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University and Industry Partnership for Sustainable Development in Rivers State, Nigeria

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Abstract

This study investigated funding and non-funding partnership between universities and industries for sustainable development in River State. Two research questions and two null hypotheses guided the study. Descriptive survey research design was adopted. The population for the study is two thousand, three hundred and seventy-three (2,373) university administrative staff and chief executive officers of industries. This is made up of 668 universities administrative staff and 1705 Chief Executive Officers of industries in Rivers State. The sample size was 894 (467 universities administrative staff and 427 CEOs). The sample was drawn through multistage sampling procedure using cluster and disproportionate stratified random sampling techniques. University and Industry Partnership Questionnaire was used for data collection. Face and content validities were ensured by experts in measurement and evaluation. Internal consistency was through Cronbach alpha gave reliability coefficient of 0.89. Mean, standard deviation and z-test were used for data analysis. It was found among others that funding and non-funding partnership between universities and industries for sustainable development includes: commercialization of research, endowments, grants, university-productive sector linkages and contribution to tertiary education trust fund, educational collaborations, academic entrepreneurship, establishment of multi-disciplinary research centers and students' internship. The study recommends among others that; universities should develop functional websites where they can advertise and market their research findings; intellectual property and sale of products of technologies to industries. The university should always sign a memorandum of understanding with any industry of interest on the modus operandi in order not to have a bridge of contract.

Keywords: Industry, Partnership, Sustainable development and University.

Introduction

University and industry partnership is a relatively new phenomenon that emerged during the past century and has strongly expanded in scope and number over recent decades. University and industry linkages cover a large range of diverse realities in both teaching and research, from the more traditional, such as student placement schemes, staff exchanges, consultancy services, continuing professional development, joint research and development, to recent areas such as small enterprise development – the creation of spin-offs for joint

commercialization and development of consortia for collaborative research and development at the international level (IIEP, 2000). Joseph and Abraham (2009), stated that industry academia interaction is rapidly moving towards the forefront of science and technology policy making, planning and management. With the ongoing economic reforms there has been a dramatic change in the economic and business environment confronted by industries, academia and public laboratories. Protection is getting replaced with competition, controls are giving way to liberalization, and import substitution is replaced with export promotion and globalization (Joseph and Abraham, 2009).

Universities and industry partnership refers to the interaction between any parts of the university system and industry aiming mainly to encourage knowledge and technology exchange. UIP have had a long history, as one means of building organizations' knowledge stock. The strategic linkages forged between university and industry has existed for a long time, in a form of students' internship or even faculty exchanges (Perkmann & Walsh, 2008). Of late, there has been a substantial increase in this linkage in several nations including Nigeria. This increase has been attributed to a combination of pressures on both industry and universities. For industry, pressures have included rapid technological change, shorter product life cycles and intense global competition that have radically transformed the current competitive environment for most firms. With regards to universities, pressures have included the growth in new knowledge and the challenge of rising costs and funding problems, which have exerted enormous resource burdens on universities to seek relationships with firms to enable them to remain at the leading edge in all subject areas (Hagen, 2002). In addition, there is a mounting societal pressure on universities for them to be seen as engines for economic growth and less as fulfilling the broader social remit (i.e. education and generating knowledge) they have had in the past (Blumenthal, 2003; Philbin, 2008). These pressures on both parties have led to an increasing stimulus for developing UIP that aim to enhance innovation and economic competitiveness at institutional levels through knowledge exchange between academic and commercial domains (Perkmann et al., 2013). Moreover, UIP has been widely perceived as a promising tool for enhancing organizational capacity in open innovation — where an organization employs external networks in developing innovation and knowledge, as a complementary option to traditional internal R&D (Harvey & Tether, 2003).

The reasons for these linkages are also diverse and ranging from student practical training to institutional widespread attention among researchers in recent years; because the

rapidly changing business environment demands industries to continuously enhance production and commercialization of new products. Such partnership has their efficiency as well as productivity. The escalating costs of equipping the existing manpower with necessary skill, knowledge and abilities as well as undertaking research have strategically pushed further and necessitated strong partnerships between universities and industries (Orthman & Omar, 2011). The place of partnership between university and the industry cannot be swept under the carpet. Fostering collaborative university-industry partnerships to enhance commercialization efforts has emerged as a critical imperative to sustaining global competition. The forms of UIP mostly pursued in practice and discussed in this literature include: Joint Ventures, Networks, Consortia, and Alliances (Barringer & Harrison, 2000), and these different forms vary by the degree to which the participants are linked. However, Bruneel, D'esteb, & Salter (2010) on the other hand suggest four classifications for UIP, including: research support (i.e. Endowment/Trust Fund), cooperative research (i.e. institutional agreements, group arrangements, institutional facilities, informal intentions), knowledge transfer (i.e. hiring of recent graduates, personal interactions, institutional programs, cooperative education) and technology transfer (i.e. product development and commercialization activities through university research centers). In universities in Nigeria, network industries like MTN, Glo and Etisalat; oil and gas industries like Mobil, Shell Total, Fina and Elf partner with universities to enhance activities taking place in the institutions for global competitiveness. These partnerships are established to improve institutional performance through proper assistance in the provision of facilities in the school system and research development. The findings of researches carried out in the institutions are used in the industries for quality productions. Also, students that graduate from the university are employed in these industries to contribute their quota in societal development.

The first definition of sustainable development was given in 1987. It is defined as economic development and standard of living that does not impair the ability of the environment in the future to provide the necessary food and life for the population and seek to meet the need of the current generation without depleting the needs of future generation (Brundtland report, 1987). Sustainable development seeks to reconcile the three economic, social and environmental dimensions by building productive capacities and available techniques by supporting scientific research adopting different approaches to the achievement of human basic needs and to raising their standard of living and well-being. Hence, scientific research represents the most important pillars of progress and the element of its success and the ability to achieve sustainable development and its response to transformations in society and external

influences. Connecting scientific research with institutions and organizations is considered as a strategy that aims to improve the teaching process and to linking the universities to the progress and development process in society.

In 1993, UNESCO established the university-industry partnership program UNISPAR in order to promote the university in developing countries and to encourage them to increase their participation in the industrialization process in their countries. These programs aim to strengthen partnership and linkages between universities and industry, including small and medium enterprises, to promote innovation and engineering science education, consolidate cooperation, mainstream gender equality, promote maintenance of all areas related to technology development, in addition to the development of human resources including the training of engineers in the areas of transfer of research, transfer and maintenance of equipment and other related fields (Mahmoud, 2008). Studies and reports published by the World Bank have proved the importance of university-industry partnership and integration.

Aim and Objectives of study

The study was aimed at investigating university and industry partnership in Rivers State, to:

1. find out how funding partnership between universities and industries contributes to funding universities for sustainable development in Rivers State, Nigeria.
2. find out non-funding partnership between universities and industries for sustainable development in Rivers State Nigeria.

Research Questions

1. how has funding partnership between universities and industries contributed to funding universities for sustainable development in River State, Nigeria?
2. What are the non-funding partnerships between universities and industries for sustainable development in Rivers State Nigeria?

Hypothesis

1. There is no significant difference between the mean scores of universities and industries on how funding partnership between universities and industries has contributed to funding universities for sustainable development in River State, Nigeria.
2. There is no significant difference between the mean scores of universities and industries on the non-funding partnership between universities and industries for sustainable development in Rivers State Nigeria

Literature Review

funding partnership between universities and industries for sustainable development in Rivers State, Nigeria

Funding means money provided, especially by an organization or government, for a particular purpose. Funding is the act of providing financial resources, usually in the form of money, or other values such as effort or time, to finance a need, program, and project, usually by an organisation or government. Generally, this word is used when a firm uses its internal reserves to satisfy its necessity for cash, while the term financing is used when the firms acquires capital from external sources. Funding of universities in Nigeria is very necessary for optimum growth and societal development. Fund is needed in universities to procure educational materials, physical facilities and staff management. Funding of Nigerian higher education is imperative because of the costs involved in maintaining an institution.

Yusuf (2012) opined that funding is critical to the ability of tertiary institutions to conduct research in the first place and ultimately to the quality and impact of this research. Most research activities in Nigeria are sponsored by government through government funding agencies like the National Science and Technology Fund (NSTF), the Education Trust Fund (ETF) and so on, as well as a number of federal/state ministries, boards and parastatals which directly fund researching institutions or research projects under them. In addition, research projects are occasionally funded by international and philanthropic organisations by way of sponsored research support, endowment funds, foreign aids, fellowships, donations, and so on.

All over the world, there are basically are two broad sources of funding educational programs. They are: government sources and non-governmental sources. Governmental sources are sources of fund that come from the government through budgetary allocation. Government also provides allocation and funds for education through grants, such as; capital grants, which are the bulk of payments to educational institutions for the construction of new buildings and major repair of old ones. Also, there are also recurrent grants, which are for expenditure that occur every year in the budget. They include salaries, allowance, maintenance, travelling and transport expenses, and expenditure on student meals and so on. Special grant, which are special aid by the federal or state government to service schools. Some government give special grants to enable schools improve the quality of education, structure, special programmes and much more. However, grant for tertiary educational institutions are usually received and disbursed by regulatory institutions. (Uzonwune and Kpee, 2019)

Non-governmental sources of funding for education all over the world include Industries. Hence, this research is strongly advocating that all the multinational companies and

other industries operating in Rivers State need to partner with the various university institutions towards funding education in areas such as contributing money for the development of institution, encouraging research and consultancy services in universities, providing laboratory equipment, computers and laptops in schools to help ameliorate the bottleneck in the funding of education, as well as providing scholarships and products for school development. Uzonwune and Kpee, (2019) asserted that, industries in other parts of the world assist university institutions with funds for the provision of educational facilities, construction of buildings, research engagements, as well as scholarships for students. They do this by partnering with universities. In some countries, many leading public universities are rapidly becoming very dependent on industry support, in any event, the continued excellence of public universities – and access to them for students of modest financial means will be increasingly dependent on industry partnership and support. Some of which include the following:

Commercialization of research: this is a therapy that will cures the virus of under-funding that is eating-up Nigerian universities in general, and those in Rivers State in particular. This issue of under-funding is orchestrated by the ebb in the price of oil in the global market. This by extension has affected the coffers of government, thereby reducing its financial support to public universities in particular. The short fall in financial allocation to public universities from the coffers of the government, should inform universities to use commercialization of research as a way of improving universities' funding base. This may be possible through the sale of their research finding tailored towards solving teething problem to the industries. In tune with this, Uche and Ahunanya (2011) describe commercialization of research as the process whereby universities sell the findings of their research(es) to the public or industries to produce new goods or improve on the existing goods. This implies that the industries pay for research findings of universities to improving their products. Little wonder, Worgu (2017) hinted that industries pay universities for their products (research findings). This payment from industries is one of the ways universities improve their funding base (Chesbrohgh, 2003). The importance of commercialization cannot be undermined. Commercialization of research products are significant in the development of university manpower and realization of funds and finance for the smooth running of the university.

However, industry funded research spurs concerns regarding possible long-run effects on scientific output. While some policy makers argue that the potential of universities to foster and accelerate industrial innovations is not yet fully exploited, others are concerned with the distraction of academics from their actual research mission. Whereas from a private-sector

perspective, the benefits from collaborating with academia are found to be unambiguously positive, the effects on the scientific sector are not as clear cut. Science may benefit from the initiation of new ideas from industry or the use of industry funds for hiring additional researchers or investing in lab equipment. On the other hand, traditional incentives in scientific research characterized by knowledge sharing and rapid disclosure of research outcomes may be distorted. Moreover, commercial interests may induce scientists to select research projects on the basis of their perceived value in the private sector and not solely on the basis of scientific progress.

Endowments: At the University of Ibadan for example, a major way of generating money for the university is through endowments. It is a method which has always been used at the University of Ibadan since the 1960s. The harsh economic conditions of the civil war era induced the university to embark on the search for endowment funds. This need was made all the more urgent when the earlier quinquennial financial arrangement that the government made with the university was replaced with ad hoc grants. An endowment appeal fund was launched by the then visitor, His Excellency, General Yakubu Gowon, to support University of Ibadan's 1975-80 quinquennial plan. The plan proposed to create new academic programmes and embark on major capital projects. However, in many cases, the Nigerian public seemed not to have imbibed the spirit of endowments to the universities, demonstrated in the usually low response from the public to calls for such funds. Nevertheless, the University of Ibadan attracts the highest endowment funds (up to N8.36m in 1994/95 session alone). This is not surprising, since it has as noted, adopted this funding strategy since the 1960s.

Foreign Grants: For a long time, foreign grants have aided many programmes in the Nigerian universities, especially postgraduate studies and staff development. For example, the University of Ibadan received from the Ford and Rockefeller Foundations a sum of N7, 717,592 for the development of its 1962-67 quinquennium. Other bodies, which were reported to have supported Nigerian universities and individual researchers within the system, include IDRC, CIDA, SIDA, USAID, Commonwealth Scholarships, UNFPA, UNIFEM, and the British Council. However, subsequent to the country's confrontation with the United Nations over non-democratic principles in governance, and a bad human rights record, many of these donors have withdrawn their funding. This, in particular, followed the sanctions that the United Nations introduced in opposition to the military dictatorship in the country (Odebiyi et al., 2000). Included in this category are external aids. External aids are assistance given to educational institutions from outside the country. It may be in the form of equipment and manpower through

bilateral and multilateral relations. External aids come from organizations such as the World Bank, UNESCO, USAID, Ford Foundation, PTF etc.

University-productive sector linkages: Universities are now making efforts to reach out to the productive sector mainly through seminars, workshops and training programmes. However, the benefits of this accrue more to the large-scale industrial concerns, rather than the small-scale enterprises (since the latter cannot, in most cases, benefit much from the fee-based university consultancy services offered at exorbitant prices) (Ayiku, 1997).

Odebiyi et al. (2000) carried out a case study of Obafemi Awolowo University, Ile-Ife. They found that many centres had been established at Ife which provide links with the productive sector, either through consultancy services, training in new technologies, and other technical services. The centres promotes training of manpower for the industries, through consultancies, while profits accruing to them have been spent on further investments, teaching and research, and to acquire new equipment. Some universities in recent times are now establishing linkages with the productive sector either through consultancies and other designated centres or units; and direct links with academic departments. Although the older universities seem to have more established links with the productive sector on the whole, a young State university like OSUA started off with the philosophy of being particularly relevant to the immediate social and economic environment. On the whole, there is still poor information flow from the universities to the productive sectors, while much of the research carried out in these universities is not need-driven, and are therefore not geared to the interests of the private sector.

Tertiary education tax fund (Tetfund) formally known as Education tax fund (ETF): This was introduced in 1993 to raise fund for the education sector. TetFund was established as an intervention agency under the TETFund ACT–Tertiary Education Trust Fund Act, 2011; charged with the responsibility for managing, disbursing and monitoring the education tax to public tertiary institutions in Nigeria. The Tetfund act requires all registered companies in Nigeria to pay a tax of 2% on their assessable profit. The money is shared in the ratio 50:25:25, with Universities getting 50% and colleges and polytechnics each getting 25% apiece.

Non-funding partnership between universities and industries for sustainable development in Rivers State, Nigeria

There is increasing attention paid to the potential contribution of universities as knowledge producers interacting with firms to build learning and technological capabilities in a national system of innovation, and hence, contributing to sustainable development and

structural change, in the specific conditions of developing countries (Liefner and Schiller 2008, Mazzoleni 2008, Schiller and Brimble 2009). Knowledge-based institutions play a key role in preparing graduates with appropriate scarce and critical skills, and in contributing research to the development of new technology, new organizational forms and innovation. University education produces individuals with fundamental competencies able to absorb new technologies for firms, thus building and increasing capabilities for firms and industries in a national economy. University research provides missing or complementary basic, applied or experimental research to inform firms' innovation and research and development activities. In turn, industry has been identified as a key partner for higher education, as a source of much-needed 'third stream' funding, and so on.

Universities and industries partnership processes can be broadly categorized into two which are funding and non-funding partnership. Non-funding universities and industries partnership include; academic spin-offs, educational collaboration, academic entrepreneurship, establishment of multi-disciplinary research centers, students' internship and so on.

Academic spin-offs: Academic spin-offs (also referred to as university spin-offs or spinouts) are subject of a huge and growing literature. Although there are various definitions of academic spin-offs, they all require the transfer of knowledge and technologies from the university to the academic spin-off. The transferred technology might be formalized intellectual property, e.g. the transfer of a patent via technology licensing (Di Gregorio and Shane, 2003). Alternatively, the transfer may consist of non-formalized technologies and research results (Djokovic and Souitaris, 2008). The discussion on transferred knowledge and technologies usually focusses on research results from natural sciences, computer sciences or engineering. However, academic spin-offs are also frequently based on results from social sciences, e.g. in the business consulting industry (Egeln et al., 2003). Regarding the second distinguishing attribute of new firms, members of the founding team coming from a university, a narrow definition requires that an academic spin-off is set up by the inventor of the transferred knowledge and technology the spin-off commercializes (Smilor et al., 1990). Thus, the formation of an academic spin-off involves at least a partial employment transition of a university researcher from academia to the for-profit private sector. This definition includes founders of academic spin-offs that remain affiliated with the incubator university and continue to work part-time for the university. If the whole team of founders consists of researchers that (partially) left the incubator university, we denote the new firm a pure academic spin-off. A hybrid type of an academic spin-off is a new firm set up by a team of founders that includes

both university researchers and founders from outside the university sector. The latter may enrich the knowledge base of an academic spin-off through their commercial experience. Both pure and hybrid academic spin-off require the transfer of knowledge and technology from the university to the academic spin-off. New firms founded by university researchers without being based on transferred knowledge and technologies are not classified as academic spin-offs. According to Nicolaou and Birley (2003), a technology spin-off is a new firm that commercializes research results originating from universities but that does not involve the inventor in the team of founders. Although the authors allow for the possibility of the university researcher having equity in the new company or offering advice on a consultancy basis, an employment transition of the university researcher is no longer necessary. Egeln et al. (2003) relax the criterion that academic spin-offs must commercialize universities' research results and denote as competence spin-offs those start-ups for which special skills and expertise the founders acquired at a university were essential to create the new firm.

The creation of spin-offs as derivative start-ups recognizes the transfer of knowledge and technology assets to a commercial, quasi-private context in which the university typically retains a significant equity stake. Activities may also have developed initially within an academic context on the basis of research contracts but which begin to generate commercial revenues as the practical relevance comes to attract interest. Being part of a university may constrain the ability to exploit revenue generating activities fully, because of the constraints imposed by a university environment.

Educational collaboration: This involves activities such as conferences, seminars, corporate training programs, and supervising thesis work, establishing organizations and programs that connect research with business and catalyze collaboration, creating platforms for communication, networking, and the development of shared goals among community stakeholders, e.g. entrepreneurs, trade associations, university researchers and administrators, capital providers, and business support service providers among others to foster innovation and entrepreneurship across and within the private sector as well to facilitate greater university-industry engagement. Also, there are research-related collaboration, which includes joint research in shared premises and employment contracts with companies. These collaboration processes can be facilitated through various channels of interaction, such as bi-directional, traditional, commercial, and service channels. It is important to note that the preferences and rankings of these channels may vary between industry and academia. (Ake, 2024) growth.

Academic entrepreneurship: Where researchers engage in shared publications, research-related consulting, public research programs, and contract research including entrepreneur-in-residence programs, where experienced business advisors from outside of the university who work with faculty interested in commercializing their research. They provide valuable coaching and mentoring to faculty and students, help align the expectations of what can be realistically commercialized, bring with them and entrepreneurial culture, and lastly serve as a vehicle for bridging the university-industry divide (Joseph and Abraham 2019)

Multidisciplinary research centers or institutes with industry buy-in, which is establishing and promoting centers or institutes that have a mandate to perform collaborative research with industry and cut across two or more academic disciplines.

Student internship and job placement programs. There is little disagreement that people are the most important form of knowledge transfer. Leading regions have multiple methods to link their students to work experience and job opportunities in the private sector. These include mentorship programs, internships and business plan competitions.

Joseph and Abraham (2019) further identified other forms of university-industry partnership to include, personal networks of academic and industrial researchers, spin-offs of new firms from universities, participation in conferences and presentations, flows of fresh graduates to the industry, publications and reports, public conferences and meetings, informal information exchange, contract research with universities, joint or cooperative R&D projects, participation in networks that involve universities, temporary personnel exchanges, incubators, joint science and/or technology parks and firm. According to Schartingeretal., (2002) university-industry interactions and knowledge transfer is categorized into four distinct groups; U-I joint research (including joint publishing), contract research (such as consulting and financing of university research), mobility (staff movement between universities and industry, joint supervision of students during industry placement and internship) and training (such as training of firm staff at universities, lecturing by industry staff on selected topics).

Indeed, universities and the industry can partner in different ways. These include, but are not limited to, research and development, mobility of academics, mobility of students, commercialization of research results, curriculum development, curriculum delivery, lifelong learning, spinoff and start-up formation, and university governance. Others include Joint Ventures, Networks, Consortia, and Alliances (Barringer & Harrison, 2000). However, Bruneel, D'esteb, & Salter (2010) on the other hand suggest four classifications for UIP, including: research support (i.e. endowment/trust fund), cooperative research (i.e. institutional

agreements, group arrangements, institutional facilities, informal intentions), knowledge transfer (i.e. hiring of recent graduates, personal interactions, institutional programs, cooperative education) and technology transfer (i.e. product development and commercialization activities through university research centers). Likewise, types of university-industry cooperation that provides straight and measurable benefits have a tendency to be the most developed types of cooperation such as research and development. Accordingly, UIP is essential to establish and nurture innovation ecosystems that drive the national innovation agenda and sustain economic development.

Statement of problem

No social institution can survive absolutely independently, because nothing can exist in isolation. The university and industry are not exemptions. For example, it is obvious that the government alone cannot bear the burden of education financing, hence, the need for university and industry partnership. However, it appears that majority of industries in Rivers State do not partner with universities through such avenues like "open" innovation systems that favour collaboration, partnerships, alliances, consortia and coordination of research with universities. Again, many firms attach more importance to informal contacts with universities that relate to the recruitment of graduates, internships, and consulting, and in some cases, industries seem to be having difficulty with aggressive behavior of universities regarding sharing of property rights and licensing. On the other hand, it appears that some universities in Rivers State seem not to commercialize the fruits of existing research results through transfer of knowledge, spinoffs, and equity in stakes in start-ups to the industries. Hence, the researcher is bothered and propelled to investigate the funding and non-funding partnership between universities and industries for sustainable development in Rivers State, Nigeria.

Methodology

The population for the study is two thousand, three hundred and seventy-three (2373) university administrative staff and chief executive officers of industries. This is made up of 668 administrative staff of universities and 1705 chief executive officers of industries. The study was a descriptive survey design. The sample size was 894 (467 administrative staff and 427 CEOs). The sample was drawn through multistage sampling procedure using cluster and disproportionate stratified random sampling techniques. University and Industry Partnership Questionnaire was used for data collection. Face and content validities were ensured by experts.

Internal consistency through Cronbach alpha gave reliability coefficient of 0.89. Mean, standard deviation and z-test were used for data analysis.

Results

Research Question 1: how has funding partnership between universities and industries contributed to funding universities for sustainable development in River State, Nigeria?

Table 1: Mean and standard deviation on how funding partnership between universities and industries has contributed to funding universities for sustainable development in River State, Nigeria?

S/N	how has funding partnership between universities and industries contributed to funding universities for sustainable development in River State, Nigeria	Administrative Staff			Chief Executive Officers		
		Mean	Std.	Decision	Mean	Std.	Decision
1	Through commercialization of research	3.69	.54	Agreed	3.56	.46	Agreed
2	Through endowments funds	2.62	.55	Agreed	3.25	.45	Agreed
3	By giving of grants to the universities	2.52	.80	Agreed	3.17	.49	Agreed
4	University-productive sector linkages	2.92	.47	Agreed	3.29	.43	Agreed
5	Contribution to tertiary education trust fund	3.24	.23	Agreed	3.42	.42	Agreed
	Aggregate mean and standard deviation	**2.79**	**.67**		**3.33**	**.82**	

Table 1 revealed that items with serial numbers 1 to 5 have their various mean values above the criterion mean value of 2.50 and were agreed by the respondents as how has funding partnership between universities and industries contributed to funding universities for sustainable development in River State, Nigeria. Hence, funding partnership between universities and industries contributes to funding universities for sustainable development in Rivers State, Nigeria through; commercialization of research, endowments funds, giving of grants to the universities, university-productive sector linkages and industries contribution to tertiary education trust fund.

Research Question 2: What are the non-funding partnerships between universities and industries for sustainable development in Rivers State Nigeria?

Table 1: Mean and standard deviation on non-funding partnership between universities and industries for sustainable development in Rivers State Nigeria

S/N	non-funding partnership between universities and industries for sustainable development in Rivers State Nigeria	Universities Administrative Staff			Industries Chief Executive Officers		
		Mean	Std.	Decision	Mean	Std.	Decision
6	Academic spin-offs	2.13	.45	Disagreed	2.15	.47	Disagreed
7	Educational collaborations	3.15	.67	Agreed	3.19	.45	Agreed
8	Academic entrepreneurship with industries	3.16	.73	Agreed	3.08	.45	Agreed
9	Establishment of multi-disciplinary research centers by industries	3.32	.56	Agreed	3.43	.49	Agreed

10	Acceptance of students for internship	3.09	.52	Agreed	3.42	.49	Agreed
	Aggregate mean and standard deviation	**2.97**	**.72**		**3.06**	**.74**	

Table 2 revealed that items with serial numbers 7 to 10 have their various mean values above the criterion mean value of 2.50 and were agreed by the respondents as the non-funding partnership between universities and industries for sustainable development in Rivers State Nigeria. While item with serial number 1 has mean below the criterion mean of 2.50 and were disagreed by the respondents as non-funding partnership between universities and industries for sustainable development in Rivers State Nigeria. Hence, non-funding partnership between universities and industries for sustainable development in Rivers State Nigeria are; educational collaborations, academic entrepreneurship with industries, establishment of multi-disciplinary research centers by industries and acceptance of university students for internship.

Hypothesis 1: There is no significant difference between the mean scores of universities and industries on how funding partnership between universities and industries has contributed to funding universities for sustainable development in River State, Nigeria.

Table 3: z-test analysis of the mean scores of universities and industries on how funding partnership between universities and industries has contributed to funding universities for sustainable development in River State, Nigeria.

Categories	**N**	$\bar{x}$	**Sd**	**Df**	**Sl**	**Z-cal**	**Z-crit.**	**Remarks**
University administrative staff	467	2.79	.72	892	0.05	0.07	1.96	Accepted
Industry chief executive officers	427	3.06	.74					

Table 3 shows that university administrative staff have a mean score of 2.97 and standard deviation score of .72 while industry chief executive officers have mean score of 3.06 and standard deviation score of .74. These scores are so closely related that no significant difference exist between them. Furthermore, at 892 degree of freedom and at 0.05 level of significance, the calculated z value of 0.07 was by far less than the z critical value of ± 1.96. Based on the above observation, the researcher failed to reject the null hypothesis and therefore establish that there was no significant difference.

Hypothesis 2: There is no significant difference between the mean scores of universities and industries on non-funding partnership between universities and industries for sustainable development in Rivers State Nigeria.

Table 4: z-test analysis of the mean scores of universities and industries on non-funding partnership between universities and industries for sustainable development in Rivers State Nigeria

Categories	N	$\bar{x}$	Sd	Df	Sl	Z-cal	Z-crit.	Remarks
University administrative staff	467	2.79	.67	892	0.05	0.09	1.96	Accepted
Industry chief executive officers	427	3.33	.82					

Table 4 shows that university administrative staff have a mean score of 2.79 and standard deviation score of .67 while industry chief executive officers have mean score of 3.33 and standard deviation score of .82. These scores are so closely related that no significant difference exist between them. Furthermore, at 892 degree of freedom and at 0.05 level of significance, the calculated z value of 0.09 was by far less than the z critical value of ± 1.96. Based on the above observation, the researcher failed to reject the null hypothesis and therefore establish that there was no significant difference.

Discussion of findings:

How funding partnership between universities and industries contributes to funding universities for sustainable development in River State, Nigeria

This study found that funding partnership between universities and industries contributes to funding universities for sustainable development in River State, Nigeria through; commercialization of research, endowments, grants, university-productive sector linkages and tertiary education trust fund. This finding is supported by Uzonwune and Kpee, (2019), who asserted that, industries in other parts of the world assist university institutions with funds for the provision of educational facilities, construction of buildings, research engagements, as well as scholarships for students and that they do this by partnering with the universities. Also, the findings are in agreement with Yusuf (2012) who decried the poor state of industry funding of universities in Nigeria and observed that in advanced nations of the world, research projects are often funded by philanthropic organizations by way of sponsored research support, endowment funds, foreign aids, fellowships, donations, and so on.

Non-funding partnership between universities and industries for sustainable development in Rivers State Nigeria.

This study found that non-funding partnership between universities and industries for sustainable development in Rivers State Nigeria include; educational collaborations, academic entrepreneurship, establishment of multi-disciplinary research centers and students' internship. This finding is in tandem with Schartingeretal (2002) who noted that; university-industry

interactions and knowledge transfer is categorized into four distinct groups; U-I joint research (including joint publishing), contract research (such as consulting and financing of university research), and joint supervision of students during industry placement and internship). Also, this finding is in line with the thought of Joseph and Abraham (2019) who identified university-industry partnership to include, participation in conferences and presentations, flows of fresh graduates to the industry, publications and reports, public conferences and meetings, informal information exchange, contract research with universities, joint or cooperative R&D projects, participation in networks that involve universities, temporary personnel exchanges and joint science and/or technology parks and firm.

Conclusion

Based on the findings of this study, it was concluded that university and industry partnership for sustainable development has not received the much-needed attention that it deserves in Rivers State Nigeria. In most nations of the world, universities and industries marriage has become the bedrock of sustainable development. The essence of knowledge is development, but until there is adequate partnership between the university which is the dispenser of knowledge and the industry which transforms knowledge into development, there can be no sustainable development.

Recommendations

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

1. Universities in Rivers State should develop functional websites that are specially dedicated to advertisement and marketing of their research findings; intellectual property and discoveries to the industries.
2. There should a stipulated amount of money statutorily required by law, to be remitted to the universities for research and development the industry in Rivers State.
3. The university should always sign a memorandum of understanding with any industry of interest in the state, to for strategic exchanges of research findings that will be useful to the industry for money.

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