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# EVALUATION OF STUDENTS INDUSTRIAL WORK EXPERIENCE SCHEME IN KWARA STATE TECHNICAL COLLEGES

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**Abstract**

*This study was to evaluate Students Industrial Work Experience Scheme in Kwara State Technical Colleges. Three research questions and two hypotheses were drafted to guide the study in which survey research design was used. The study comprised a total population of 120, which is made up of 110 technical vocation education and training teachers in Kwara State; together with 10 industrial supervisors from BUA Sugar Company in Lafiagi, Kwara State for the Study. A 25-item questionnaire was used for the data collection. The instrument was a 5-point Likert scale. The reliability coefficient of the instrument was found to be 0.81. The findings of the study showed that TVET graduates of technical colleges in Kwara State use all the available equipment and facilities. A descriptive survey was used for the study and data was collected from all the four technical colleges in Kwara State. The study identifies some factors responsible for the dysfunction of SIWES in Nigeria. These include poor quality of education in the areas of equipment and available facilities, short-duration apportioned to the programme in the school curriculum as well as unfavourable environmental factors. The study, therefore, recommended among others that, administrators of VTE should make sure that students are placed in their areas of study within the industry for training..*

***Keywords: Technical education, Skill acquisition, Skill development industry and Strategy***

## Introduction

The growing demand for well-trained craftsmen by industries calls for 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. Students in institutions of higher learning need to gain the necessary experience to handle equipment and machinery that are not readily available in the Technical Colleges in order to strengthen employers' involvement in the educational process of preparing the student for work as they exist from college to the world of work, especially in Technical Education programmes.

The concept of Technical Education (TE) is used as an all-encompassing term in the educational process involving the study of technologies and related sciences as well as the acquisition of practical skills, attitudes, knowledge and understanding relating to occupations in various sectors of the economic and social life (FGN, 2014). Eze (2013) also opined that VTE emphasizes on the application of skills, knowledge and attitudes that is required for employment in a particular occupation or cluster of related occupations in any field of social and economic activity. These skills can further be acquired outside the college environment under the Students' Industrial Attachment Training Scheme (SIWES).

Student's Industrial Work Experience Scheme (SIWES) is a core skill development programme established by the Industrial Training Fund (ITF), designed for students undergoing studies in vocational and technical education fields. The aim of the scheme is therefore to promote the much desired technology for the advancement of a nation in addition to developing a well skilled manpower for self-reliant economy. The scheme also provides students the opportunity to familiarize themselves with an opportunity to be exposed to tools, equipment and machine that are mostly not readily available in their various institutions, but which are available in some related industries in the learning environment so that there

will not be any gap between theory and practice. Ojokwu *et al*, (2015) opined that SIWES bridges the existing gap between theory and practice and gives necessary exposure to students to acquire further necessary skill for the smooth transition from the classroom to the world of work performance. Idoko (2014) explained for students to perform a task better in any field of endeavours, they must undertake training or practical learning experience in order to acquire practical skills and develop further.

Skill Acquisition and Development is necessary for the efficiency and effectiveness in any course of study both within and outside the classroom in order to bridge the gap between theory and practice. Skill according to Robinson (2000) is needed for performance in any given occupation which could be acquired through observation, training and learning. Skill in the context of this study is the manipulative ability through psychomotor development that is needed to perform the various practical task. Osinem, (2008) described skill as the expertise, practice and ability or proficiency displayed in the performance of a task. The performance of such given task in the place of work by students who under gone the SIWES experience in their places of work worth to be evaluated in order to ascertain if the aim of the scheme and the institutions of learning is actualized.

The establishment of SIWES programme in Nigeria is over five decades with Technical Colleges still embarking on the scheme that is focused majorly on skill acquisition and development for job performance after gainful employment. As a result of the growing number of Technical Colleges producing artisans and craftsmen and women, there has been increased concern on the type of practical experience students gained on the job during their SIWES. The concern now is that the rate of unemployment among technical college graduates is on the increase due to lack of having the required skills despite their involvement in the SIWES programme. The unemployment rate measures the number of people actively looking for a job as a percentage of the labor force. In Nigeria, it increased to 18.80 percent in the third quarter of 2017 from 16.20 percent in the second quarter of 2017 (Trading Economics, 2018).

The high rate of unemployed graduates in Vocational and Technical Education in Nigeria is as a result of inadequate skill acquisition. Ogbuayan *et al*, (2018) opined that this growing trend attracts a compelling need on SIWES for skill development and acquisition. This forms the basis for the need to evaluate the effectiveness of the SIWES programme in ensuring the quality of Technical, Vocational education and training with a view to determining their proficiency on the job. Hence, there is a justification to evaluate the effectiveness of SIWES programme in Nigeria as inadequate skills and unemployment is concerned.

Evaluation is the systematic process of determining the merit, significance and in order to assess the stated objectives in order to ascertain the success of a particular programme. In this regard, one would agree that employability or proficiency of students is subjected to assessment of work and related preparation or self-conception of securing work and its preservation (Cuyper *et al.*, 2008). The ability to secure job in a society that lay much emphasis on merit depends solely on skills and knowledge acquired in the course of studentship. These are considered essential by employers of labour because it could impact positively on production of goods and services, cooperate goals, well-being of the populace and societal development (Dare *et al.*, 2019). The reasons for evaluating the effectiveness of SIWES is to boost the stance of performance of students in the labour market and to ensure the quality of SIWES programme for students. The programme should be such that it would serve the needs of the country as well as bring about the desired changes expected in character, skill acquisition and social life of the students that pass through technical, vocational education and training. Shittu *et al*, (2017) opined that evaluation is a process of establishing the values of behavioural change in students which determine how much knowledge, skills and attitudes students have acquired in a measured process. Ebere *et al*, (2017) agreed that the knowledge and skills acquired by students will enable them to demonstrate such skills acquired in the place of work after graduation. It is against this background that the researchers sought to evaluate the effectiveness of SIWES programme in other to ensure high quality of Technical, Vocational education and training. Specifically the study will determine such challenges and solutions of the SIWES. It will also determine what strategies to be adopted in evaluating the effectiveness of SIWES to ensure these high qualities.

**Methodology**

The study adopted the descriptive survey design to seek the opinions of technical teachers and industrial workers. The study was carried out in the four technical colleges in Kwara State. These technical colleges are:-

i) Government Technical College, Esie-Iludun.
ii) Government Technical College, Erin-ile.
iii) Government Technical College, Ogidi Ilorin.
iv) Government Technical College, Patigi

The population for this study comprised eighty (80) vocational and technical education teachers in the four technical colleges mentioned above in the state and five industrial supervisors from BUA sugar industry in Lafiagi, Kwara state. Structured questionnaire was used as the instrument for data collection. The items used a-5-point Likert scale of highly true, true undecided, highly untrue and untrue. The decisions were assigned the numerical values 5,4,3,2 and 1 respectively. The instrument was subjected to face and content validation by two lecturers from School of Vocation and Technical Education, Kwara State College of Education (Technical), Lafiagi to ascertain the correctness and appropriateness of the instrument used in measuring what it is intended to measure with a reliability coefficient of 0.86 Cronbach alpha. One hundred (100) copies of the questionnaires were distributed to the Technical and Vocational Education and training teachers, in the affected technical schools in Kwara State. Data were collected by administering the questionnaire directly to the respondents by the researcher and two research assistants. The data collected from answering the research questions were analysed using mean and standard deviation in answering the research questions and 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 true while any item with a mean below 3.50 was regarded as not true to either accept or reject the null hypotheses.

**Results**

**Research Question 1**

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

**Table 1: Challenges of Student industrial work Experience Scheme in developing the needed skill in industry**

| S/N | Item Description | X | SD | Remarks |
|---|---|---|---|---|
| 1 | Challenge of finance to the student and teachers, to ease their burden during the programme | 1.9 | 0.545 | True |
| 2 | Challenge of securing a place for attachment | 2.07 | 0.37 | True |
| 3 | Poor programme monitoring from the industrial training fund | 2.1 | 0.395 | True |
| 4 | Lack of proper planning of SIWES programme | 2.335 | 0.435 | True |
| 5 | Failure by the SIWES administrators to prepare the master lies and placement list of students on time | 2.285 | 0.275 | True |
| 6 | Absence of orientation programme for SIWES participating students | 2.255 | 2.275 | True |
| 7 | Inadequate training facilities | 2.235 | 0.33 | True |
| 8 | Lack of free access to machines and equipment during training | 2.275 | 0.255 | True |
| 9 | Lack of modern facilities/types of machinery in training stations | 2.07 | 0.56 | True |
| 10 | A limited number of well-equipped industries absorb SIWES student | 0.16 | 0.39 | True |

Table 1 show that all the 10 items on the challenges of the student industrial work experience scheme in developing the skill in the industry had their mean value ranging from 3.80 to 4.67 which were the cut-off 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: Strategies for evaluating effectiveness of SIWES in Nigeria**

| S/N | Item Description | X | SD | Remarks |
|---|---|---|---|---|
| 1 | There should be great input in curriculum development from the industry expert. | 2.23 | 0.305 | True |
| 2 | In-depth development of should practical skills should be accessed with the set standard | 2.24 | 0.25 | True |
| 3 | There should be a collaborative provision of employment opportunities to the student by industry. | 2.17 | 0.24 | True |
| 4 | Tools with a high degree of closeness to those found in the | 2.05 | 0.59 | True |

| | | | | |
|---|---|---|---|---|
| | industry should be used in the school workshop. | | | |
| 5 | Industrial visitation should be organized by the TVET schools so that the student can reflect on the actual Job practice in demand | 2.17 | 0.24 | True |
| 6 | There should be set occasional visitation of professional and resources persons to speak on career and industrial related issues | 2.095 | 0.37 | True |
| 7 | There should be set objectives to be achieved at the end of the practical session | 2.23 | 0.31 | True |
| 8 | There should be a prompt assessment of student knowledge on the identification of appropriate tools and equipment. | 2.98 0.49 | 0.33 | Not True |
| 9 | There should be proper documentation of checklist for assessment | 1.875 | 2.420 | True |
| 10 | There should be follow-up studies in order to give the graduate opportunities to make suggestions to the Institution regarding new changes in the world work and also changes in the programme to suit the dynamic business world. | 2.815 | 0.75 | True |
| 11 | There should be a prompt assessment of student knowledge of safety and the environment. | 1.865 | 0.59 | True |
| 12 | Student ability to work with little or less supervision should be assessed. | 2.19 | 0.245 | True |
| 13 | Checklist of tools and equipment should be made prior to be commencement of the practical section | 2.345 | 0.20 | True |
| 14 | There should be proper assessment of student tools manipulative skills. | 2.065 | 0.69 | True |
| 15 | There should be instructional guide for teaching and learning of vocational technical education. | 1.875 | 0.72 | True |

Table 2 showed that all the 15 item 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 cut-off 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 3: Showed that all the 10 items on the remedies to the challenges faced by TVET student on their industrial attachment programme**

| S/N | Item Description | X | SD | Remarks |
|---|---|---|---|---|
| 1 | The Student should be placed on industrial work experience relevant to their course of study | 3.96 | 0.60 | True |
| 2 | Industrial Training Fund should increase the allowance s given to students at the end of the SIWES programme to motivate the students | 4.03 | 0.74 | True |
| 3 | There should be a collaboration between industry-based supervisors and institutional based supervisors. | 4.63 | 0.60 | True |
| 4 | I.T.F should establish an effective monitoring mechanism for SIWES Programme. | 4.68 | 0.40 | True |
| 5 | Student should write a report of their experience at the end of the training and it should be presented in form of a seminar paper | 4.03 | 0.74 | True |
| 6 | Institutions should confirm the appropriateness of industrial placement before posting out the students. | 4.38 | 0.49 | True |
| 7 | There should be an 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 | True |
| 8 | The Industries should provide job opportunities for the outstanding student after the internship programme. | 4.48 | 0.63 | True |
| 9 | Loan facilities and grants should be provided to students who are interested in entrepreneurship after | 4.48 | 0.63 | True |

| | | | | |
|---|---|---|---|---|
| | graduation. | | | |
| 10 | An official in the industry who harass students during the SIEWES programme should be disciplined | 4.65 | 0.44 | True |

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 cut-off 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: Mean and t-test Analysis of the responses of the respondent on the challenges of Student Industry 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 | 3.17 | 3.99 | 3.85 | 1.07 | -0.6 | NS |
| 2. | Challenge of securing a place for attachment. | 4.17 | 4.66 | 4.68 | 0.72 | -0.3 | NS |
| 3. | Poor programme monitoring form 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 means. 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 of the t-table of 1.96. This indicates that there was no significant difference in the mean ratings of the responses of technical college teachers and the industry workers on the challenges of Student Industrial Work Experience Scheme in developing the needed skill in the industry SIWES in Nigeria had 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.

**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: 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 identification of appropriate. | 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 the task should be assessed. | 3.42 | 4.03 | 3.73 | 1.01 | 1.86 | NS |
| 12. | The 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 teacher s mean, $X_2$: Industry Workers mean

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

**Discussion**

The study in Table1 identified 10 challenges of SIWES in developing the needed skill in the industry which were the challenge of finance to the student and supervisors to ease their burden during the programme, the challenge of securing a place for attachment, and lack of proper planning of SIWES programme among others. On the hypotheses tested, the study found that there was no significant difference in the mean ratings of the responses of technical college teachers and the industry supervisor on the 10 challenges of the SIWES in developing the needed skill 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 include problems of misconception, scarcity of place of attachment, School or institution problems, irregular supervision of the relevant agencies, resource or funding problems and ineffective of the organization. This is also in agreement with Elija (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 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 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 supervisors; student 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 Industry 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 prgramme found

themselves in a helpless situation of securing a place of industrial attachment and also employment in the industry, hence the need for the evaluating 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 Kwara State Should organize orientation to industrial supervisors to fully understand the role they need to play in the student attachment programme.
3. Government should grant tax relief and other incentives to private sector organizations who implement the SIWES programme satisfactorily.
4. There should be urgent need for VTE 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.

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