



(RESEARCH ARTICLE)



Collaboration between Students Industrial Work Experience Scheme (SIWES) institutions and manufacturing companies in tackling skills shortage in Cross River state

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Abstract

Cross River State is characterized with dominance of manufacturing and company industries which have contributed to the state through skill development. This study examines the collaboration between students work experience scheme (SIWES) institutions and manufacturing companies in tackling skills shortages in Cross River State. Two research questions were raised to guide the study. The study adopted a correlational research survey design. The sample for the study were 81 lecturers/instructors and 52 manufacturing companies workers which were carefully selected through multistage stratified sampling technique. The instrument for data collection was a self-structured questionnaire tagged "SIWES Institutions Collaborating with Manufacturing Companies for Skills Shortage (SICMCSS)" and data were collected by the researchers. A reliability coefficient of 0.88 was established for the study through split-half method. The study revealed that provision of training equipment, training and retraining of SIWES personnel, absorption of SIWES student for industrial attachment, provision of adequate fund and provision of training workshops to SIWES institutions are some of the roles of manufacturing companies in tackling skills shortage in Cross River State and hence a positive relationship exist between manufacturing companies and SIWES institutions in Cross River State. Based on the findings, it was recommended among others that the synergy between manufacturing companies and SIWES institutions should be improve, employment in manufacturing companies should be based on skills, SIWES trainees should be absorbed by the companies for employment and so on.

Keywords: SIWES Institutions; Collaboration; Cross River State; Manufacturing Company Skills Shortage

1. Introduction

Education is the transmission of knowledge, skills, attitude which leads to change in behavior from the trainer to the trainee. This training may be formal, informal and non-formal training which takes place in an institution. The knowledge acquire are now utilize for self or societal development. An institution is said to be technical and vocational if it offers training meant for acquisition of practical knowledge and skills for utilization in the industry for self or paid employment. These skills training can be effective if there is a collaboration between SIWES institutions and manufacturing companies. Manufacturing companies needs to partner with SIWES institutions to tackle skill shortages in Cross River State of Nigeria.

According to Osinem and Nwoji (2005), a nation is made up of people, whose individual contributions are directed towards national growth. Individuals need to develop and acquire necessary skills to enable them meet the challenges of particular jobs, meets their own aspirations, prepare for higher responsibilities and for future needs. Linkage between education and industry is essential for preparing people to be enthusiastic and efficient employees. Such

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partnership is a positive response to educational initiatives to strengthen links with commerce and industry sub-sectors. Part of the ultimate goal of education and training is preparing the individual through acquisition of appropriate mental, physical and social abilities and competencies for the work he will undertake later in life.

Students Industrial Work Experience Scheme (is a programme for students who enrolled in institutions and who through a co-operative arrangement between school and industries, receive practical training during long vacation or beyond long vacation in the co-operating companies (Osinem & Nwoji, 2005). According to ITF (2019), the students industrial work experience scheme (SIWES) is skills training programme designed to prepare and expose students of universities, colleges of Education, Polytechnics, Colleges of Technology and Colleges of Agriculture for industrial work situation they are likely to meet after graduation. The scheme affords students the opportunity of familiarizing and exposing themselves to handling equipment and machinery that are usually not available in their institutions.

The aims of the SIWES programme as expressed by Asu-Nandi, Asu-Nandi and Ubanyi (2019) are to:

- Provide avenue for students in institutions of higher learning to acquire industrial skills and experience in their course of study.
- Prepare students for the industrial work situation they are to meet after graduation.
- Expose students to work methods and techniques in handling equipment and machinery that may not be available in their institutions.
- Make the transition from school to the world of work easier, and enhance students contacts for later job placement.
- Provide students with an opportunity to apply their knowledge in real work situation thereby bridging the gap between theory and practice.
- Enlist and strengthen employer's involvement in the entire educational process and prepare students for employment after graduation.

The concept of work can variously be viewed as paid employment, an activity that produces something of value for other people, exertion of physical or mental energy for accomplishment of specific purposes, or a form of activity that has social approval and satisfies a real need of the individual to be active, productive, creative, respectful and to acquire prestige. Formal schooling is important to every student; however, the rest of his life activities depend on the job he secures on leaving school. This is because work is the economic basis for self-respect. It is the means by which an individual provides the goods and services needed and desired in the society. Socially, work is a place to meet people, make friends, and assume responsibilities and social roles (Osinem and Nwoji, 2005). It also confers social status, enhances one's self esteem, and a powerful force in shaping a person's sense of identity. In an economy that requires fast growth, there is need for the inter-relationship between the educational institutions, the organizations and industrial establishment.

Industrial sector is one of the major pillars of a nation's economy. Industries are referred to as integral part of the socio-economic set-up of a country's development. Industrialization of a country is thus associated with the level of exploitation and utilization of the natural resources for productive economic activities. The term industry normally refers to the group under economic activity. According to Asu-Nandi, Asu-Nandi and Ubanyi, (2019), the core industrial groups include: manufacturing, mining and quarrying, electricity, oil, gas, water and construction. Other service groups are transport and business services; and community, social and personnel services.

The current investment programmes in the various sectors of the Nigeria economy have major implications for workforce development. The major implication is the rising demand for skilled personnel. With industrial development, there need for training programmes for persons of all working ages to help meet demands for new skills and adaptation to changes in the industrial structure. The country striving for industrial development also means that more well-trained managers and technicians are required to be able to manage adequately the problems which are likely to arise mainly because of shortage of personnel with long industrial experience. Companies source for their skilled personnel from the products of educational institutions or through apprenticeship system or both.

The training needs and acquisition of skills are in great requirement in every points and situations because these are likely to have adverse effects on employee's productivity and retard industrial progress in the country (Okorie, 2000). Skill acquisition involves the mastery of practical skills and knowledge in any vocational and technical field of study. This is done through teaching, training, retraining, practical experience and on-the-job training (Adebayo, 2004). Nigeria manufacturing companies are increasingly facing shortages of skilled manpower personnel to drive it production. The causes of the skills shortages as opined by Peek, Fenard, Gantes & Theiler (2008) in manufacturing companies in sub-Saharan Africa include:

- Lack of educational facilities.
- Lack of students' industrial work experience scheme programme.
- School accreditation is not provided: manufacturing companies require that local schools and universities are accredited internationally.
- Ever increasing demand for higher skilled workers: Another factor contributing to the skill shortage is that manufacturing company's production uses increasingly advanced technologies and production techniques which require a workforce with a continually increasing level of skills (UNCTAD, 2007).

Demand for skilled workers at the higher end of the skills range is rising very fast. But these are the professions where the skills shortage is the largest. Employment of semi-skilled local workers, which is more readily available, has been declining as the demand for higher skills has increased. More so, Ayomike (2012) posited that the causes of skills shortage of manufacturing companies include:

- Curriculum content of educational institutions.
- Poor review of educational curriculum to meet the skills needs of manufacturing companies
- Lack of qualified manufacturing companies' instructors.
- Low numbers of local manufacturing companies' trainers and consultants.
- Lack of funds to attend manufacturing companies training, seminars, workshops and courses because of the high registration fees.
- Mandatory acquisition of international manufacturing companies' certificates by local job seekers.

The skills shortage in manufacturing companies in Nigeria can be address through students' industrial work experience scheme (SIWES). SIWES is aim at giving the students actual practical work experience in industry to complement the classroom lectures and workshop practices for developing general and specific skills, knowledge and attitudes (Osinem & Nwoji, 2005). SIWES can play an active role in addressing the skills shortages in the manufacturing companies in Nigeria through the following:

- Reviewing SIWES curriculum by including manufacturing companies' content in the curriculum.
- Retraining of SIWES teachers, instructors and supervisors on manufacturing companies' courses.
- Provision of required and adequate manufacturing companies training facilities in SIWES institutions.
- Partnering manufacturing companies for co-operative and joint training of prospective SIWES graduates.
- Provision of adequate funds.
- Establishment of manufacturing companies training centers.

Intensive practical training and collaborative efforts of the state governments, international organizations, national government and manufacturing company's exploitation, exploration and production companies across the globe amongst others.

1.1. Statement of the Problem

Graduates who participate in SIWES have prospects of either being employed in the manufacturing companies or set-up their own establishments, enterprises and firms and become self-employed. Better still, graduates who participated in SIWES programme have the opportunity of furthering their education within and outside the country. Since the aim of SIWES according to Osinem & Nwoji (2005) is to give the students actual practical work experience in industries to complement the classroom lectures and workshop practices for developing general and specific skills, knowledge and attitudes. Despite this training, graduates of SIWES institutions in Cross River State are still faced with the issue of unemployment in the manufacturing companies which has resulted to shortages of skilled personnel as observed by Peek, Fenard, Gantes and Theiler (2008) to lack of educational facilities. More so, Ayomike (2012) posited that the causes of skills shortage of manufacturing companies include: curriculum content of educational institutions, lack of qualified manufacturing companies' instructors, mandatory acquisition of international manufacturing companies' certificates by local job seekers. It is against this backdrop that this research tends to examine the collaboration between SIWES institutions and manufacturing companies in addressing skills shortage in Cross River State of Nigeria as the problem of the study.

1.2. Purpose of the Study

The main purpose of the study is to examine the collaboration between SIWES institutions and manufacturing companies for addressing skills shortage in Cross River State. Specifically, the study tends to explore the following:

- Roles of manufacturing companies for addressing skills shortage in Cross River State
- Relationship between SIWES institutions and manufacturing companies for addressing skills shortage in Cross River State.

1.3. Research Questions

The following research questions were raised to guide the study:

- What are the roles of manufacturing companies for addressing skills shortage in Cross River State?
- What are the relationships between SIWES institutions and manufacturing companies for addressing skills shortage in Cross River State?

1.4. Hypothesis

One null hypothesis was formulated to guide the study and was tested at 0.05% level of significance.

Ho₁: There is no significance in the mean ratings of manufacturing company workers and SIWES institutions instructors on the roles of manufacturing companies for addressing skills shortage in Cross River State.

2. Methodology

The study adopted a correlational survey research design and was conducted in tertiary institutions and manufacturing companies in Cross River State. The population of the study comprised of SIWES lecturers/supervisors and manufacturing companies' workers. A multi-stage stratified sampling techniques was adopted in selecting 133 respondents (81 lecturers/supervisors and 52 manufacturing company workers) which was used as the sample for the study. The criteria for selection of lecturers was based on 10years teaching and supervision experience with at least M.Sc. degree while manufacturing companies' workers were selected based on a minimum of 10years in managerial cadre in manufacturing companies. The institutions selected are: Cross River State College of Education, Akamkpa; University of Cross River State, Calabar; University of Calabar, Calabar; Federal College of Education, Obudu and Institute of Technology and Management, Ugep while companies selected were Lafarge Cement Company, Mfamosing; Flour Mills Nigeria, Calabar; TCM Iron and Steel Terminals, FTZ, Afy Aluminum Company, Ogoja and Skyrun Electronic, Ikom.

The instrument for data collection was a self-constructed questionnaire tag 'SIWES Institutions Collaboration with Manufacturing Companies in tackling Skills Shortage (SICMCSS)'. SICMCSS was divided into four sections: Section A shall be use to obtain information about the respondents; Section B and C was patterned after Likert 5-point rating scale of Strongly Agreed, Agreed, Undecided, Disagreed and Strongly Disagreed with numerical values of 5, 4, 3, 2 and 1 respectively. Two experts in SIWES validated the instrument. The internal consistency of the instrument was tested on 6 lecturers in Business Education Department of University of Uyo, Uyo and 9 workers in manufacturing companies who were not part of the sample. Their scores were correlated using split-half method to obtain the reliability. A reliability value of 0.86 was study which was high and above the recommended acceptable value of 0.7 for good reliability. Therefore, the instrument was regarded as reliable enough for use in data collection for the study. The researchers personally administered the instrument directly to the lecturers/supervisors while company tour guides/securities were trained as research assistants to administered the instruments to their respective managers. Out of 133 copies of the instrument that was distributed, 121 were completely filled and successfully retrieved which represents about 91% rate of return (ROR) which was used for analysis of the study.

Mean with standard deviation statistics was used to analyzed research question 1 while z-test was used to test hypothesis one (Ho₁) at 0.05 level of significance. Mean values equal to 3.00 and above were accepted while mean values below 3.00 was rejected. Also, it was decided that where the z-calculated value was equal or greater than the table z-value, it indicates significant difference; hence the null hypothesis is rejected but if otherwise, the null hypothesis is accepted. Research question two was analyze using regression analysis. All statistical analyses were performed using Statistical Package for Social Sciences (SPSS) software version 20.0.

3. Results

3.1. Research Question 1: What are the roles of manufacturing companies for addressing skills shortage in Cross River State?

Table 1 result shows that the respondents accepted all the item as roles of manufacturing companies for addressing skills shortage in Cross River State. This was reiterated in their average mean of 3.45 and 3.39 for SIWES institutions and manufacturing companies workers respectively. However, the respondents unanimously rejected item 9 that reviewing of SIWES curriculum is not a role of manufacturing companies.

Table 1 Respondents Opinion on Roles of Manufacturing Companies for Skills Shortages

S/N	Roles of Manufacturing Companies for Skills Shortages	Lecturers/Supervisors		Decision	Manufacturing Companies Workers		Decision
		X_1	SD_1		X_1	SD_1	
1.	Provision of training equipment	3.56	0.89	Accepted	3.63	0.79	Accepted
2.	Training of SIWES students on modern SIWES skills	3.63	0.79	Accepted	3.17	1.21	Accepted
3.	Provision of instructional material	3.55	0.84	Accepted	3.43	0.95	Accepted
4.	Training and retraining of SIWES personnel	3.58	0.83	Accepted	3.36	1.07	Accepted
5.	Giving of academic scholarship to students	3.67	0.77	Accepted	3.53	0.92	Accepted
6.	Provision of training workshops.	3.61	0.81	Accepted	3.36	1.01	Accepted
7.	Absorption of SIWES students for industrial training	3.56	0.89	Accepted	3.53	0.92	Accepted
8.	Provision of adequate fund	3.54	0.90	Accepted	3.59	0.85	Accepted
9.	Reviewing of SIWES curriculum to capture relevant skills in manufacturing companies	2.21	0.88	Rejected	2.78	0.86	Rejected
10.	Identifying skills needed in manufacturing companies	3.58	0.89	Accepted	3.61	0.82	Accepted
	Average	3.45	0.85	Accepted	3.39	0.94	Accepted

Source: Researchers' Field Data, 2023

3.2. Research Question 2: What are the relationships between SIWES institutions and manufacturing companies for addressing skills shortage in Cross River State?

Table 2 Relationship Between SIWES Institutions and Manufacturing Companies in Addressing Skills Shortages in Cross River State

Group	R	R ²	Adjusted	STD Error
SIWES Institutions	0.159	0.025	0.021	5.240
Manufacturing Companies	0.362	0.131	0.128	4.948

Source: Researchers' survey, 2023.

Table 2 reveals that the relationships between SIWES institutions and manufacturing companies is 0.159 and the variance contribution of SIWES institutions and manufacturing companies to the dependent variable as measured by adjusted R square is 2.1% which shows that it is not contributing significantly to the dependent variable measure.

3.3. Hypothesis Testing

Ho₁: There is no significant difference in the mean ratings of manufacturing company workers and SIWES institutions instructors on the roles of manufacturing companies for addressing skills shortage in Cross River State.

Table 3 Z-test Analysis of Respondents on the Roles of Manufacturing Companies

Group	Mean	SD	N	Df	Zcal	Zcrit	Decision
Lecturers	3.45	0.85	81				
Manufacturing company workers	3.39	0.94	52	131	1.32	1.960	Accepted

Source: Researchers' survey, 2023

The table above shows that there is no significant difference in the mean rating of lecturers and manufacturing company workers on the role of manufacturing companies in addressing skill shortage in Cross River State. Since the Z-cal (1.32) is less than the Z-crit (1.960), the hypothesis was accepted.

4. Discussion of Findings

The result in Table 1 reveal that provision of training equipment, absorption of SIWES students for industrial training (IT), provision of training workshops to SIWES institutions, training and retraining of SIWES personnel and so on are some of the roles of manufacturing companies in tackling shortage of skills in Cross River State. This finding is in tandem with Adenikinju, & Alaba (2000) who found the manufacturing companies have trained youths in Cross River State on skills like automobile works, computer and secretarial studies, catering and confectionary etc. The finding is also in agreement with Ayomike (2012) as opined that retraining of SIWES teachers and instructors on manufacturing courses, establishment of training centers across the nations are the roles of manufacturing companies operating in Cross River State.

The finding in Table 2 revealed that there is low relationship between SIWES institutions and manufacturing companies in tackling skill shortages in Cross River State. This result contradicts the assertion of Adenikinju, & Alaba, (2000) who found that manufacturing companies have trained youths in Cross River State on skills like automobile works, computer and secretarial studies, catering and confectionary etc.

5. Conclusion

From the findings of the study, it was concluded that for skill shortages to be tackle in Cross River State of Nigeria, there should be a strong collaboration between SIWES institutions and manufacturing companies. This relationship can only be achieved if the roles of manufacturing companies are effectively implemented. This role includes adequate funding of SIWES institutions, training and retraining of SIWES lecturers/instructors, absorption of SIWES students for industrial attachment and provision of scholarship, grants for students and instructors of SIWES.

Recommendations

Based on the findings of the study the following recommendations were made:

- Manufacturing companies should establish various skill acquisition training centers.
- Employment in manufacturing companies should be based on skills acquired so that manufacturing companies will see the need for collaboration in SIWES skills.
- Graduate trainee from various SIWES institutions should be considered for employment immediately after their training.
- Manufacturing companies should provide training equipment to SIWES institutions to enhance effective training on skills.
- The companies should partner to fund the institutions by providing facilities such as training workshops and so on.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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