	There should be prompt assessment of student knowledge of safety and environment.	3.73	1.18	Agreed
12.	Student ability to work with little or less supervision should be assessed.	4.38	0.49	Agreed
13.	Checklist of tools and equipment should be made prior to the commencement of the practical section	4.69	0.44	Agreed
14.	There should be proper assessment of student tools manipulative skills.	4.13	1.38	Agreed
15.	There should be instructional guide for teaching and learning of vocational technical education	3.75	1.44	Agreed

Table 3 showed that all the 10 items on the remedies to the challenges faced by TVET student on their industrial attachment programme had their mean values ranged from 3.96 to 4.68 which were above the cutoff point of 3.50. The standard deviation indicates that the responses do not vary widely from the mean

Hypothesis 1

There is no significant difference between TVET teachers

and industrial supervisors on the challenges of Student Industrial Work Experience Scheme in developing the needed skill in the industry.

Table 4 showed that all the 10 items on the challenges of Student Industrial Work Experience Scheme in developing the needed skill in the industry had their t-cal values less than that of the t-table of 1.96. This indicated that there was no significant difference in the mean ratings of the responses of the technical college teachers and the industry workers on the challenges of Student Industrial Work Experience Scheme in developing the needed skill in the industry.

Hypothesis 2

There is no significant difference between TVET teachers and industrial supervisors on the strategies that can be adopted in evaluating the effectiveness of SIWES in Nigeria.

Table 5 showed that all the 15 items on the strategies that can be adopted in evaluating the effectiveness of

Table 3. Remedies to the challenges faced by TVET student on their industrial attachment programme.

S/N	Item Description	X	SD	Remarks
1.	Students should be placed on industrial work experience relevant to their course of study.	3.96	0.60	Agreed
2.	Industrial Training Fund should increase the allowances given to students at the end of the SIWES Programme to motivate the students	4.03	0.74	Agreed
3.	There should be collaboration between industry based supervisors and institutional based supervisor.	4.63	0.60	Agreed
4.	I.T.F. should establish an effective monitoring mechanism for SIWES Programme.	4.68	0.40	Agreed
5.	Students should write a report of their experience at the end of the training and it should be presented in form of a seminar paper.	4.40	0.61	Agreed
6.	Institutions should confirm the appropriateness of Industrial placement before posting out the students.	4.38	0.49	Agreed
7.	There should be adequate collaboration between the industries and the school to provide adequate pedagogical and infrastructural facilities to meet the changing needs of skilled personnel in industry.	4.65	0.44	Agreed
8.	The industries should provide job opportunities for the outstanding student after the internship programme.	4.48	0.63	Agreed
9.	Loan facilities and grants should be provided to students who are interested in entrepreneurship after graduation.	4.48	0.63	Agreed
10.	Officials in the industry who harass students during the SIWES programme should be disciplined	4.65	0.44	Agreed

Table 4. Mean and t-test Analysis of the responses of the respondent on the challenges of Student Industrial Work Experience Scheme in developing the needed skill in the industry N=130.

S/N	Item Description	X_1	X_2	X_G	SD	t-cal	H0
1	Challenge of finance to the student and teachers, to ease their burden during the programme.	3.71	3.99	3.85	1.07	-0.6	NS
2	Challenge of securing a place for attachment.	4.71	4.66	4.68	0.72	-0.3	NS
3	Poor programme monitoring from Industrial Training Fund.	4.32	4.59	4.45	0.78	-1.8	NS
4	Lack of proper planning of SIWES programme	4.63	4.66	4.64	0.86	-0.2	NS
5	Failure by the SIWES administrators to prepare the master list and placement list of student on time.	4.42	4.57	4.50	0.54	0.98	NS
6	Absence of orientation programme for SIWES participating students.	4.66	4.74	4.70	0.53	0.43	NS
7	Inadequate training facilities	4.34	4.45	4.40	0.64	0.30	NS
8	Lack of free access to machines and equipment during training.	4.25	4.44	4.34	0.53	0.84	NS
9	Lack of adequate facilities and machines at the training station.	3.83	3.26	3.54	1.10	1.52	NS
10	Limited number of well-equipped industries to absorb SIWES students.	4.66	4.74	4.70	0.76	0.43	NS

T-table =1.96, NS: Not Significant, X_1: Technical College teachers mean, X_2: Industry Workers mean.

SIWES in Nigeria had their t-cal values less than that of the t-table of 1.96. This indicated that there was no significant difference in the mean ratings of the responses of the technical college teachers and the industry workers on the strategies that can be adopted in evaluating the effectiveness of SIWES in Nigeria.

DISCUSSION

The study in Table 1 identified 10 challenges of Student Industrial Work Experience Scheme in developing the needed skill in the industry which were challenge of finance to the student and supervisors, to ease their burden during the programme, Challenge of securing a place for attachment, lack of proper planning of SIWES programme among others. On the hypotheses tested, the study found out that there were no significant difference in the mean ratings of the responses of technical college teachers and the industry supervisors on the 10 challenges of Student Industrial Work Experience Scheme in developing the needed skill in the industry. The findings are in agreement with Okwelle and Ojutule (2018) in Tambuwal (2012) who posited that SIWES is faced with many constraints which includes; problems of misconception, scarcity of place of attachment, school or institution problems, irregular supervision of the relevant agencies, resource or funding problems and ineffective organization. This is also in agreement with Elijah (2017) who stated that the challenges students encounter during their SIWES programme ranges from delay in the payment of their allowances, unfriendly attitude of supervisor and lack of basic training tools and accommodation problems. The implication of the result shows that majority of students from technical colleges in Lagos State do not properly participate in SIWES programme and hence their ineffectiveness in practical skill acquisition.

The findings of the study in Table 2 showed 15 strategies that can be adopted in evaluating the

Table 5. Mean and t-test analysis of the responses of the respondent on the strategies that can be adopted in evaluating the effectiveness of SIWES in Nigeria. N=130.

S/N	Item Statement	X_1	X_2	X_G	SD	t-cal	H0
1	There should be great input in curriculum development from the industry expert.	4.24	4.68	4.46	0.50	0.98	NS
2.	In-depth development of student practical skills should be accessed with the set standard.	4.42	4.54	4.48	0.50	0.97	NS
3.	There should be collaborative provision of employment opportunities to the student by the industry.	4.29	4.38	4.34	0.50	1.36	NS
4.	Tools with high degree of closeness to those found in the industry should be used in the school workshop.	4.13	4.06	4.10	1.24	0.15	NS
5	Industrial visitation should be organized by the TVET schools so that the students can reflect on the actual job practice in demand.	4.29	4.38	4.34	0.50	1.36	NS
6.	There should be occasional visitation of professionals and resource persons to speak on career and industrial related issues.	4.17	4.21	4.19	0.85	0.25	NS
7.	There should be set objectives to be achieved at the end of the practical session.	4.24	4.68	4.46	0.50	0.98	NS
8.	There should be prompt assessment of student knowledge on the identification of appropriate tools and equipment.	3.71	4.20	3.95	0.88	1.72	NS
9.	There should be a proper documentation of checklist for assessment.	3.95	3.94	3.94	0.43	0.03	NS
10.	There should be prompt assessment of student knowledge of safety and environment.	3.67	3.83	3.75	1.51	0.60	NS
11.	The overall quality of completed task should be assessed.	3.42	4.03	3.73	1.01	1,86	NS
12.	Student ability to work with little or less supervision should be assessed.	4.33	4.43	4.38	0.50	0.31	NS
13.	Checklist of tools and equipment should be made prior to the commencement of the practical section	4.81	4.56	4.69	0.50	1.91	NS
14.	There should be proper assessment of student tools manipulative skills.	4.20	4.06	4.13	1.54	0.34	NS
15	There should be instruction guide for teaching and learning of vocational technical education	3.67	3.83	3.75	1.51	0.60	NS

T-table =1.96, NS: Not Significant, X_1: Technical College teachers mean, X_2: Industry Workers mean.

effectiveness of SIWES in Nigeria. The strategies includes: great input in curriculum development from the industry expert, assessment of in-depth development of student practical skills with the set standard, collaborative provision of employment opportunities to the student by the industry among others. On the hypotheses tested, the study found out that there was no significant difference in the mean ratings of the responses of the technical college teachers and industry supervisors on the 15 strategies that can be adopted in evaluating the effectiveness of SIWES in Nigeria. The findings were in consonance with the assertion of Rita (2017) who indicated that payment of students' allowances before the commencement of SIWES, reduction of the duration of SIWES to four months, limiting the posting of students for SIWES to nearby places, provision of basic training tools, and proper humane supervision by the supervisors are the strategies that can be adopted in evaluating the effectiveness of SIWES programme in Nigeria.

The findings of the study in Table 3 showed 10 remedies to the challenges faced by TVET student on their industrial attachment programme. The remedies includes that students should be placed on industrial work experience relevant to their course of study; there should be collaboration between industry based supervisors and institutional based supervisor; students should write a report of their experience at the end of the training and it should be presented in form of a seminar paper among others. The findings were in agreement with Oladimeji et al. (2016) who stated that the solutions to the challenges of Students Industrial Work Experience Scheme are: Proper coordination and supervision of the exercise, liaising with the various bodies and industries involved in the management of the SIWES programme ahead of time so as to minimize or reduce to the barest minimum the high level of refusal to accept students for their industrial training, issuing of Log books/IT letters on time, employment of the best candidate from the programme and above all timely payment of SIWES allowance to students.

The implication of this finding is that the professional experience of the respondent did not influence their responses on Evaluating the Effectiveness of Students Industrial Work Experience Scheme (SIWES) Programme to ensure quality of technical, vocational education and training in Technical Colleges in Lagos State. The findings of the authors cited above help to add validity to the result of this study.

Conclusion

Based on the findings of the study, 10 challenges of Student Industrial Work Experience Scheme in developing the needed skill in the industry were agreed by both the teachers and the industrial supervisors, why 15 strategies

that can be adopted in evaluating the effectiveness of SIWES in Nigeria were also agreed by the teachers and the industrial supervisors. The study also identified 10 remedies to the challenges faced by TVET student on their industrial attachment programme. The remedies to the challenges faced by TVET student on their industrial attachment programme if adhered to and followed will eliminate the challenges faced by the students. This is because most of the students admitted to TVET programme found themselves in a helpless situation of securing a place of industrial attachment and also employment in the industry, hence the need for the evaluation of the SIWES programme.

RECOMMENDATIONS

Based on the findings, some recommendations were made. These include:

1) There should be post attachment seminar to review the programme regularly.
2) The administrators of TVET in technical colleges in Lagos State should organize orientation to industrial supervisors to fully understand the role they need to play in the student attachment programme.
3) Government should encourage the SIWES scheme by funding the programme adequately.
4) Government should grant tax relief and other incentives to private sector organizations who implement the SIWES programme satisfactorily.
5) There should be urgent need for TVET administrators and government to revise and articulate the follow-up study and the supervised industrial work experience scheme to enable students, institutions and industries (experts) effectively participate in the simulation exercise of the SIWES programme.
6) Administrators of TVET should make sure that students are placed in their areas of study within the industry for training.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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