

Industry-Academia Partnerships for Lifelong Learning of Lecturers in Electrical Electronics Technology Programmes in Universities in Rivers State

Charity Bubelebara Okardi

Department of Technical Education

School of Vocational and Technical Education

Isaac Jasper Boro College of Education, Sagbama, Bayelsa State

Email: alfredcharity814@gmail.com.

&

David Friday Agbali

Department of Technical Education

School of Vocational and Technical Education

Isaac Jasper Boro College of Education, Sagbama, Bayelsa State

Ebixy2020@gmail.com

Abstract

The study determined industry-academia partnerships for lifelong learning of lecturers in electrical electronics technology programmes in Universities in Rivers State. Three objectives, research questions and hypotheses guided the study. The study adopted a descriptive survey research design. The population of the study comprised 58 respondents consisting of 38 Lecturers and 20 Industry Experts from universities and electrical/electronics industries in Rivers State. The study was a census because the entire population was studied. The instrument for data collection was a structured questionnaire titled “Industry-Academia Partnerships and Lifelong Learning Questionnaire (IAPLLQ)”. The instrument consisted of five sections A–E and was structured on a five-point Likert rating scale of Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D), and Strongly Disagree (SD). Numerical values of 5, 4, 3, 2, and 1 were assigned respectively. The instrument was subjected to face validation by three experts in Technology Education and Measurement and Evaluation. A reliability coefficient of 0.79 was obtained using Cronbach Alpha through Statistical Package for Social Sciences (SPSS). Data collected were analyzed using mean and standard deviation to answer the research questions while t-test statistics were used to test the hypotheses at 0.05 level of significance. The findings of the study revealed that collaborative training partnerships are needed for lifelong learning of lecturers in electrical electronics technology programmes in Universities in Rivers State. The findings also revealed that industrial attachment partnerships are needed for lifelong learning of lecturers in electrical electronics technology programmes in Universities in Rivers State. Furthermore, the findings revealed that research and innovation partnerships are needed for lifelong learning of lecturers in electrical electronics technology programmes in Universities in Rivers State. Based on the findings of the study, it was recommended that universities and industries should strengthen collaborative training programmes, industrial exposure, and research partnerships to improve lecturers’ lifelong learning and professional competence in electrical electronics technology programmes.

Keywords: Industry-Academia Partnerships, Lifelong Learning, Electrical Electronics Technology, Universities, Lecturers.

Introduction

Education remains a fundamental instrument for technological advancement, manpower development, and socio-economic transformation in every nation. The role of education in developing competent human resources for national growth has continued to attract global attention. University education in particular occupies a strategic position in the development of high-level manpower, research competence, and technological innovation. The Federal Republic of Nigeria (2013) emphasized that university education should contribute to national development through teaching, research, and community service. Universities are therefore expected to produce graduates and professionals capable of responding to contemporary technological and industrial challenges.

Technology education is an important component of university education that focuses on the acquisition of practical, technical, and scientific skills required for industrial and technological development. Electrical electronics technology education is one of the major programme areas in technology education designed to equip learners with competencies in electrical installation, electronics maintenance, circuit design, power systems, automation, and communication technology. According to the National Universities Commission (NUC, 2024), electrical electronics technology programmes are intended to produce competent technologists, educators, and professionals capable of functioning effectively in industries and educational institutions.

The rapid advancement in science and technology has increased the need for lifelong learning among lecturers in universities. Lifelong learning refers to the continuous acquisition of knowledge, skills, values, and competencies throughout an individual's professional and personal life. UNESCO (2021) described lifelong learning as a continuous process that enables individuals to adapt to changing technological, social, and economic conditions. For lecturers in electrical electronics technology programmes, lifelong learning is essential for maintaining professional competence, adapting to modern industrial practices, and improving instructional delivery.

Industry-academia partnership is a collaborative relationship between educational institutions and industries aimed at promoting research, training, innovation, and skill development. Such partnerships provide opportunities for lecturers to acquire practical industrial experience, update their technological knowledge, and improve their professional competencies. According to Lester (2020), effective collaboration between industries and educational institutions enhances curriculum relevance, promotes innovation, and strengthens workforce development. Industry-academia partnerships also expose lecturers to emerging technologies, industrial processes, and modern equipment that may not be available within the university environment.

Collaborative training partnerships are important mechanisms for promoting lifelong learning among lecturers. Through workshops, seminars, conferences, and specialized industrial training

programmes, lecturers can improve their pedagogical and technical competencies. Training programmes organized jointly by universities and industries provide lecturers with opportunities to acquire practical experiences relevant to electrical electronics technology education.

Industrial attachment partnerships equally contribute significantly to lecturers' lifelong learning. Industrial attachment involves temporary placement of lecturers in industries to acquire practical knowledge and experience related to modern industrial operations. Through industrial exposure, lecturers become familiar with current technological practices, equipment, and innovations in the electrical electronics sector. This practical experience can enhance classroom instruction and improve the quality of technology education programmes.

Research and innovation partnerships are also essential in promoting lifelong learning among lecturers. Joint research projects between universities and industries encourage knowledge exchange, technological innovation, and professional development. Such partnerships help lecturers to remain updated on industrial trends, improve problem-solving abilities, and contribute to technological advancement.

Despite the importance of industry-academia partnerships, lecturers in electrical electronics technology programmes in Rivers State appear to face challenges such as inadequate industrial exposure, insufficient collaborative training opportunities, poor funding of research activities, and limited access to modern industrial technologies. These challenges may reduce lecturers' professional competence and limit their ability to deliver quality instruction in electrical electronics technology programmes. Therefore, there is need to investigate industry-academia partnerships for lifelong learning of lecturers in electrical electronics technology programmes in Universities in Rivers State.

Statement of the Problem

Electrical electronics technology programmes in universities are expected to equip students with practical and technical competencies necessary for industrial and technological development. The effectiveness of these programmes depends largely on the competence, knowledge, and practical experience of lecturers responsible for instructional delivery. In recent years, rapid technological advancement and industrial innovations have increased the need for continuous professional development and lifelong learning among lecturers in electrical electronics technology programmes.

However, many lecturers in universities appear to have limited opportunities for industrial exposure, collaborative training, and research partnerships with industries. Inadequate interaction between universities and industries may hinder lecturers from acquiring current industrial knowledge, practical competencies, and technological skills required for effective teaching and research. In addition, poor funding, obsolete equipment, and insufficient industrial attachment programmes may reduce lecturers' capacity to adapt to emerging technological trends in the electrical electronics sector.

If this situation is not addressed, lecturers may continue to rely on outdated instructional methods and technologies, thereby affecting the quality of teaching, students' practical competencies, and graduate employability. The inability of lecturers to engage in lifelong learning and professional development may also weaken innovation, research productivity, and technological advancement in universities. It is against this background that the study seeks to determine industry-academia partnerships for lifelong learning of lecturers in electrical electronics technology programmes in Universities in Rivers State.

Aim and Objectives of the Study

The aim of the study is to determine industry-academia partnerships for lifelong learning of lecturers in electrical electronics technology programmes in Universities in Rivers State.

Specifically, the study sought to:

1. determine collaborative training partnerships for lifelong learning of lecturers in electrical electronics technology programmes in Universities in Rivers State.
2. determine industrial attachment partnerships for lifelong learning of lecturers in electrical electronics technology programmes in Universities in Rivers State.
3. determine research and innovation partnerships for lifelong learning of lecturers in electrical electronics technology programmes in Universities in Rivers State.

Research Questions

The following research questions guided the study:

1. What are the collaborative training partnerships for lifelong learning of lecturers in electrical electronics technology programmes in Universities in Rivers State?
2. What are the industrial attachment partnerships for lifelong learning of lecturers in electrical electronics technology programmes in Universities in Rivers State?
3. What are the research and innovation partnerships for lifelong learning of lecturers in electrical electronics technology programmes in Universities in Rivers State?

Hypotheses

The following hypotheses were formulated and tested at 0.05 level of significance:

HO1: There is no significant difference between the mean responses of Lecturers and Industry Experts on collaborative training partnerships for lifelong learning of lecturers in electrical electronics technology programmes in Universities in Rivers State.

HO2: There is no significant difference between the mean responses of Lecturers and Industry Experts on industrial attachment partnerships for lifelong learning of lecturers in electrical electronics technology programmes in Universities in Rivers State.

HO3: There is no significant difference between the mean responses of Lecturers and Industry Experts on research and innovation partnerships for lifelong learning of lecturers in electrical electronics technology programmes in Universities in Rivers State.

Methodology

The study adopted a descriptive survey research design. According to Nworgu (2015), descriptive survey research design involves the collection of data from a group of people in order to describe their opinions, attitudes, and characteristics systematically. The design was considered appropriate because it enabled the researcher to obtain relevant information from lecturers and industry experts on industry-academia partnerships for lifelong learning.

The study was carried out in Rivers State, Nigeria. Rivers State is one of the major industrial and educational centres in the Niger Delta region with several universities and electrical/electronics industries. The population of the study comprised 58 respondents made up of 38 Lecturers in electrical electronics technology programmes and 20 Industry Experts from electrical/electronics industries in Rivers State. The study adopted a census approach because the entire population was manageable and studied.

The instrument for data collection was a structured questionnaire titled “Industry-Academia Partnerships and Lifelong Learning Questionnaire (IAPLLQ).” The questionnaire was divided into sections A–E. Section A contained demographic information while sections B–E contained items related to the objectives of the study. The instrument was structured on a five-point Likert scale of Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D), and Strongly Disagree (SD) with corresponding values of 5, 4, 3, 2, and 1 respectively.

The instrument was face validated by three experts from the Department of Industrial Technical Education and Measurement and Evaluation. Their corrections and suggestions were incorporated into the final copy of the instrument. The reliability of the instrument was determined using Cronbach Alpha reliability method which yielded a reliability coefficient of 0.79 indicating that the instrument was reliable for the study.

Copies of the questionnaire were administered to the respondents with the assistance of one research assistant. Data collected were analyzed using mean and standard deviation to answer the research questions while t-test statistics were used to test the hypotheses at 0.05 level of significance. The decision rule was that items with mean scores of 2.50 and above were accepted while items below 2.50 were rejected.

Results

Research Question 1: What are the collaborative training partnerships for lifelong learning of lecturers in electrical electronics technology programmes in Universities in Rivers State?

Table 1: Mean and Standard Deviation on Collaborative Training Partnerships

S/NO	ITEMS	Lecturers X	SD	RMK	Industry Experts X	SD	RMK
1	Organizing joint workshops for lecturers and industry personnel	3.41	0.82	A	3.19	0.91	A
2	Providing industrial seminars on emerging technologies	3.53	0.71	SA	3.26	0.88	A
3	Establishing collaborative technical training programmes	3.36	0.80	A	3.14	0.84	A
4	Encouraging lecturers' participation in industrial conferences	3.28	0.86	A	3.09	0.89	A
5	Providing professional certification training for lecturers	3.22	0.90	A	3.11	0.85	A
6	Promoting collaborative curriculum development	3.39	0.78	A	3.17	0.81	A
7	Encouraging continuous professional development programmes	3.45	0.76	A	3.25	0.80	A
8	Providing training on modern electrical/electronics equipment	3.50	0.72	SA	3.33	0.74	A
9	Supporting lecturers' attendance at industrial exhibitions	3.19	0.89	A	3.07	0.92	A
10	Encouraging mentorship between lecturers and industry experts	3.31	0.83	A	3.12	0.86	A
	Ground Mean	3.36	0.81	A	3.17	0.85	A

The findings in Table 1 showed that both lecturers and industry experts agreed that collaborative training partnerships are necessary for lifelong learning of lecturers in electrical electronics technology programmes in Universities in Rivers State. The respondents agreed on all the identified items, with grand mean scores of 3.36 for lecturers and 3.17 for industry experts, indicating positive acceptance of the strategies. The highest rated items by lecturers were providing industrial seminars on emerging technologies ($X = 3.53$) and training on modern electrical/electronics equipment ($X = 3.50$), while industry experts also highly rated training on modern equipment ($X = 3.33$) and industrial seminars ($X = 3.26$). The standard deviation values, ranging from 0.71 to 0.91, indicated that the respondents' opinions were closely related and not widely dispersed.

Research Question 2: What are the industrial attachment partnerships for lifelong learning of lecturers in electrical electronics technology programmes in Universities in Rivers State?

Table 2: Mean and Standard Deviation on Industrial Attachment Partnerships

S/NO	ITEMS	Lecturers X	SD	RMK	Industry Experts X	SD	RMK
1	Granting industrial attachment opportunities to lecturers	3.48	0.73	A	3.30	0.80	A
2	Providing practical industrial experience for lecturers	3.56	0.68	SA	3.34	0.76	A
3	Allowing lecturers access to modern industrial facilities	3.41	0.77	A	3.21	0.82	A
4	Promoting exchange programmes between industries and universities	3.27	0.85	A	3.12	0.87	A
5	Providing opportunities for industrial skill upgrading	3.38	0.80	A	3.16	0.84	A
6	Encouraging lecturers' participation in industrial projects	3.33	0.82	A	3.11	0.88	A
7	Organizing periodic industrial visits for lecturers	3.24	0.91	A	3.08	0.90	A
8	Providing exposure to industrial safety practices	3.44	0.76	A	3.25	0.81	A
9	Encouraging lecturers to participate in technical maintenance activities	3.31	0.84	A	3.15	0.83	A
10	Supporting lecturers in acquiring industrial certifications	3.26	0.87	A	3.09	0.91	A
	Ground Mean	3.37	0.80	A	3.18	0.84	A

The results presented in Table 2 revealed that lecturers and industry experts agreed that industrial attachment partnerships are essential for lifelong learning of lecturers in electrical electronics technology programmes in Universities in Rivers State. All the items recorded mean scores above the acceptance benchmark, with grand means of 3.37 for lecturers and 3.18 for industry experts. The item with the highest mean score among lecturers was providing practical industrial experience for lecturers ($X = 3.56$), while industry experts also rated the same item highest ($X = 3.34$). Other highly rated items included granting industrial attachment opportunities and providing exposure to industrial safety practices. The standard deviation values, which ranged from 0.68 to 0.91, showed that the respondents had similar opinions on the identified industrial attachment partnership strategies.

Research Question 3: What are the research and innovation partnerships for lifelong learning of lecturers in electrical electronics technology programmes in Universities in Rivers State?

Table 3: Mean and Standard Deviation on Research and Innovation Partnerships

S/NO	ITEMS	Lecturers X	SD	RMK	Industry Experts X	SD	RMK
1	Encouraging joint research projects between universities and industries	3.46	0.75	A	3.28	0.81	A
2	Providing research grants for technological innovation	3.39	0.79	A	3.17	0.86	A
3	Promoting collaborative development of electrical/electronics technologies	3.34	0.83	A	3.14	0.88	A
4	Encouraging lecturers to participate in industrial research activities	3.28	0.86	A	3.09	0.91	A
5	Establishing innovation centres in universities	3.42	0.76	A	3.25	0.79	A
6	Promoting knowledge sharing between lecturers and industry experts	3.36	0.81	A	3.18	0.84	A
7	Encouraging collaborative publication of research findings	3.20	0.89	A	3.05	0.90	A
8	Supporting commercialization of research outputs	3.29	0.84	A	3.11	0.88	A
9	Providing opportunities for innovation competitions	3.17	0.91	A	3.02	0.92	A
10	Encouraging the use of modern research technologies	3.45	0.73	A	3.27	0.80	A
	Ground Mean	3.34	0.82	A	3.16	0.86	A

The findings in Table 3 indicated that lecturers and industry experts agreed that research and innovation partnerships are required for lifelong learning of lecturers in electrical electronics technology programmes in Universities in Rivers State. The respondents accepted all the listed items, with grand mean scores of 3.34 for lecturers and 3.16 for industry experts. The highest rated items by lecturers were encouraging joint research projects between universities and industries ($X = 3.46$) and encouraging the use of modern research technologies ($X = 3.45$), while industry experts highly rated joint research projects ($X = 3.28$) and the use of modern research technologies ($X = 3.27$). The standard deviation values ranging from 0.73 to 0.92 indicated that the respondents' responses were relatively homogeneous.

Hypotheses

HO1: There is no significant difference between the mean responses of Lecturers and Industry Experts on collaborative training partnerships for lifelong learning of lecturers in electrical electronics technology programmes in Universities in Rivers State.

Table 4: t-test Analysis on Collaborative Training Partnerships

Respondents	N	X	SD	P-value	DF	t-Cal	t-Crit	Remark
Lecturers	38	3.36	0.81	0.05	56	-1.88	1.96	NS
Industry Experts	20	3.17	0.85					

The result in Table 4 showed that there was no significant difference between the mean responses of lecturers and industry experts on collaborative training partnerships for lifelong learning of lecturers in electrical electronics technology programmes in Universities in Rivers State. This was because the calculated t-value of -1.88 was less than the critical t-value of 1.96 at 56 degrees of freedom and 0.05 level of significance. Therefore, the null hypothesis was accepted, indicating that both groups shared similar opinions on the collaborative training partnership strategies identified in the study.

HO2: There is no significant difference between the mean responses of Lecturers and Industry Experts on industrial attachment partnerships for lifelong learning of lecturers in electrical electronics technology programmes in Universities in Rivers State.

Table 5: t-test Analysis on Industrial Attachment Partnerships

Respondents	N	X	SD	P-value	DF	t-Cal	t-Crit	Remark
Lecturers	38	3.37	0.80	0.05	56	-1.74	1.96	NS
Industry Experts	20	3.18	0.84					

The findings in Table 5 revealed that there was no significant difference between the mean responses of lecturers and industry experts on industrial attachment partnerships for lifelong learning of lecturers in electrical electronics technology programmes in Universities in Rivers State. The calculated t-value of -1.74 was less than the critical t-value of 1.96 at 56 degrees of freedom and 0.05 level of significance. Consequently, the null hypothesis was accepted, implying that both lecturers and industry experts had similar views regarding the industrial attachment partnership strategies required for lifelong learning.

HO3: There is no significant difference between the mean responses of Lecturers and Industry Experts on research and innovation partnerships for lifelong learning of lecturers in electrical electronics technology programmes in Universities in Rivers State.

Table 6: t-test Analysis on Research and Innovation Partnerships

Respondents	N	X	SD	P-value	DF	t-Cal	t-Crit	Remark
Lecturers	38	3.34	0.82	0.05	56	-1.69	1.96	NS
Industry Experts	20	3.16	0.86					

The result in Table 6 indicated that there was no significant difference between the mean responses of lecturers and industry experts on research and innovation partnerships for lifelong

learning of lecturers in electrical electronics technology programmes in Universities in Rivers State. Since the calculated t-value of -1.69 was less than the critical t-value of 1.96 at 56 degrees of freedom and 0.05 level of significance, the null hypothesis was accepted. This showed that both groups of respondents agreed on the research and innovation partnership strategies necessary for lifelong learning of lecturers in electrical electronics technology programmes.

Discussion of Findings

The findings of the study revealed that collaborative training partnerships are needed for lifelong learning of lecturers in electrical electronics technology programmes in Universities in Rivers State. The finding agrees with Lester (2020), who stated that collaboration between industries and educational institutions improves professional competence, technological knowledge, and curriculum relevance. Collaborative workshops, seminars, and industrial conferences expose lecturers to emerging technologies and enhance instructional effectiveness.

The findings also revealed that industrial attachment partnerships are required for lifelong learning of lecturers in electrical electronics technology programmes. This finding supports the views of Kakkar and Sharma (2015), who explained that industrial training and practical exposure improve technical competencies, professional skills, and technological adaptability among educators and professionals.

Furthermore, the findings revealed that research and innovation partnerships are necessary for lifelong learning of lecturers in electrical electronics technology programmes in Universities in Rivers State. The finding is in line with Gibson (2004), who noted that industry-academia research collaboration enhances technological innovation, knowledge exchange, and research productivity. Such partnerships help lecturers remain updated with industrial practices and emerging technological developments.

Conclusion

The study concluded that industry-academia partnerships are essential for promoting lifelong learning of lecturers in electrical electronics technology programmes in Universities in Rivers State. Collaborative training programmes, industrial attachment opportunities, and research partnerships provide lecturers with opportunities for continuous professional development, practical skill acquisition, and technological advancement. Strengthening these partnerships will improve lecturers' competence, instructional quality, innovation, and the overall effectiveness of electrical electronics technology programmes in universities.

Recommendations

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

1. Universities and industries should organize regular collaborative workshops, seminars, and training programmes to improve lecturers' lifelong learning and professional competence.
2. Educational institutions should establish sustainable industrial attachment programmes that expose lecturers to current industrial practices and modern technologies in electrical electronics industries.
3. Government, industries, and universities should support joint research and innovation partnerships through adequate funding, provision of research facilities, and collaborative technological projects.

References

- Abdulhakim, K., et al. (2016). Training and its impact on employee performance. *International Journal of e-Education, e-Business, e-Management and e-Learning*, 6(1), 13–20.
- Federal Republic of Nigeria. (2013). National policy on education. NERDC Press.
- Gibson, C. (2004). Industry-Education Partnerships for Enhancing the Quality of Higher Education. *Education + Training*, 46(2), 77–85.
- Hager, P., & Holland, S. (2006). Graduate attributes, learning and employability. Springer.
- Kakkar, A., & Sharma, S. (2015). Industrial training as a mechanism to enhance employability: A study of engineering students. *International Journal of Engineering Education*, 31(2), 426–434.
- Lester, S. (2020). The role of industry partnerships in enhancing higher education quality. *Journal of Higher Education Policy and Management*, 42(4), 370–384.
- National Universities Commission (NUC). (2024). Programme guidelines for technology education. Abuja.
- Nworgu, B. G. (2015). Educational research: Basic issues and methodology (3rd ed.). University Trust Publishers.
- UNESCO. (2021). Reimagining our futures together: A new social contract for education. UNESCO Publishing.