

**UNIVERSITY-INDUSTRY COLLABORATION IN ONDO STATE,
NIGERIA: CHALLENGES AND PROSPECTS****BY****Dr. (Mrs.) P.A.O Etejere: Department of Educational Management, University of Ilorin, Ilorin, Kwara State, Nigeria; E-mail Address: patetejere@unilorin.edu.ng / pat_6etejere@yahoo.com****Eniola-Arigbe, Yetunde: Department of Curriculum Studies, School of Education, College of Education, Ikere-Ekiti, Ekiti State, Nigeria; E-mail Address: eniolaarigbe@gmail.com****&****Dr. (Mrs.) M. L. Ogunniyi: National Centre for Agricultural Mechanization (NCAM), Ilorin, Kwara State, Nigeria; E-mail Address: dupelogunniyi@gmail.com****Abstract**

University-industry collaboration (UIC) is a vital instrument for university goal achievement, innovations and technological advancement of any nation. This type of interaction between universities and industries is needed in order to bridge the gap between university output and the labour market demand. Both parties have a lot of benefits to derive from such collaboration. This type of alliance however, is not without some challenges. The study therefore, examined the challenges and prospects of university-industry collaboration in Ondo State, Nigeria. The challenges included cultural differences, unfavourable policies, lack of motivation from the government, lack of trust and confidence, leadership problems, among others. Some of the prospects arising from the university-industry collaboration were highlighted in the study. These prospects include innovation through knowledge exchange, improvement of quality of research, enhanced teaching and research, alternative research funding, skill development, opportunity to work on real life problems, among others. It was suggested that government should encourage the universities to collaborate with relevant industries for more productivity and also formulate favourable policies in support of UIC. Both the universities and industries should have mutual trust and also strike a balance in their interactions in such a way that their cultural differences will not prevent them from achieving their goals.

Keywords: Collaboration, Institutions, Industry, Prospects, Challenges

Introduction

Universities are saddled with the responsibility of producing skilled manpower relevant to the needs of the labour market. Therefore, the type of educational programmes offered at this level of education is expected to provide opportunities for students to acquire knowledge and skills in preparation for the world of work. This goal cannot be singlehandedly attained by the universities. Hence, it is stated in the National Policy on Education that universities should collaborate with relevant industries in order to achieve the laudable goals (FRN, 2013). University-industry collaboration (UIC) is a vital instrument for university goal achievement and this can be arrived at through collaborative research, students industrial training and developmental projects support. This type of interaction between universities and industries is needed in order to bridge the gap between university output and the labour market demand. In developing countries like Nigeria, it appears much attention has not been given to this collaboration between universities and industries as the interaction between the two seems not to have been widely spread to cover all the expected areas. Hence, the need to carry out a research on institution-industry collaboration and university goal achievement in Ondo State, Nigeria.

Concept of University-Industry Collaboration

University-industry collaboration (UIC) is a term used to describe the alliance, linkages, partnership or interactions that take place between universities and relevant industries. Different terms such as Institution-Industry Collaboration (IIC), University-Industry Partnership (UIP), University-Industry Linkages (UIL), University-Industry Alliance (UIA) or University-Industry Relationship (IIC) are used for this type of relationship. The terms are used interchangeably to describe the interaction that exists

between universities and industries. This partnership is for the purpose of bridging the gap between academic study and industrial practice. It covers various programmes and activities, such as industrial training for students, research and development, contracts, joint projects, incentives and grants to staff and students, conferences and seminars. UIC is for the purpose of improving the competency of the workforce, increasing technology, product, and process as well as updating the workforce. The types of collaboration vary based on the degree of the linkages between the institutions and the concerned industries. University-industry collaboration has been on the increase in some developed countries such as the USA, Japan, and even in Europe, due to rapid technological change, growth in new knowledge, inadequate fund and societal expectation from the universities to produce manpower for national development and global competitiveness.

Natarajan (2014) described UIC in terms of the partnership, co-sponsorship, interagency or inter-organisational cooperation between educational institutions and industries where the administrators of the duo are involved in jointly designing and monitoring programmes or projects with the aid of contributing resources which will yield mutual benefits to both organisations. Tagoe (2012) noted that African higher education institutions, particularly those modeled on the British tradition, did not have early contact with industries. The reason for this was not far-fetched because the goal of higher education then was to produce civil /public servants who would take over from the colonial administration. During this period, the labour market was not operating at full capacity and every potential graduate was promised an employment opportunity. Later the quest for the relevance of their certificate came up, especially for those with industrial-related courses.

It was observed that the graduates trained by the institutions did not have strong business and industrial skills to meet the demand of the labour market. Idris and Rajuddin (2012) identified a discrepancy between the quality of training received by graduates and the employers' expectations in the business and industries in Nigeria. The scholars further stated that conducting engineering education in collaboration with industries is of great importance for the training of students. They identified curriculum inadequacies and a student-oriented problem of not being exposed to handling tools and machines during their course of study but only full of theoretical knowledge. This was confirmed by Obanor and Kwasi-Effa (2013) who revealed that the creative technical skills of most of the graduate engineers employed in some industries are underutilised because they only assemble, operate or maintain machines. They discovered that through research some engineering students have developed some machines, but these have not been improved upon to the level of being marketable or commercialized because of inadequate interaction between the educational institutions and the industries who can help through technology transfer and knowledge exchange.

Pai and Chiplunkar (2014) stated that collaboration between institutions and industries takes place for different reasons at different levels for mutual benefits. They also opined that such an interaction could be for curriculum-related issues, training, research and technology transfer matters. Likewise, Campbell and Dunleavy (2016), in an investigation on teacher preparation in the United States, wrote on the need to connect university coursework and practitioners' knowledge through mediated field experience. The article focused on the importance of such collaborations in order to ensure university goal achievement. There is this general concern about whether education received in Nigerian universities is in consonance with the skills required in the labour market or if the curriculum is applicable. Adeyemo, Ogunleye, Oke, and Adenle (2010), prompted by some views, questions, and concerns relating to the level of graduates' preparedness for productive employment in Nigeria, identified IIC as one of the factors determining the employability of science and technology graduates of Nigerian universities in the labour market. Dyankor (2009) elucidated on IIC as applicable in some countries. He explained that because of the alliances that existed between schools and industries, several types of administrative linkages, such as permanent joint consultation, had been

formed. He cited some examples like Mexico where a sub-directorate responsible for liaison with industries was established within the technical/vocational education directorate.

Also, an advisory council for vocational education was constituted in Norway to represent work organisations and industries. Zimbabwe constituted an industrial advisory committee consisting of industrialists, employers of technical manpower and representatives of vocational education. These links, according to him, have brought institutions and industries closer than ever before. There is a need to improve the standard of degree awarded by the universities and produce skilled labour force. According to Bello (2016), the way of addressing the challenges of 21st-Century education is by engaging the industrial sector. The need for technological development and total advancement necessitates a profitable relationship and interaction between the academia and the industries. Isito, Philip-Kpae, and Dickson (2017) ascertained that lack of technological transfer has made Nigeria to still depend on foreign nations for its technological needs. Institutions and industries may decide to collaborate at various levels. Hagedoorn, Link and Vonortas (2000) stated that collaboration ranges from the formal quality partnership, contracts, research projects, patent licensing to human capital mobility publications and interactions in conferences and expert groups. According to Koschatzky and Stahlecker (2010), time frame differs in their alliances into short-term and long-term collaborations which revolve around problem-solving activities while long-term collaboration involves joint projects and public-private partnerships in terms of funding of institutes or research centres.

Banbul and Sintayehu (2017) conducted research on university-industry collaboration in curriculum development in Dire Dawa University, Ethiopia. Findings of the study revealed that the graduates have acquired demonstrable theoretical and practical knowledge, professional skills and ethics. The study revealed the importance of IIC in the area of joint curriculum development but did not cover the aspects of quality assurance practices. Emesoba (2017) investigated universities and industries partnership in promoting business education programme. The researcher concluded that universities and industries should partner in areas such as curriculum development, improving practical training through Students' Industrial Work Experience Scheme (SIWES), knowledge transfer, financial support for universities developmental projects, scholarships, career guidance initiatives, among others, to enhance graduate skills and ensure a smooth and effective transition between university and the business environment through collaborations. There was no significant difference in the mean ratings of universities and industries' respondents in the areas of partnership, benefits, strategies for improving partnership and challenges facing universities and industries in promoting business education programme. Obanor and Kwasi-Effah (2013) conducted research on an assessment of the university-industry collaboration and technology transfer in schools of engineering and sciences in Nigeria. The findings of the study revealed that there was a very low level of technology transfer and collaboration between most industries and universities in Nigeria.

Aloysius, Ismail, Suandi, and Arshad (2018) investigated the university and industry employability collaboration among Nigerian undergraduates in the labour market. A purposive sampling technique was used for the study. The findings revealed that graduates' employability capacities and self-esteem did not only promote their employability skills but also enabled the industries to obtain and sustain a competitive advantage in the dynamic world of work. It was also revealed that in the transfer of knowledge and learning, teaching is based on theory rather than on practical which directly affected the transfer of the knowledge in the labor market. The study revealed that there was skill mismatch because the theory learnt in the universities was not applicable in the labor market.

Kunttu (2017) presented a qualitative analysis of nine cases of educational involvement in university-industry research collaboration. The main goal of the study was to analyse the mechanisms and practices that are related to the educational aspects of the collaboration. The empirical analysis presented in the article indicated that this collaboration provides a number of factors that may facilitate

relational learning, collaborative practices, and the creation of new knowledge in university-industry relationships. The findings revealed that most of the industrial managers interviewed mentioned university student projects as a valuable channel for new ideas, insights to customer experience and behaviour, as well as being an efficient way of recruiting competent R&D staff to companies. It was also revealed that all educational activities involving industrial partners facilitate research-based information transfer from the academia to the industry, and they help industrial partners to efficiently utilise this information. This transfer is particularly important when the industrial partner needs to improve its skills in new, knowledge-intensive areas. Likewise, educational collaboration deepens research-based collaboration between the academia and the industry, which helps both sides to develop similar attitudes and arrive at a mutual understanding regarding the research process and collaborative practices.

Adebowale and Oyeyinka (2012) studied university-industry collaboration in Nigeria. The findings of the study showed that there was a historical lack of collaborative interactions between industries and universities, thus a generally low-level collaboration due to the absence of interaction and information. Furthermore, universities did not collaborate sufficiently with the users of knowledge. Adepoju and Adedeji (2016) investigated the existence of the university-industry collaboration, the factors militating against the collaboration, and the extent to which the university-industry collaboration can reduce unemployment in Nigeria. The study revealed that a weak relationship existed among universities and industries in Nigeria. It was also revealed that the university-industry relationship will significantly reduce the level of unemployment among graduates in Nigeria.

Another area of collaboration is the students' industrial training which is the practical training programme that university students receive from relevant industries while still in school. These programmes include Students' Industrial Work Experience (SIWES), Industrial Training (IT), Community Based Education and Service (COBES), Internship, Observation, Teaching Practice and Practicum. Of particular interest to the present study is Students' Industrial Work Experience (SIWES). The scheme was established in 1973 by the Industrial Training Fund (ITF). According to Oyeniya (2012), the objectives of the scheme are:

- i. To provide an avenue for students to acquire industrial skills and experience during their course of study.
- ii. To prepare students for the work situation they are likely to meet after graduation.
- iii. To expose students to work methods and techniques in handling the equipment and machinery that may not be available in the university.
- iv. To make easier the transition from the university to the world of work and thus enhance students' contacts for later job placement.
- v. To provide students with an opportunity to apply their theoretical knowledge in real work situations, thereby bridging the gap between theory and practice.

This scheme came to be as a result of the Industrialists' concerns about the gap between academic theory and industrial practice. Ojokuku, Emeahara, Aboyede, and Chris (2015) stated that SIWES is an effort to bridge the existing gap between theory and practice, and to expose students to necessary skills for a smooth transition to the world of work. It is expected that the skill acquired, as well as relevant for jobs functions, is internalised after graduation. Jimoh, Maigida, and Adebayo (2014), in considering strategies for improving the school-industry relationship for effective work preparation of automobile technology students in the technical institutions in Lagos State Nigeria, identified that the curricular of the technological courses in the schools provide that students should engage in Students' Industrial Work Experience Scheme (SIWES) in the relevant industries. They pointed out that the scheme was introduced to bridge the gap between theory and practice in the curricular of the approved courses and that the success or failure of the scheme depends on the extent of the relationship between the school and the industry.

The internship that the scheme offers to students in industry and commerce prepares them to be ably involved in national development. According to Ukwueze (2011), a greater level of employability skill is achievable through fruitful participation in SIWES since the main focus of the scheme is to get employers of labour involved in training their prospective employees. Oyeniyi (2012) asserted that SIWES has contributed positively to skill acquisition and utilisation, industrial development and programme accreditation processes in the institutions. Each of the universities has a SIWES directorate which is responsible for orientation, students' placement, supervision, monitoring, reporting, and allowance disbursement. The scheme is, however, faced with some challenges, ranging from the inability to secure a relevant industry to inadequate finance, accommodation problem, misconception by students, transportation and poor coordination. Suleiman (2018) identified a failure in the scheme because the students are not properly handled by the employers.

Instances of University-Industry Collaboration in Ondo State

Universities in Ondo State have collaborated with many industries for different purposes. Few of such instances will be highlighted in this study.

1. DAVOS Premier Company Nigeria Limited: This is an Agricultural processing company located in Ikeja, Lagos. The Federal University of Technology, Akure (FUTA) is in collaboration with this company for the purpose of Scientific and Technological Development.
2. Nigeria Communication Commission. This commission is in collaboration with FUTA for data sharing, e-learning platforms and ICT infrastructures donation.
3. United Nations Office on Drug Control is a foreign institute with which FUTA has formed alliance for improvement on scientific innovations.
4. Adekunle Ajasin University, Akungba-Akoko is also in Collaboration with Engineering Materials Development Institute, Akure for Research and Capacity Building where staff and students industrial training takes place.
5. The universities are also in collaboration with service industries such as banks and school for students' industrial training and other service-learning programmes.

Prospects of University-Industry Collaboration

There are numerous benefits that are attached to mutual alliance between universities and industries. Both the universities and industries stand to gain a lot from collaboration. This prospect was supported by Omar and Samuel (2016) who described UIC as a vehicle to enhance innovation through knowledge exchange while Marrotta, Blom, and Thorn (2007) explained that UIC increases the propensity of industries to introduce new products. The need of the institution and that of the industries are catered for through effective interaction. The academic and competitive standard of the institutions are also raised through a meaningful alliance formed with relevant industries. UIC enhances teaching and research, increases sources of fund, knowledge and empirical data, high level of competition and job offers to graduates. The industries, on the other hand, will experience the latest technological goal advances and high laboratory usage, will save costs, share the risk, stabilise long-term research projects, and also find recruitment easy. Alternative research funding granted by industries to universities is also part of the benefits of effective UIC as corroborated by Osimo and Priego (2016) who stated that alternative funding is an important component of research funding which provides new opportunities, especially for niche and un-recognised research, and requires stronger communication skills by researchers. Collaboration between universities and industries is critical for skills development. The scholars further stated that this should not be used to replace traditional funding mechanisms. Ledford (2012) stated that willingness to sponsor research activities depends on how well researchers are able to present their proposal.

In order for the academia to remain attractive, academics will have to offer world-class research to attract students, researchers, and funding. However, this can be actualised if the institution can further

establish collaboration with the industries. In the long run it will boost the quality of research by maximising the use of research results, the capacity of students and benefits to the industries. Universities benefit from additional funding for research, graduate training, facilities and equipment. University researchers and their students also benefit from the opportunity to work on real-world problems faced by industry, presenting researchers with ideas that may stimulate their research agendas, and students with valuable experience. Moreover, students gain experience and build contacts that can be valuable upon graduation. For industry, university partnerships provide the opportunity to access specialized expertise, the latest knowledge in relevant disciplines, and potential future employees (students). Firms also benefit from the outputs of such partnerships, in the form of additional knowledge that feeds into their own innovative processes, improved products and processes, and from technical solutions for their problems.

Challenges of University-Industry Collaboration

The universities and the industries are two different entities with varying characteristics. Differences in organisational culture, nature, and values and goals have created a discrepancy between the two. These differences in their features serve as stumbling blocks for effective collaboration. In addressing the factors militating against effective IIC, the followings were identified by Umar (2016) as reasons for the skill gap between the educational institutions and industries:

- i. The academia strives for a maximum solution to maximise their recognition while the industry seeks the minimum solution to minimise their risk.
- ii. The academia is interested in creating new solutions having high innovation rate whereas the industry prefers proven solutions having low risk.
- iii. The academia has long-range perspectives while the industry thinks in terms of short-range goals.
- iv. The academia strives for peer's recognition while the industry strives to survive.

According to Natarajan (2014), the major difficulty with IIC is the need to balance the autonomy of each party involved without compromising their organisational goals. This is in agreement with the idea given by the National Council of University Research Administrators (NCURA, 2006) that a successful IIC should support the mission of each partner as any effort in conflict with the mission of either partner will lead to failure. Lack of motivation on the part of the government is also a discouraging factor for effective interaction between industries and the universities. According to Yusuf (2007), the government of some countries, like the USA, Canada, India, and Singapore, gives special financial grants to universities that form alliances with industries. Slow response on the part of some universities to industrialists' invitation for collaboration slows down the rate of the alliance. This was supported by Brimble (2000) who revealed the fact that some industries show interest in collaborating with universities but the responses they receive from the institutions were not encouraging. Some industries also do not find it enterprising to invest in educational institutions because most institutions do not go into proprietary research, which is research on the need of industries.

The nature and scope of the economies is a major structural factor that limits the development of university-industry linkages. Partnerships are rarely made with local universities. Hence, the outcomes of industrial research and development activities are more commonly imported. Most national economies are based on extraction and natural resource industries and the main contacts they have with universities are through the provision of internship for students and the sponsoring of various cultural activities. Apart from the cultural differences between the sectors, there is lack of trust and confidence on the part of industries in higher education institutions as potential partners. This lack of trust appears to have multiple causes. First, there is a cultural reliance on foreign technologies and some suspicion of local innovations. Universities are therefore not viewed as sources of useful information and expertise. Second, the lack of experience of firms in dealing with universities prevents

a more informed understanding of potential avenues for cooperation. Cultural reliance on foreign innovation and technologies is an impediment to the development of university-industry collaboration.

Another reason for this lack of trust in local products is that innovations in Africa are not very sophisticated, even though they are aimed at solving basic but essential problems. Industry seems reluctant to enter in long-term relationships with universities, not only because of the costs involved, but also because of a lack of confidence in the ability of universities to deliver relevant outputs. They complain about what they perceive as an excessively theoretical emphasis of university activities. There are very few cases of successful innovations and contribution of academics to the economy. As a result, industries are hesitant to engage in what they perceive as costly experiments. This lack of confidence affects university-industry partnership, because it is motivated by the suspicion about the ability of university to make relevant contributions to real-world problems. Another major barrier to the development of collaboration relates to universities' institutional capacity. University officials interviewed complained about the chronic underfunding of research and physical infrastructures necessary to appropriately train their students. They admit that the concerns of the industry and government are legitimate. However, they believe that they are not provided the financial and physical resources to address these problems.

Lack of appropriate leadership in many institutions to initiate, guide and support university-industry collaboration is another challenge. Some university senior administrators do not see their role to facilitate the establishment of partnerships with the industry. They suggest a lack of "champions" for this kind of activity on campuses, which could not only signal to their desirability, but also provide systematic administrative support to them. Without such leadership, industry engagements are often viewed as peripheral activities conducted at the sole initiative of a few individuals. Many believe that the role of university administrators is also to find ways to increase the human and financial resources of their institution, rather than to simply manage limited resources. Bad governance and corruption issues are other militating factors to effective university-industry collaboration. This corruption appears to have made its way into higher institutions of learning. In this context, bad governance in higher education relates to corruption and non-enforcement of administrative procedures. Another aspect of bad governance and corruption concerns the competence and interests of individuals in senior positions in the universities.

Bad governance has had a double impact on university-industry partnerships. First, resources are poorly managed and there are cases of misappropriation of public funds for personal gain, particularly by people in positions of responsibility. This creates a sentiment of mistrust towards the university as an institution. Second, bad governance taints the reputation of higher education institutions as a whole, affecting the likelihood of industry to be willing to engage in partnerships.

Conclusion

The study examined the challenges and prospects of university-industry collaboration in Ondo State, Nigeria. The identified challenges include cultural differences, unfavourable policies, lack of motivation from the government, lack of trust and confidence, leadership problems, among others. The prospects on the other hand included innovation through knowledge exchange, improvement quality of research, enhanced teaching and research, alternative research funding, skill development, opportunity to work on real life problems, among others. It was therefore suggested that government should the institutions to collaborate with relevant industries for more productivity and also formulate favourable policies in support of UIC. Both the universities and industries should have mutual trust and also strike a balance in their interactions in such a way that their cultural differences will not hinder the due in achieving their goals.

Suggestions

Universities are to be encouraged to create an enabling environment for effective IIC by looking for how IIC will be profitable to both parties and organise the means of interaction, such as seminars or conferences. In highlighting the ingredients that can boost effective collaboration, Ananthanar and Suresh (2011) opined that successful IIC depends on the resource persons, their inclination in collaborations, a conducive environment, infrastructure, and clear policies and guidelines. Government should encourage universities to collaborate with relevant industries for more productivity and also formulate favourable policies in support of UIC. Both the universities and industries should have mutual trust and also strike a balance in their interactions in such a way that their cultural differences will not prevent them from achieving their goals. The Australian Advisory Council on Intellectual Property also opined that performance of public universities in Australia should be measured and that IIC be encouraged. University administrators should also be involved in facilitating an effective UIC.

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