



INSTITUTION-INDUSTRY COLLABORATION IN BUSINESS EDUCATION: A STRATEGY TO INDUSTRIALIZATION AND TECHNOLOGICAL DEVELOPMENT IN DELTA AND EDO STATES - NIGERIA

Dr. (Mrs.) Benedicta Emujeboghene Akpojotor (MABEN 0882)

*Department of Business Education
Faculty of Education
Delta State University, Abraka
E-mail: beakpojotor@delsu.edu.ng
Phone: +2348100104104*

Helen Edowaye Chukwuemeke (PhD)

*Department of Vocational and Technical Education
Faculty of Education
University of Benin, Benin City
E-mail: helen.chukwuemeke@uniben.edu
ORCID: 0009-0007-8933-3942
Phone: +2348086812494*

Abstract

The study sought to determine the extent institution-industry collaborate in business education to achieve industrialization and technological development in Delta and Edo States. It adopts the descriptive survey design. Two research questions and one null hypothesis tested at 0.05 level of significant were used. Population was made up of 104 Business Education lecturers and managers from Universities and Industries in Delta and Edo States. The entire population was used, therefore, there was no sampling. A valid questionnaire was utilized and a Cronbach Alpha statistics was adopted with a reliability of 0.83. In answering the research questions mean and standard deviation were used while Pearson Product Moment Correlation Coefficient was used in testing the null hypothesis at 0.05 level of significant. Based on the data analysis, it was found that tertiary institutions in Delta and Edo States collaborate with industries in the training of Business Education students. The findings of the study show that there is a significant relationship between institution-industry collaboration and industrialization and technological development in Delta and Edo States. Recommendation were made among which include: that institution-industry collaboration should be intensified since it assist in the training of Business Education students and that stakeholders should ensure that the collaboration should yield the dividend it is meant for by ensuring that students participate effectively in the programme. This will assist them to develop their technical skills and have industrial potentials that will assist them to establish their industries after graduation.

Keywords: *Institution, Industry, collaboration, industrialization, technological development*

Introduction

Tertiary institutions provide the relevant opportunities for students to acquire knowledge and skills for self-reliance and relevance in the world of work. Tertiary institutions are solely concerned with the production of skilled manpower relevant to the needs of the labour market. In the same vein Business Education is a specialized profession designed to provide students with knowledge, skills and competence leading to employability and advancement in office occupations, pedagogical skills in teaching business subjects at different levels of educational system as well as self-employment or being an employer of labour. As an aspect of Vocational Education and Training, Business Education is designed to fill the gap between knowledge and practice by exposing students to General Education as well as specialized areas in Accounting, Entrepreneurship, Marketing and Office Management. According to CCMAS (2022) the objectives of Business Education are to:

1. Provide opportunity for practical job preparation or vocational studies in order to make students render effective and efficient services in office, distributive and service occupations.
2. Prepare students, based on interest and aptitudes needed to enter into a business occupation, advance and profit in it.



3. Provide opportunities for students to develop an understanding of business and economic system of the nation so as to enable them to participate actively as producers and consumers of goods and services
4. Develop in students the basic awareness of the contribution which business and office employee makes to the nation's economy.
5. Develop and improve personal qualities and attitude of students as required in personal and employment situation
6. Serve as a guide for individual student for suitable placement in business and office employment
7. Enable students to have career consciousness and economic understanding of the free enterprise system
8. Prepare student to assume the role of building a future generation through teaching and knowledge impartation.
9. Prepare students for leadership position in both public and private life.

Although the philosophy of Business Education programme is to provide individuals with relevant knowledge, skills and competencies to be self-reliant and economically self-sufficient for gainful employment, meaningful living, and to contribute to the development of the society and in line with this, much success has been recorded at the tertiary level of education in Nigeria, there is still a need to focus more attention on aligning students with the skills demanded in the industrial sector. This is due to the fact that business education programme is designed in consonance with the needs of the business community to ensure that education and training offered are consistent with the competencies for the present and emerging job requirements and opportunities.

This can be achieved when tertiary institutions form linkages with relevant industries. This type of relationship (institution-industry collaboration) will enable Nigerian graduates to translate acquired knowledge into practice after graduation thereby leading to industrialization and technological development in Nigeria. Although, Nigerian tertiary institutions have produced many graduates who have been found competent in their various areas of specialization, observations show that there are still some graduates who are considered by some employers as being half-baked due to the skill gaps in their job performance. This assertion means there is need to look into the collaboration between tertiary institutions and industry for a strengthen industrialization and technical development in Nigeria and how this relates to goal achievement. The goal of producing skilled manpower, relevant to the needs of the labour market, cannot be chested by tertiary institutions alone. Hence, it was stated in the Nigerian National Policy on Education that universities should collaborate with relevant industries in order to achieve the laudable goals (Federal Republic of Nigeria, 2013).

Suleiman (2018), while addressing the issue of industrial work experience for university undergraduates in Nigeria, at a stakeholders' meeting held by the National Universities' Commission, spoke on the need for universities to collaborate with industries. Thus, the idea of an alliance between universities and industries is becoming more pronounced as it helps to bridge the gap between theory and practice. This synergy, known as the collaboration between institution and industry is a critical resource for achieving tertiary institutions goals and can be accomplished through research activities, industrial training otherwise known as Students' Industrial Work Experience Scheme (SIWES) for students, support for development projects, and joint curriculum development. This is because some of the courses offered in the tertiary institutions are practical-based and there is the need to match academic study with industrial practice.

Also, this practice is in tandem with the environmental habit theory as used in Vocational and Technical Education. The environmental habit theory as propounded by Prosser and Quingly (1949) justify the need for the tertiary institutions environment to be a replica of where students will subsequently work. Collaboration between the tertiary institutions and the industry is needed in order to bridge the gap between higher institutions output and the labour market demand which is crucial to industrialization and technological advancement or development of the nation.

Institution-industry collaboration (IIC) is a term used in Nigeria to describe the relationship between tertiary institutions and related industries. The aim of this association is to bridge the gap between classroom learning and industrial practice. This relationship between tertiary institutions and industries is to lead to industrialization and technological development of the nation. The forms of relationship differ according to the extent of interconnections between the institutions and the industries involved. IIC aims to improve the skills of the workers, to increase the product, technology, process and to update the workforce. Natarajan (2014) defined IIC in terms of collaboration, co-sponsorship, inter-agency or inter-organizational



partnership between educational institutions and industries where the two agencies are engaged in the shared design and supervision of programmes or initiatives with the aid of contributing capital that will provide reciprocal benefits to both organizations. Idris and Rajuddin (2012) described a gap between the standard of the training that students undergo and the expectations of employers in Nigeria's business and industry.

Furthermore, the scholars claimed that conducting engineering education in collaboration with industry is of huge importance for the student training. During their course of study, they established curriculum inadequacies and a student-oriented issue of not being exposed to working tools and machines but only full of theoretical knowledge. This was supported by Obanor and Kwasi-Effa (2013) who confirmed that the innovative technological skills of the majority of graduate engineers working in some industries are underused as they only build, operate or maintain machines. They discovered that some engineering students produced some machines through research, but these were not improved to the level of marketability or commercialization due to insufficient interaction between educational institutions and industries that can benefit through technology transfer and exchange of information. The tertiary institutions and the industries are two distinct entities of different features. These variations in their features tend to serve as obstacles for successful collaboration.

Obanor and Kwasi-Effa (2013) further revealed that collaboration between tertiary institutions and industries was mostly through individual effort. Their collaboration was observed to be weak because it was informal. It was also observed that some lecturers seldom attend conferences organize by industries because they sometimes consider these conferences as being below standards. The researchers, therefore, concluded that there was a low level of collaboration between tertiary institutions and industries. Pai and Chiplunkar (2014) reported that, for mutual benefit, collaboration between institutions and industries occurs for various reasons at different levels. They also thought that such an interaction could be for matters relating to curriculum, training, study, and transfer of technology. Similarly, in an investigation on teacher training in the United States, Campbell and Dunleavy (2016) wrote about the need to link the work of university and the knowledge of practitioners through guided field experience. The article concentrated on the importance of these collaborations in ensuring achievement of university goals. This general concern is whether the education provided in Nigerian tertiary institutions is in line with the skills needed in the labour market or whether the curriculum applies.

Adeyemo et al. (2010), inspired by some views, questions and concerns regarding the level of preparedness of graduates for productive employment in Nigeria, described IIC as one of the factors deciding the employability of Nigerian tertiary institutions' science and technology graduates in the labour market. Dyankor (2009) explained IIC as applicable in some countries. He stated that many forms of administrative linkages, such as permanent joint consultation, had been established because of the partnerships that existed between schools and industries through collaborative researches. Collaboration between tertiary institutions and industries can lead to a range of benefits apart from industrialization and technological development.

According to Nwakpa (2015) these benefits includes: the provision of solutions to counterpart problems, the improvement of standard of living, the improvement of educational practices, the eradication of poverty and ignorance, and national development. Tertiary institutions and industries also collaborate in the area of students' industrial training. There is a growing demand by companies, industries, and other organizations for well-trained graduates with relevant entrepreneurial skills who can be employed to meet the nation's need.

Students' Industrial Training is the practical training programme that students receive from relevant organizations while still in school, such as Students Industrial Work Experience (SIWES). The scheme is an educational programme designed for students to participate in work activities while still in school. Based on this, students are given the opportunity to be part of the actual work situation in a real work (Emeahara & Chris-Israel 2017; Akerejola, 2014). It is a skill development programme put in place to prepare students of tertiary institutions for transition from school to work (Abraham-Ibe, 2014). According to Nsu (2012), SIWES is a planned, monitored training and intervention program centred on specified and specific learning and career goals which leads to the development of participants' occupational skills.

Statement of the Problem

The most effective way of bridging the gap between academic theory and industrial demand is for higher institutions to collaborate with relevant industries. As the presence of skill gap in the job performance of tertiary institutions graduates shows a mismatch between institutions outputs and the labour market demands. This observed discrepancy between the education provided by the institutions



and the experience needed by industries create a worrisome concern, not only for industrial establishments, but also for all stakeholders.

However, in most developing countries such as Nigeria, much attention has not been given to this linkage between tertiary institutions and industry in order to advance the country's industry and technology development. Many scholars have carried out studies on several areas which are related to this study. Adebowale and Oyelaran-Oyeyinka (2012), Obanor and Kwasi-Effah (2013), Adepoju and Adedeji (2016) and Eniola-Arigbe et al. (2022) all carried out different studies on institution-industry collaboration. Considering the variables and contents of the above-mentioned studies, none of them has combined the two variables that this study is out to examine. Hence, the need to examine the extent of collaboration between tertiary institutions and industries and to determine the contribution of such collaboration to industrialization and technological development in Delta and Edo States motivates the researchers to carry out this study.

Research Questions

In addressing the problem of this study, the following research questions were raised:

1. To what extent do tertiary institutions in Delta and Edo States collaborates with industries in the training of the business education students?
2. To what extent do the collaboration of the institution-industry influenced industrialization and technological development in Delta and Edo States?

Research Hypothesis

The following null hypothesis was tested at 0.05 level of significance:

H₀₁: There is no significant relationship between institution-industry collaboration and industrialization and technological development in Delta and Edo States

Methodology

The descriptive survey research design was adopted for the study. The study looked into the opinions and views of lecturers and managers of industries pertaining the extent of institution-industry collaboration and industrialization and technological development Delta and Edo States - Nigeria. The population of the study comprised of 54 business education lecturers in public Universities mentioned below and 50 Managers of Industries in Delta and Edo States.

Table 1: Tertiary Institutions and number of business education lecturers in Delta and Edo States, including managers of industries used for the study

S/N	Names of Institutions	Business Education Lecturers/Managers
1.	Delta State University, Abraka	17
2.	University of Delta, Agbor	18
3.	University of Benin, Benin-City	12
4.	Ambrose Alli University, Ekpoma	07
5.	Managers of Registered Industries	50
Total		104

Source: Field Survey 2023

Since we used the entire population, no need for sampling. To answer the research questions, a self-developed structured questionnaire comprising 28 items was utilized for data collection. The questionnaire was titled Institution-Industry Collaboration in Business Education Questionnaire (IICBEQ). The questionnaire was rated on a 4-point rating scale of Very High Extent, High Extent, Low Extent and Very Low Extent with 4, 3, 2, and 1 point(s) respectively. The questionnaire was divided into sections A, B and C. Section A deals with the Bio-data of the respondents, while sections B has 13 items on extent institution-industry collaborates and section C has 15 items on extent collaboration of institution-industry influenced industrialization and technological development in Delta and Edo States. The questionnaire was validated by three experts. Two Business Education lecturers from university of Benin, Benin-City and one lecturer from Measurement and Evaluation unit from Delta State University, Abraka. The reliability of the instrument was determined by using a Cronbach Alpha statistics and a reliability coefficient of 0.83 was



obtained, indicating a high reliability. The researchers administered the instrument on the respondents with the help of four research assistants. Mean and standard deviation were used to analyze data related to research questions while Pearson Product-Moment Correlation (PPMC) was used to test the null hypothesis of the study at 0.05 level of significance. Items with mean score of 2.50 and above were regarded as High Extent of collaboration while items with mean score below 2.50 were regarded as Low Extent of collaboration. Also, the decision rule for the null hypothesis was based on r-value, where any calculated r-value between 0 and .20 was regarded as very low correlation, .20 and .40 was regarded as low correlation, .40 and .60 was regarded as moderate correlation and .60 and .80 were regarded as high correlation and .80 and 1.00 was regarded as very high correlation (Uzoagulu, 2011).

Results

Research question 1

To what extent has tertiary institutions in Delta and Edo States collaborates with industries in the training of the business education students?

Table 2: Mean Responses of Respondents on institution-industry collaboration in training of business education students (N=104)

S/N	Extent of institution-industry collaboration in training of business education students	Business Education Lecturers			Managers in industries		
		x	SD	Remark x	SD	Remark	
1.	My institution collaborates with Industries for the training of the business education student.	3.85	0.67	VHE	3.65	0.56	VHE
2.	Business education students are sent out on industrial training at 300 level.	3.64	0.56	VHE	3.20	0.77	HE
3.	My institution ensures that the students comply with the training in the industry.	3.70	0.72	VHE	3.40	0.80	HE
4.	The students are sent to industries that will help them to bring their theoretical knowledge into practice.	3.15	0.86	HE	2.95	0.78	HE
5.	The industry ensures that the students' sent to them are properly engaged throughout the period for the training.	2.85	0.77	HE	3.15	0.56	HE
6.	The duties assigned to students during the institution-industry collaboration training programme are relevant to their course of study.	3.05	0.54	HE	3.58	0.54	VHE
7.	The students work are supervised by the industrial supervisors.	3.40	0.68	HE	3.65	0.78	VHE
8.	When the industrial supervisor observe that the student did not understand the process he/she will take out time to explain to the student.	3.11	0.92	HE	3.30	0.67	HE
9.	The institution supervisors also supervise the students to determine the extent the students have learnt skills and competencies in the industry.	3.10	0.88	HE	2.85	0.95	HE



10. Institution-industry collaboration help to train the students for easy integration into the industry after graduation.	3.50	0.67	VHE	3.60	0.72	VHE
11. The collaboration between the institution and the industry is very necessary for the training of the business education students.	3.56	0.56	VHE	3.20	0.88	HE
12. Institution-industry collaboration help in contributing to skills acquisition of students as they use the equipment and facilities in the industry to practice.	3.60	0.82	VHE	3.52	0.72	VHE
13. Institution-industry collaboration						
14. expose students to the use of modern office gadgets.	3.20	0.75	HE	3.48	0.66	HE
Grand Mean/SD	3.36	0.72	HE	3.35	0.72	HE

From Table 2, the mean ratings of items 1,2,3,10,11 and 12 by lecturers were 3.85, 3.64, 3.70, 3.50, 3.56, and 3.60 with standard deviation of 0.67, 0.56, 0.72, 0.67, 0.56 and 0.82 respectively. While the mean rating of items 4, 5, 6, 7, 8, 9 and 13 range from 2.85 - 3.40 and the standard deviation range from 0.54 - 0.92.

In the same vein, the managers of industries respondents mean rating of items 1,6,7,10 and 12 were 3.65, 3.58, 3.65, 3.60 and 3.48 with their corresponding standard deviations of 0.56, 0.56, 0.78, 0.72 and 0.66 respectively. While the mean rating of items 2, 3, 4, 5, 8, 9, 11, and 13 range from 2.85 - 3.48. The standard deviation range from 0.54 - 0.95. However, both respondents in the study accepted all the 13 items to a high extent. The grand mean of 3.36 and 3.35 is greater than the cut-off point of 2.50. This implies that tertiary institutions in Delta and Edo States collaborate with industries in the training of the business education students as a strategy for industrialization and technological development to a high extent.

Research question 2

To what extent do the collaboration of the institution-industry influenced industrialization and technological development in Delta and Edo States?

Table 3: Mean Responses of Respondents on Extent institution-industry collaboration influence industrialization and technological development (N=104)

S/N	Extent institution-industry collaboration influence industrialization and technological development	Business Education Lecturers			Managers in industries			
		x	SD	Remark x	SD	Remark		
1.	Institution-industry collaboration can lead to industrialization.	3.10	0.85	HE	3.05	0.76	HE	
2.	The universities are now aware of modern tendency in the industry than ever before.		3.40	0.67	HE	3.20	0.62	HE
3.	Institution-industry collaboration gives universities access to more resource to fund their research and diversify their research areas.	2.95	0.98	HE	2.85	0.96	HE	
4.	Most students that participate in the training have the opportunity of establishing their own	3.15	0.87	HE	3.20	0.85	HE	



industries after graduation.							
5. Successful institution-industry collaboration could lead to direct industry funding of the computer laboratory.	2.65	0.84	HE	2.63	0.86	HE	
6. Institution-industry collaboration could be crucial factor for progressing a computer laboratory research, and transforming it into potential technological development for the benefit of the wider society.	3.08	0.56	HE	3.10	0.62	HE	
7. A collaboration can provide access to new approaches such as industrial Skills Development.	3.56	0.62	VHE	3.64	0.58	VHE	
8. Institution-industry collaboration can equip students with technological development skills that will be impacted into the society after graduation.	3.60	0.72	VHE	3.56	0.76	VHE	
9. Industry collaborators can provide numerous technical knowledge to the students that will be transmitted into the wider society as the students gain employment or are self-employed after graduation.	3.20	0.98	HE	3.30	0.86	HE	
10. Institution-industry collaboration help most companies to improve their business performance by having access to many new ideas and thoughts from young minds.	3.05	0.78	HE	2.96	0.80	HE	
11. Collaboration enable the companies to extend their capabilities and expertise in training these students who will eventually become employed or self-employed in the nearest future.	3.56	0.85	VHE	3.54	0.77	VHE	
12. Students after graduation can be self-employed in their own industries.	3.30	0.90	HE	3.10	0.89	HE	
13. Collaboration give the possibilities to the universities to work on the latest technologies, issues and challenges.	3.45	0.67	HE	3.60	0.56	VHE	
14. Collaboration between institutions and industries encourage open-mindedness and students are motivated to learn new technologies.	3.70	0.46	VHE	3.40	0.70	HE	
15. Collaboration can make							



university campuses to provide space for a growing business	3.30	0.76	HE	3.10	0.88	HE
Grand Mean/SD	3.27	0.77	HE	3.22	0.76	HE

Table 3 shows that the mean ratings of items 7, 8, 11 and 14 by lecturers were 3.56, 3.60, 3.56 and 3.70 with standard deviation of 0.62, 0.72, 0.85 and 0.46 respectively. While the mean rating of items 1, 2, 3, 4, 5, 6, 9, 10, 12, 13 and 15 range from 2.65 - 3.45 and the standard deviation range from 0.56 - 0.98.

Similarly, the managers of industries respondents mean rating of items 7, 8, 11 and 13 were 3.64, 3.56, 3.54, and 3.60 with their corresponding standard deviations of 0.58, 0.76, 0.77 and 0.56 respectively. While the mean rating of items 1, 2, 3, 4, 5, 6, 9, 10, 12, 14 and 15 range from 2.63 - 3.40. The standard deviation range from 0.56 - 0.96. However, all the items were accepted to a high extent. Based on the cut-off point of 2.50, respondents accepted all the items on research question 2. The grand mean of 3.27 and 3.22 respectively indicates that institution-industry collaboration influence industrialization and technological development to a high extent.

Test of Hypotheses

Data analysis to test the hypothesis was analyzed using Pearson Product Moment Correlation Coefficient (PPMCC)

Hypothesis 1: There is no significant relationship between institution-industry collaboration and industrialization and technological development in Delta and Edo States

Table 4: Correlation between institution-industry and industrialization and technological development as perceived by Business Education Lecturers and Managers in industry (N=104)

Variables	1	2
1. Institution-industry Collaboration	1	.763
2. Industrialization and Technological development	.763	1

The data presented in Table 4 shows the correlation coefficients between the institution-industry collaboration and industrialization and Technological development. The correlation coefficient was .763, there was a high, positive correlation between institution-industry collaboration and industrialization and Technological development ($r=.763, n=104$). This implies that institution-industry collaboration has a high positive relationship with industrialization and technological development in Delta and Edo States.

Discussion of Findings

One of the findings of this study was that tertiary institutions in Delta and Edo States collaborate with industries in the training of the business education students to a high extent. The study revealed that Business education students are sent to industries that will help them to bring their theoretical knowledge into practice; the industry ensures that the students' sent to them are properly engaged throughout the period for the training; the duties assigned to students during the institution-industry collaboration training program are relevant to their course of study. Also, that students' work are supervised by the industrial and institution supervisors; institution-industry collaboration help to train the students for easy integration into the industry after graduation; it help in contributing to skills acquisition of students as they use the equipment and facilities in the industry to practice. Finally, that institution-industry collaboration exposes students to the use of modern gadgets. This finding aligns with the findings of Campbell and Dunleavy (2016) who stated the need to link the work of university and the knowledge of practitioners through guided field experience. Also, the finding contradicts the findings of Obanor and Kwasi-Effa (2013) who found in their study that the level of collaboration between tertiary institutions and industries was low.

The study also indicates that institution-industry collaboration influenced industrialization and technological development in Delta and Edo States to a high extent. The study shows that Institution-industry collaboration gives universities access to more resource to fund their research and diversify their research areas; most students that participate in the training have the opportunity of establishing their own industries after graduation; successful institution-industry collaboration could lead to direct industry funding of the computer laboratory.

Institution-industry collaboration could be crucial factor for progressing a computer laboratory research, and transforming it into potential technological development for the benefit of the wider society. A



collaboration can provide access to new approaches such as industrial skills development. It can equip students with technological development skills that will be impacted into the society after graduation. This finding agrees with the findings of Nwakpa (2015) who found that collaboration can bring about solutions to counterpart problems, improve standard of living, improve educational practices, eradicating poverty and ignorance, and national development.

Also, Industry collaborators can provide numerous technological knowledge to the students that will be transmitted into the wider society as the students gain employment or are self-employed after graduation. Institution-industry collaboration help most companies to improve their business performance by having access to many new ideas and thoughts from young minds. This finding agrees with Pai and Chiplunkar (2014) who found that, for mutual benefit, collaboration between institutions and industries occurs for various reasons at different level such as for matters relating to curriculum, training, study, and transfer of technology.

Also, the null hypothesis shows that institution-industry collaboration has a high positive relationship with industrialization and technological development in Delta and Edo States. This implies that the more the institutions and industries collaborate the more industrialization and technological development will emerge in Delta and Edo States. Therefore, the null hypothesis of no significant relationship was rejected.

Conclusion

The study revealed that tertiary institutions in Delta and Edo States collaborate with industries in the training of the business education students. It however concluded that institution-industry collaboration has a positive relationship with industrialization and technological development in Delta and Edo States.

Recommendations

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

The institution-industry collaboration should be intensified since it assist in the training of the business education students

1. Stakeholders should ensure that the collaboration should yield the dividend it is met for by ensuring that students participate effectively in the programme. This will assist them to develop their technical skills and have industrial potentials that will assist them to establish their industries after graduation.

References

- Abraham-Ibe, I. G. (2015). Students' industrial work experience scheme as an imperative tool for enhancing students' academic performances in OTM department. *International Journal of Management Science and Humanities* 3(1), 162-175.
- Adebowale, B.A., & Oyelaran-Oyeyinka, B. (2012). University industry collaboration as a determinant of innovation in Nigeria. *Institutions and Economies*, 4(1), 21-46.
- Adepoju, O. O., & Adedeji, A.O. (2016). University-industry collaboration and graduate unemployment in Nigeria: A case study of Ondo state, Nigeria. *FUTA Journal of Management and Technology*, 1(1), 100-110.
- Adeyemo, S. A., Ogunleye, A. O. Oke, C. O. & Adenle, S. O. (2010). A survey of factors determining the employability of science and technology graduate of polytechnics and universities in Nigerian labour market. *Journal of Science and Technology Education Research*. 1(5), 99106.
- Akerejola, O. (2014). *Information and Guidelines for students Industrial Work Experience Scheme*.
- Aloysius, O. I., Ismail, I. A., Suandi, T., & Arshad, M. M. (2018). Enhancing university's and industry's employability collaboration among Nigerian undergraduates in the labour market. *International Journal of Academic Research in Business and Social Sciences*, 8(7), 32-48.
- Campbell, S. S. & Dunleavy, T. K., (2016). Connecting university coursework and practitioner knowledge through mediated field experiences. *Teacher Education Quarterly*, 16(1), 49- 70.
- National Universities Commission (2022). Core curriculum minimum academic standard
- Dyankor, A. (2002). Current trends and issues in vocational and Technical Education (<http://www.unesco.org>).
- Eniola-Arigbe, Y; Arigbe, E. E; & Awodiji, O. A. (2022). Institution-Industry Collaboration as Correlates of University Goal Achievement in Southwest, Nigeria. *Journal of Economic, Social and Educational Issues*, 2(2), 14-23



- Emeahara, E. N. & Chris-Israel, H. O. (2017). Influence of Students' Industrial Work Experience Scheme on Professional Development of Library and Information Science Students in South-west, Nigeria. *Library Philosophy and Practice (ejournal)*. 1330 <http://digitalcommons.unl.edu/libphilprac/1330>.
- Fredericks, S. (2016). Exploring the synergistic relationship between research and teaching. *British Journal of Cardiac Nursing*, 11(9). Retrieved from: <https://doi.org/10.12968/bjca.2016.11.9.444>
- Idris, A. & Rajuddin, M. (2012). *The trend of Engineering Education in Nigerian Tertiary Institutions of Learning towards Achieving Technological development*. Malaysia. Published by Elsevier Ltd. University of Technology Malaysia.
- Kunttu, L. (2017). Educational involvement of innovative university-industry collaboration. *Technology Innovation Management Review*, 7(12), 14-22.
- Lowden, K., Hall, S, Elliot, D. & Lewin, J. (2011). Employers' perception of the employability of skills of new graduates: Research community by the Edge Foundation. Retrieved from www.edge.co.uk.
- Mafe, O. A. T. (2009) *Effectiveness of SIWES with respect to chemical engineering*; Paper presented at the Workshop on "Achieving the Necessary Professional Standards in Chemical Engineering in our Universities" University of Lagos.
- Natarajan, R. (2014). Industry academic linkages in education R&D and innovations. *Science proceed*. Retrieved from: <http://dx.doi.org/qpror.2015.el2014:28>.
- Nsu J. (2012). Evaluation of student industrial work experience scheme (SIWES) in library school: The Federal Polytechnic Nekede experience. Retrieved from Digital Commons @ University of Nebraska-Lincoln: Retrieved from: <http://digitalcommons.unl.edu/libphilprac/728/>.
- Mwakpa, P. (2015). Research in Tertiary Institutions in Nigeria: Issues, Challenges and Prospects: Implication for Educational Managers. *IOSR Journal of Humanities and Social Science (IOSR-JHSS)*, 20 (6), 45-49. Retrieved from: <https://www.iosrjournals.org/iosrjhss/papers/Vol20-issue6/Version1/H020614549.pdf>
- Obanor, A. I. & Kwasi-Effa, C. C. (2013). Assessment of university-industry collaboration and technology transfer in schools of Engineering and Sciences in Nigeria: *Nigerian Journal of Technology* 32(2) 286- 293.
- Pai, P. S. & Chiplunkar, N. N. (2014). Success Story of industry- institution collaboration for enhancing teaching and learning experience. *Proceedings of the International Conference on Transformation in Engineering Education*. Springer, India. 95-102.
- Prosser, C. A. & Quigley, T. H. (1949). *Vocational Education in a Democracy*. Chicago, Illinois: American Technical Society.
- Ramsden, P. (2003). *Learning to Teach in Higher Education*. Routledge Flamer, London.
- Stadt, L. & Gooch, S. (2010). *Business and successful entrepreneurship: Personality traits of successful entrepreneurs*.
- Suleiman, H. Y. (2018). Nigeria's SIWES for undergraduate failed. National Universities. *Commission Stakeholders' meeting Extract*, 22nd November, 2018.
- Ugwuanyi, C. F. & Ezema, J. U. (2010). Challenges of students' industrial work experience scheme (SIWES) in library and information science in the ICT environment. *Library Philosophy and Practice*. Retrieved from www.webpages.uidaho.edu
- Uzoagulu, A.E. (2011). *Practical guide to writing research project reports in tertiary institutions*. Enugu: Cheston Ltd.