

Commercialization of Educational Research Results as Alternative Means for Funding University

Dr. Yellowe A. N.

Department of Educational Management, Ignatius Ajuru University of Education
annette.Yellowe@gmail.com

Keywords

Commercialization,
Educational Research,
Results, Funding
Universities

Abstract

This study examined the commercialization of educational research results as alternative means for funding university. The study was guided by proffering answers to some cardinal related questions. The study adopted the descriptive survey research design. The population of the study was 2382 staff of selected tertiary institutions. However, using Taro Yamene's Sample size formula, a simple size of 299 university academic staff was drawn from the three selected universities in Rivers State (53 from Ignatius Ajuru University of education Rumuolumeni, 174 from University of Port Harcourt, and 72 from Rivers State University, Nkpolu). Consequently, 232 responses were successful. Using Likert scale as well as z-test to analyze the data, the study reveals positive presence of collaborative research, university/industry partnership, intellectual property, technology transfer and academic consultancy exerting significant relationships with university funding in Rivers State. The study concluded that collaborative research, university- industry partnership, intellectual property, technology transfer as well as academic consulting are significant elements of university education research result that are efficient to enhance both federal and state universities' funding Rivers State if commercialized. This suggests that the commercialization of -Diversities' educational research results will greatly increase funding ability of the universities. Therefore, the study recommended the establishment of research and development unit in the universities, embarking on collaborative research, university/industry partnership, favourable regulatory framework for intellectual property and technology transfer; and

establishment of academic consulting services.

I. Introduction

The role of university as an agent for economic and national development is crucial, due to its contribution in producing higher-level skills and competencies that are indispensable for developmental strides in the country, especially in this era of globalization as well as the shift knowledge economies. This has prompted many countries the concern to give higher education the needed policy attention.

To train and produce high quality manpower to foster scientific, economic and human development via intensive studies and research, stands the main objective of the university education just as other levels of education. However, university education in Nigeria has regrettably been bugged by poor funding. Yearly, huge sums of money are voted for security and defense as against education, a vital area to human resources development.

Administrators of university education in Nigeria are confronted with the major problem inadequate funding, enrollment capacity increased more than the government capacity to maintain. The university does not have the resources necessary to maintain the quality of education in the fog of enrollment expansion.

Funding has continued to be a principal factor in the provision and sustenance of function education needed for national transformation. Ayeni and Babalola (2009) argued that was central and germane to the success at all levels of education. Adequate funding is a prerequisite to sustainability of university education in Nigeria. Inadequate funding can serious destabilize the university system in realizing sustainability of its programmes and other activities. Nwangwu (2005) stated that:

The foundation of education is frail when education is not well funded and the products of such foundation are weak intellectuals. When there were just few tertiary institutions, Government saddle the burden of funding the institutions solely but from the mid- 1980's there was a massive increase in the number of tertiary institutions and in students' enrolment in Nigeria.

The increase has gotten to the point where Government openly acknowledged that it can no longer saddle the responsibility of funding institutions alone (Ekpo & Okpa, 2017).

Nkem (2018) asserts that the current unstable and fragile economic trend in Nigeria is a cogent reason that university education funding cannot be provided by the Government alone. Government functionaries, researchers, economic analysts and observers have, in diverse manners and various occasions, made this stark reality known to university authorities. As a result, some of them have embarked on diverse conventional measures to generate revenue internally to supplement Government grants and subventions.

Underfunding of universities in developing economies has become a reoccurring problem often resulting in calamitous effect on teaching and research, and intellectual capital flight of academic. This issue of university underfunding in developing economies

especially West African countries is a prime cause of other problems that have undermined quality in university education, and it has manifestation in problems such as academic staff shortage, dearth of library books and journals, decline of reading culture among study, dilapidated buildings, obsolete equipment, abandoned capital projects, poor electricity and water supply, hostile working environment, incessant strikes and mass exodus of Africa's best brains in academics. These challenges in addition to prevailing economic recession therefore necessitates for the commercialization of educational research results as alternative to funding of university education and the sustenance of society growth and development.

Commercialization of educational research materials is very vital and the capacity to take these research results from the laboratory, library and clinic, into new or improved products and series in the market place or to industries, as a major impact of funding the university and also making a major positive impact on the nation's economy. Several stages can be taken to commercialize educational research materials. This include: initial introduction of the product via its mass production and adoption. This takes into cognizance the production, distribution, marketing sales and customer support, required to achieve commercial success. As a means, commercialization requires that a business develop a marketing plan, determine how the product will be supplied to the market and anticipate barriers to success.

Besides being an alternative means of fund-raising to the universities, educational research materials also serves as maiden products capable of remedying life-pressing problems providing improvements to the quality of life in various domains of life. When well produced packaged and distributed, educational research materials in areas such as fitness education, healthcare, industrial application, environmental wellness, as well as everyday life- Innovations are very beneficial to individuals, companies and the entire economy. By inaugurating commercialization of educational research materials, thereis attendant stream of revenue generation as well as jobs creation, thereby, curbing unemployment level and enhancing the standard of living in the economy.

Successful development and profit-making from educational research materials can accentuates into industrial partnership commercialization with opportunities of gaining lateral partner and investors in the industry, as well as other businesses. Consequently, additional fund can be generated from this research synergy, thereby, requiring the establishment of a research and development department, which major in translating research to the broader market. As a result of the research and development specialty, both associated research cost-making objective are generated in the process.

This leads to the recruitment and retention, commercialization of successful innovations, positive advertising and also increased awareness of research, discoveries and corporate culture. This achievement and public relations will attract teachers' entrepreneurs, retain teachers and students as well as other specialists in the field of science

and scientific partners, with a focus on entrepreneurship and commercialization, and both the faculty and staff can connect with the business, career opportunities and investor relations.

The results of researching the field of education have been the basis for technological innovation in the fields of industry, health, commerce, education and other field of human endeavor. Commercialization is the process of introducing a new product or production method in commerce making it available in the market in order to generate funds; it can also be seen as the stage in product development process where the decision to order full scale production and launch is made. Alternative is that it's different from the conventional method existing or functioning outside the established norm, traditional and convention.

Funding is the act of providing financial resources, usually in the form of money or other value such as effort or time to finance a need, program and project, usually by an organization, and institution, Commercialization of educational research results as alternative funding in the context of this study is the marketing of educational products to organized sectors as a means to finance university education and sustain it as the bedrock of the nation. The obvious implication is that educational research result remains one of the key parameters attracted teachers entrepreneurs, retain teachers and students as well as other specialist in the field of science and scientific partners, with a focus on entrepreneurship and commercialization, both faculty and staff can connect with the business, career opportunities and investor relations.

Imitating from the developed countries like United States of America (USA) United kingdom (UK) China, Israel, Italy etc. where there universities generate a lot of income from commercialization of their researches, alongside, favourable intellectual property policies enacted to regulate and allow for the filing, ownership and license of intellectual property by research institutions, which many organization of economic co-operation and development (OECD) countries have emulated, Rivers State universities need to follow suit in order to encourage more problem-solving research in the universities as well as alleviating the heavy funding burden bore by the government. This will become an additional source of fund to the university to complement the traditional means (such as: government grants/subventions, education trust funds, tertiary education trusts funds (ETF/TETFUND). Interventions, Fees/charges, donations and incomes granting activities/investments; acceptance fee, library fee, health service fee, games fee, and exam fee, certificate, verification, caution fee, registration fee, identity card fee, laboratory/bench fee, departmental fee, etc.).

Today the funding fortunes of the universities in such countries which resorted to commercialization of education research result as alternative funding has become a model for to follow. The researcher therefore decides to embark on this study on commercialization of educational research results as alternative means for funding

universities in Rivers State.

II. Statement of the Problem

It was so obvious that the government cannot adequately fund all the universities when government declares that each university should source for at least 10% of its income through alternative sources (Akomolafe & Aremu, 2016).

Nigerian government for some time has been battling with providing adequate funds to manage higher education more effectively. This is because the education sector has been characterized by poor funding and poor management. For instance, Ekundayo (2008) argued that the Nigerian government over the years has not been able to meet the United Nations Educational Scientific and Cultural Organization (UNESCO) recommendation of 26% of the total budget allocation to education sector despite the government's allocation towards education.

Nigerian universities are in serious financial crises because of continuous decline in government funding of universities amidst increased cost of administering education; this Deteriorating situation has characterized the universities with:

Most universities' transactions truncated; due to inadequate funding;

Incomplete payment of staff salaries and sponsorship of staff to conferences which has become a teething problem;

Delay payment of financial benefits for Staff promotion and libraries are without current book and journals;

Capital projects being undertaken to meet the increasing number of students have been abandoned due to lack of funds; and

Similarly, capital projects on campuses are suspended while existing infrastructures are hardly maintained, and so on.

Consequent upon the dwindling budgetary allocation to public universities by the Federal government and the inability of universities to adequately fund their programmes, there for the diversification of sources of revenue (Akomolafe & Aremu, 2016).

III. Purpose of the Study

The main purpose of this study is to investigate commercialization of educational research result as alternative strategy for funding universities in Rivers States specifically the objective were to:

Examine ways collaborative research can be alternative means for funding of universities in Rivers State;

Determine ways university industry /partnership can be alternative means for funding of university in Rivers State;

Research Questions

The following research questions will be raised to guide the conduct of this study:

To what extent has collaborative research become an alternative means for funding university?

To what extent has university/industry partnership become an alternative means for funding universities in Rivers State?

Research Hypothesis

H01: No significant difference exists between the federal and state university lecturers in their mean rating on the ways collaborative research can be alternative means for funding of university in Rivers State;

H02: Federal university lecturers do not significantly differ from state university lecturers in their mean rating on how university industry partnership can be alternative means for funding universities in Rivers State;

H03: No significant difference exist between the federal and state university lecturers in their mean rating on the ways intellectual property can be alternative means for funding university in River State;

IV. Review of Related Literature

- pinned that inadequate funding has affected universities in provisions of adequate classrooms, library facilities, laboratory facilities, research activities among others. The present economic reality maybe severe on universities, especially as it has to do with an alternative means for funding universities.

Uche. Raimi and Onaolapo. (2013) revealed that university industry partnership exist for ie purpose of improving or providing alternatives to advance on goods and services of industries through researches. It is a cordial relationship were the university and industry has ie fund, and when they partner mutually to proffer solution to complex social issues, it increases funding base of the universities and increases productivity to industry. The fund . coming from the industry to the university will be able to sustain universities from the severe economic reality thus becoming alternative means for funding universities.

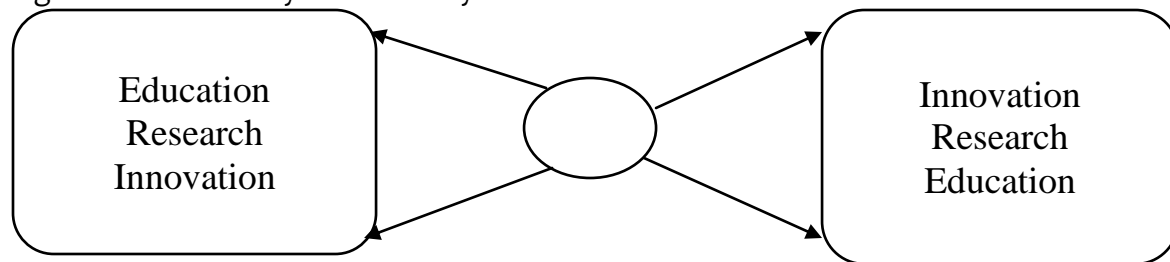
However, irrespective how nicely we portrait the university/industry partnership, it does not change the fact that these institutions exist for different reasons. The universities are mainly for knowledge generation (research), knowledge dissemination (teaching) and knowledge plication and (community service). Universities are social services institutions with little or profit motives, while industries belongs to the private sectors and mainly driven by profit lives. This is complex trying to merge these institutions, particularly as has to do with their motive for existence.

Collaboration between universities and industries is critical for skills development . (education and training the generation, acquisition and adoption of knowledge). The benefits of university-industry linkages are wide-reaching they can help coordinate research and development agenda and avoid duplications, stimulate additional private research and development investment (additional effect) and exploit synergies and complementary of - scientific and technological capabilities. University industry collaboration can also expand the relevance of research carried out in public institutions foster the commercialization of public research and development outcomes and increases the mobility of labor between

public and private sectors.

Suslick (2001) opined that universities industries partnership is an intricate one. This is not being unconnected to the fact that both institutions have several priorities placed on issues, his is explained in the diagram below;

Figure 2.2: University and Industry Priorities



Fragmented arrows indicate how innovation is prioritized by universities and industries, broken arrows shows education is prioritized by universities and industries. Square shows position where universities and industries have a common terrain in university industry partnership is a symbiotic relationship that mutually benefits both partner, the industry is 'nous to remain relevant in the market, thus needs new ideas, knowledge, theories of doing things which the university already possess, the above, but is lacking in finance, when they partner this partnership helps the university to generate funds so as to keep the school auctioning. This will serve as alternative means for funding.

Edu cause (2003) funding provided by industry for any number of programs can play a major role in the overall success of these universities. Partnering can also provide new opportunities for universities to reconfigure the way instruction and research activities get funded, developed, marketed and supported, university industry partnership, new company ventures could be founded on the strength of discovery in the universities. It aids to translate the fruits of academic theories, concepts, ideas into new products and processes; university industry partnership improves institutions and makes them relevant in the public domain and Jobalizes universities. Uche, (2013), opined that universities and industries perform basic -search and industry applied commercial values to the research results, In Nigeria universities idustry partnership is being encouraged by government through Private Public Participation -'PP) concept the idea of this PPP is that universities must continue to foster creativity and Jvance the frontiers of knowledge through long term basic researches while industries continue to promote, sponsor and process this basic ideas and knowledge to generate funds for both. This role will create a symbiosis relationship which will benefit and sustain both -adversities delivers knowledge, theories, concepts and system that will help industry to understand the dynamics of the society. Universities also produces middle and high skilled manpower who man's the industry and in general helps manage the country's economy.

Industrial innovative breakthroughs are conceived within the universities. Universities research results generate options new prospect, opportunities, enhances knowledge and general skills in general aid in particular for industries. Private Public Participation can help bridge the short fall in finance at the other hand raises fund for universities. The ones live on the universities to leverage on private public participation as alternative to generate additional revenues needed in the administration of universities.

Technology Transfer

Technology transfer is the mechanism by which the accumulated knowledge developed a specific entity is transferred wholly or partially to another .technology transfer is to improve the technology capability of business enterprises in developing countries. It's also a process of transferring disseminating technology from universities to business units which often occurs by concerted efforts to share skills ,knowledge , technologies ,methods of manufacturing .from universities to other institution organizations and individuals access, right exploit the technologies into products .The technique by which technology or knowledge developed and transfer to firms, individuals who brings its to the market place .Business dictionary (2017) assignment of technological intellectual property developed and generated in me place to another through legal means such as technology licensing franchising service, joint ventures. Having established this fact it is obvious that technology transfer is the prudent and deliberate transfer of knowledge from researches to co-operate organizations individuals to process and produce with market value. It is an obvious platform for universities raise the required funds they needed in the management and sustenance of universities, since the present economic reality has decline government funds to universities. This should serve as alternative means for funding universities. Ibidapo-obe, (2014) surmised that technology transfer will provide an effective medium for blending industrial problem solving with academic knowledge production and thus facilitating the co-production of new knowledge that .is commercial application .Technology transfer attracts options for universities generating with knowledge and theories turning, transferring it into new products and services could be alternative to generate fund for universities and make them competitive, most technology transfer takes place because the universities in which a technology is developed is different from the organization that brings that brings it to the market. Commercialization is carried out any firm's individual's organizations, government which develops it into products and sale it to le public, however the universities that creates this knowledge sometimes does not bring it to the market. Technology transfer sustains economic growth and brings national development in le foreseeable future .through commercialization of the technologies no doubt, technology transfer brings additional funds attracts more development to universities, foreign direct investment (FDI) is attracted through technology transfer which increases universities financial base. Government has on the other hand through policies encouraged universities industries collaboration hoping to

spur technological development and transfer which brings jobs and avenues to universities. Universities should continue to research more so as to discover more technologies which will enhance their administration and affairs but will have alternative funds available for them. Universities learned that they could sale their rights to use their technological discoveries to industries and find cooperation, organizations and individuals willing to pay good sum of money to buy this technology. Doris (2000) surmised that administrators assumed that technology transfer will attract funding particularly from industry and promote interdisciplinary co-operation, while providing a better ideally technology transfer provides ides sufficient academic environment to protect universities and economic freedom while : using sufficient interest in multidisciplinary work and technology transfer to benefit society :d generate additional funds for universities. This obviously means that for universities to generate extra fund, technology transfer between industries and universities are vital for industries to continuously update its own knowledge and generate fund for universities, companies makes use of technology transfer in new innovations, in developed countries universities try to transfer technology to industries by setting up transfer offices. Some. Industries even builds their offices near universities to tap from any new research findings for improving their products and services, thus generating revenues for universities, Okorie and Che, (2004) is of the opinion that mechanism such as one to one personal contacts between industries and universities and industry should be promoted to further simulate technology transfer a medium of raising funds for universities management.

Academic Consulting

Business dictionary (2017), academic consulting is a specialized and targeted research n behalf of a client and produce a final analysis of key funding, they are normally experts on a ^articular field who can provide reports on, and knowledge in areas the company's full time staff cannot. Academic consulting helps universities to strive for excellence and autonomy to separate effectively and perform mutual partnership. Deducing from the existing fact, academic consulting is apparently a medium for universities to exploit to increase their funding base. Auna and Ukpabi cited in Babalola, Akpa, Ayeni and Adedeji, (2007) surmised that new funding initiative are that the universities should offer academic consultancy and services on commercial basis. Consulting services accelerates external organizations, individuals, international community to exploit the rich variety of academic expertise of all universities, academic consulting also occurs where members of from the universities provide advice to -companies'. It partly a form of informal contact between industrial personnel and university .searchers informally the lecturer(s) or researcher(s) of the university research Centre in either case the industry provides funds for the conduct of the research, Academic consulting covers many disciplines, with engagement in virtually all academic sectors, with increases in the financial bases of universities while showcasing them to the global map. Academic consulting increases companies' productivity is the provision of

expertise, concepts, knowledge, professional, independent advice to companies, organizations individuals on a project basis, Flynn (2000) opined that universities also capture overhead revenues from consulting. Academic consulting bridges the gap between theories and practices because it is specialized information and skills provided by the universities.

Joint ventures between universities and industries are now more common and continues of generate considerable revenues for universities, (Santon and Bells, 2000). Academic consulting perhaps becomes more prevalent as knowledge increases at a high demand, further heightening the need for specialization and increasing the corresponding demand for specialist, universities can leverage on this and increase their financial status. Academic consulting is a research which focuses on encouraging companies, industries, organizations, individuals on the best way to manage and operate their business; universities are in best position to do this.

Universities give advice on concept and theories like business strategies and operational techniques, skills like time management, consumer relations, human relations and internationally best practices and among others depending on the need of the companies, organizations and individuals. Academic consulting enables universities to trade their expertise knowledge and advice to attain financial benefits, thus, this in turn increases revenue for them.

Wagner (2002) the rules of the consultant is to serve as a researcher, in this role the consultant observes, analyzes the problem, develop a process of data collection analyzes the data, interprets the data, presents the data, present the findings and makes conclusions and commendations. Olanigan, (2007) in further stressing how the consultant should work said that knowledge of policies and regulations affecting the establishment and operations of firms mould are taken into cognizance by the consultant. Clow, (2004) reckoned three key attributes, of the consultant's ideal role to university libraries. Technical expertise brought to bear on operational problems of planning or training needs which is the primary criterion for selecting me consultant and it's essential for the eventual success of the consultancy.

The less definite attainment of coming in from an impartial and critical viewpoint, a range of personal attitude and aptitude that permits the consultant to achieve a working collaborative relationship with the people at various levels in the host Institutions, The consultant during a typical assignment , undertakes a set of activities required for achieving me client's desired purposes and changes. These activities are known as the consultancy process this process has a beginning and where the relationship is established, work starts and ends then the consultant departs. Between this two points the process can be subdivided into several basic phases , this helps the consultancy firms to be systematic and methodical, proceeding from phase to phase and from operation to operation to save time. Most consultancy providers start working with their client through this consultancy process pattern. Hall (2011) is of the view that consultancy services consult the new found

knowledge of in attained need into desirable design and business solutions that make a difference.

Universities can benefit from consultancy services because they over advices , regulate, expedite, continuous support for effective service, marketing , promotion and communication, facilitating change through interactive workshops and staff engagement developing a research value communications and advocacy plan to provide an online information sharing platform mat allows knowledge sharing simultaneously amongst users with the universities acting as meditators, by providing a highest quality range services to support revenue generation.

Adeyemi, (2012) universities provide academic consulting services to big organizations firms in the forms of medium and small scale researchers, collaborative research and development, providing the needed technological know-how to industries, capacity building services, organizing workshops, seminars and in-service training for government and workers f private organizations and management developmental services.

Review of Empirical Studies

Onyedimma, (2001) investigated the financial management of federal tertiary institutions in Rivers State. The main purpose was to investigate the extent to which these institutions are adequately managed and the views of the staff in the institution's management accountability. One hundred and fifty four (154) principal officers of all the federal and state tertiary institutions in Rivers State responded to the questionnaire given to them. The mean scores, standard deviation and test-retest were used for the analysis. The findings indicated that government subventions, school fees, consultancy services endowments constitute sources available to both state and federal institutions. According to the study it was revealed that funds from the schools were inadequate.

A study was conducted by Odebiji and Ania, (2004) on alternative models of financing higher education in Nigeria and implications for university, government. The study focused on tour (4) purposively selected universities in Nigeria. Three universities three countries were returned the findings include enormous diversity in national funding structure and confirmation that funding source will continue to diversity amongst others. The findings of the presents study would reveal the alternative sources of funding available for Nigerian universities to achieve financial autonomy especially in south- east and south-South Nigeria.

Ekpoh et al (2009) in a monograph explore alternative sources of funding University education in Nigeria which could be properly harnessed to contribute significantly to funding. Activities such as: academic consulting programmes, viable university farms, hiring of activities. Hotel services, leasing of university land etc. were identified as alternative sources of fund to the universities. The study submits that the effective harnessing of these activities by universities can significantly improve their financial standing and thus improve service delivery by tertiary institutions.

Ahunaya and Uche, (2011) Examined commercialization invention: benefits and challenges in the south states of Nigeria. The study adopted descriptive survey design with a population of 2500 lecturers randomly selected from five (5) federal universities in southern states of Nigeria; its sample size was 51500. These universities were grouped into 3 based on the period they were established. The instrument used was a 24 item questionnaire, titled commercialization of university inventions benefits and challenges, questionnaire (CUIBCQ). It was used to elicit information from academic staff about the benefits attracted from commercialization of university's investors and challenges faced. It was structured on a 3 point likert scale which was to extract information on benefits of commercialization of university invention, while 15- 24 presented items on challenges facing such commercialization in southern states in Nigeria. Mean score, standard deviation and analysis of variance (ANOVA) were used to analyze the data and it was based on criterion of 2.00.

However, the total number of questionnaire distributed and retrieved was not mentioned, also how the sample size of the study was obtained was not discussed. The findings of the study are not limited to the following, the three (3) groups of universities; infamously agreed commercialization of university invention has benefitted university greatly, provided international recognition for scholars improving income of universities among others.

Akinyemi (2012) examines funding strategies for qualitative university education in developing economies using the experiences of the Nigerian Universities as a case study. The study made use of secondary data which were collected from the Federal Government of Nigeria's Office of Statistics and National Statistics Bureau. The tuition fees analyzed in this paper were collected from the admission offices of the six public universities purposively selected from 72 public universities (both federal and state universities) in Nigeria. Since the pursuit of qualitative university education bothers on all stakeholders - the government, parents, individuals, firms and cooperate bodies, the study therefore recognizes funding as an external factor and a necessary condition for achieving qualitative university education in developing economies.

Akinyemi and Bassey (2012) infers the need for proper planning of higher education stem to ensure qualitative higher education so as to reduce educational wastages and enhance effective utilization of the available educational scarce resources. The study concluded that despite the increase in enrolment and Governments' continuous expenditure; the financial and human resources available have not been able to match this demand due to competitions from their sectors of the economy. The study suggested that to ensure qualitative higher education in Nigeria, there should be improved institutional management through strategic planning which consists of the revision of the higher education curricular to include programs that are more responsive to societal needs, increase funding and facilities by government and private organization, improving the welfare of teaching/non teaching staff to ensure their maximum performance on their job,

accountability and enrolments into higher education institutions should be on available vacancies.

Ukwuoma and Moghalu (2013). Similarly investigated on the management of Research and development (R&D) for commercialization in Nigeria. The data of the study were collected from;

National Office for technology Acquisition and promotion. Abuja

Raw materials Research and development council Abuja.

Small and medium enterprise development Agency of Nigeria, Abuja?

Projects development institute Enugu

Scientific equipment development institute, Abuja.

Pharmaceutical research and development, Abuja

National Biotechnology development, Abuja.

The population under study consist of technical staff involved in R&D activities: Due to the in depth involvement and experience of these staff in the subject under study. The study made use of random selection of employees that participated. These individuals render different services in the management of R&D results for commercialization. Questionnaire was designed and used to source data for the study involving three independent variables implicit factors (Xi):- funding infrastructures. Equipment's, Research personnel, technology information. Existing R& D results and Reward system and theses were covered by question 1- explicit. factor (x2):- Linkages, quality assurance IRPR system, entrepreneurship investments, investor confidence and marketing means, these were covered by questions 84- 8- 18; technology broking activities (x 3):- R&D promotion inventiveness investment opportunities, capability and demand variable- R& D technical review. Human resource. R&D utility research products dispersion and Nigerian innovative system, and these were covered by questions 22- 28, in commercializing research outcomes. The questionnaire was a closed type designed on a five point response format, ranging from strongly agree to strongly disagree. Respondents were presented with statements to which they are expected to express the degree of their agreement or disagreement.

A score of four (4) points was assigned to strongly agree and 3,2,1,0 respectively to agree, neutral, disagree and strongly disagree. The questionnaire contained a set of seven statements for each of the three independent variables and the dependent variables.

A total of 100 questionnaires were produced and disbursed to the participant, but ninety three (93) were retrieved and used for the study.

Although a monograph. Famade et al (2015) examine how tertiary institutions can be better funded in Nigeria. The study conclude that higher institutions need to explore alternative means of funding and become less dependent on Government allocations. They identify stakeholders in education which include parents, guardians, the general public, non-governmental agencies, international partners and the private sector as promissory stakeholders that can support and subsidize the funding of tertiary education in Nigeria The

paper equally recommended external assistance in form of loans or grants for meaningful and profitable projects, personnel training for capacity building and technical know-how in the institutions should be sought.

V. Methodology

This study adopted a descriptive survey research design. Descriptive survey is concerned with investigation; describe documenting events as they are without manipulation of what caused them. Descriptive survey research design is one in which a group of people or items considered to be representative of entire groups. The population for the study consist of three (3) public universities in Rivers State, namely: Ignatius Ajuru University of Education Rumuolumeni. (IAUE). University of Port Harcourt (UNIPOR). Rivers State University. Nkpolu Oroworukwo.. The academic staff of the universities form the population sample of this study. The academic staff of Ignatius Ajuru University of Education is four hundred and twenty four (424). and academic staff of university of Port Harcourt is one thousand three hundred and eighty seven (1387). Rivers state university of science and technology five hundred and seventy one (571) the total population is therefore, two thousand three hundred and eighty two (2382).

Table 3.3: Tertiary Institutions' Academic Administered

S/N	Name of the Company	Unit Managers
1.	Ignatius Ajuru University of Education	424
2.	University of Port Harcourt	1387
3.	Rivers State University	571
	Total	2382

Source: Researchers' Compilation

The sample of the study comprises of two hundred and ninety nine (299) academics staffs drawing from the entire population of academic staff of Ignatius Ajuru University of Education Rumuolumeni (53). University of Port Harcourt (174). Rivers State University Nkpolu Oroworukwo (72). The proportionate sample of the selected institutions was determined by taking their proportionate population ratio to the total population. That is each of the institution population divided by the grand total (2382) and multiplied by the sample size (299) to get the corresponding individual institution sample size. This is shown in the table below.

Table 3.3: Tertiary Institutions' Academic Staff Administered

S/N	Name of the Company	Unit Managers
1.	Shell Petroleum Development	53

2.	Nigeria Agip Oil Company	174
3.	Belema Oil	72
	Total	299

Source: Researcher's Compilation

VI. Results and Discussion

This chapter presents the analysis of data and results of the study. The presentation is based on the five research questions and five hypotheses postulated to guide the study.

Presentation of Data

Table 4.1: Questionnaire Distribution and Retrieval

Departments	No. Distributed	No. Retrieved	% No. or Retrieved	No. not Returned	% No. not Returned
Ignatius Ajuru University	53	39	13	14	5
University of Port	174	141	47	33	11
Rivers State University	72	52	17	20	7
TOTAL	299	232	77.6	67.0	22.4

Source: Researcher's Field work 2020

As observed in table 4.1 above, number of questionnaire administered to the sample was 299. However, responses were retrieved from 232 respondents which forms 77.6% cumulatively from all the administered establishments as retrieved questionnaire implying that 22.4% was not accessed due to negligence of some of the served staff in filling the questionnaire.

Table 4.2: Retrieved Questionnaire by Sex

Variables	Respondents	
	No	%
Male	149	64
Female.	83	36
Total	232	100

Source: Researcher's Field work 2020

The above table shows that out of 232 questionnaires retrieved from respondents, from which there was 149 males representing 64% of the respondents that completed and returned the questionnaire.

On the other hand 83 representing (36%) of the questionnaires were completed and

returned by female respondents. This indicates that male staff in the selected universities is more than the female staff. This portrays a favourable gender diversity amongst the workers which promises wealth of research ideas as well as experience.

Table 4.3: Retrieved Questionnaire by University Ownership

Ownership	Respondents	
	No.	%
Federal	81	35
State	151	65
Total	232	100

Source: Researcher's Field work 2020

As revealed in table 4.3. 81 respondents representing 35% of the respondents are academic staff in federal university in the study area, however. 151 which represent 65% of the respondents are from state universities in the study area.

This shows that majority of the staff in the selected universities are working for and paid by the state government. This implies that greater quantum of fund to the universities in Rivers State are being funded by the Rivers State government. Therefore, any alternative means of fund generated by these state universities will not only help to solve basic university challenges but also help the government to have opportunity cost for other projects and sectors in the State.

Table 4.4: Showing Academic Staff Sex

Academic Staff	Respondents	
	No.	%
Male	149	64
Female	83	36
Total	232	100

Source: Researcher's Field work 2020

The information displayed in table 4.4 shows the sex of academic staff strength of the selected universities in the State. As observed, while 149 staff representing 64% of total respondents are male academics. 83 staff representing 36% of the respondents is female academics in the selected universities in Rivers State. This suggests a competitive environment that fosters academic research needed to remedy challenges in the socio Political and economic environment.

Discussion of Findings

Collaborative Research as alternative Funding for Universities

Collaborative research especially when universities ally with the government,

industries, international organizations and non-governmental organizations help to alternatively fund the universities. However, research collaboration with individuals appears to have low incentives due individuals' failure, disappointment and other limiting factors. This suggests that engaging in collaborative research with corporate bodies offers less risk more than an individual which is associated with high risk.

University/Industry Partnership as Alternative Funding for Universities

Assistance to university projects, replacement of facilities, donation of laboratories, donation of buildings; research grants, manpower development, bench marking industrial policies; friendly government policies, government increasing funding for researches and university excursion to industries are university/industry partnership avenues to alternatively fund the university. When properly harnessed, they offer the opportunities of creating fertile ground for dependable and profitable research products capable of solving economic, political and social problems.

However, a careful observation on government increasing fund for researches with low acceptance level in relation to other items, suggests slow attention of government in the area of providing fund for research. This scenario suggests that much dependency should not be accorded to it when sourcing for alternative funding of universities.

This finding supports the work of Uzoma and Adali (2016) whose result reveals that le extent to which university explored external grants and international services are low, hereby limiting funding prospect to universities.

Intellectual Property as Alternative Funding for Universities

Environment of Patent right, copyright, trademark right service mark right and logo right will certainly protect the inventor ship of a researcher from piracy, duplication and other forms of infiltration on one's right. This calls for government intervention by creating operational regulatory policies needed to drive home the dividend of commercializing research materials.

Technology Transfer as Alternative Funding for Universities

Licensing right, franchising right, inventor ship right, branding permits as well as packaging and processing permits to great extend offer the opportunities of generating more to me universities when properly utilized. Therefore, even though the universities may not directly market products from the university research, by transferring these rights will earn them some fund.

Academic Consulting as Alternative Funding for Universities

Rendering academic consultative services such as establishing entrepreneurship centers, acquiring investment portfolios, publication of business journals, establishing school business and marketing universities products, help to generate fund for the universities. Although, there exist competitors in these areas, however, creating a

competitive advantage, accompanied with academic spices in the academic consulting services will make the commercialized products stand out for high patronization.

In consonance with this finding Ekpoh and Okpa (2017) revealed that some of the diversified sources of funding include: consultancy services, commercialization of physical facilities, part-time degree programmes among others.

Summary of the Work

The study attempted to examine the commercialization of educational research results as alternative means for funding university in Rivers State. In other to attempt the investigation, the study was guided by proffering answers to some cardinal related questions. The research questions are directed to examine the extent to which collaborative research, university- industry partnership, intellectual property, technology transfer as well as academic consulting can be alternative means for funding universities in Rivers State? Hypotheses were formulated emanating from the stated questions.

Good numbers of literature were consulted for relevant meaning of concepts, related theories which include: partial support theory and triple helix model were employed, alongside numerous relevant empirical works reviewed in the area.

The study adopted the descriptive survey research design, with a population of 2382 staff drawn from three selected universities in Rivers State (Ignatius Ajuru University of education Rumuolumeni, University of Port Harcourt, and Rivers State University Nkpolu Oroworukwo). However, using a sample size of 299. on which questionnaire items were administered, only 232 responses were retrieved from the administered instrument. In analyzing the data collected, the researcher made use of the mean, standard deviation and Z-test statistics as bases for analysis.

Consequently, the study shows a positive relationship between educational research results' commercialization and universities' alternative funding, indicating that commercializing universities' educational research will enhance funding ability of both federal and state universities outside government fund.

Conclusion

The study therefore concludes that collaborative research, university-industry partnership, intellectual property, technology transfer as well as academic consulting are significant elements of university education research result that are efficient to enhance both federal and state universities' funding in Rivers State if commercialized. This suggests that the commercialization of universities' educational research results will greatly increase funding ability of the universities.

Besides being an alternative means of fund-raising to the universities, educational research materials serves as maiden products capable of remedying life-pressing problems and providing improvements to the quality of life in various domains of life. When well produced, packaged and distributed, educational research materials in areas such as fitness

education, healthcare, industrial application, environmental wellness, as well as everyday life-innovations, are very beneficial to individuals, companies and the entire economy. By inaugurating commercialization of educational research materials, there is attendant stream of revenue generation as well as jobs creation, thereby, curbing unemployment level and enhancing the standard of living in the economy.

Recommendations

Based on the identified problem stated above, the following recommendations are made:

University authorities should establish a research and development unit to oversee, explores, regulates, and commercialize possible researches needed to solve social, economic and political problems.

Also, university's research and development unit should embark on collaborative research with industries, government, international organization, non-governmental organization to boost its fund.

University/Industry partnership should be embraced to tap rare opportunities such as: facilities donation/replacement, research grants, manpower development, and friendly policies, all for a favourable entrepreneurship framework.

Furthermore, there should be an efficient regulatory framework by the government to protect intellectual property and technology transfer both in the state and the entire country.

Finally, universities should embark upon academic consulting services such as: entrepreneurship centers, publication of business journals and articles, school business, among others.

References

- Adekunle, K. S. (2001). Funding of university education in democratic rate in Nigeria problems and prospects. *Proceeding of the 12th General Assembly of social science academy of Nigeria*
- Arato, L. M. Pamogho, B. M., Cookey, S. C. M. & Nwikina, C. G. (2020). Funding tertiary education for economic development: Nigerian score card. *EPRA International Journal of Multidisciplinary Research*, 6(7), 99-110.
- Evin, B. (2009). The effect of collaborative action research on preserve and experience Teacher partners in professional development school. *Journal of Teacher Education*, 2(1), 54, 33 1.
- Adeyemi, T. o. (2012). Financing of education in Nigeria: An analytical review. *American Journal of Social and Management Sciences*, 2(3), 295-303.
- Ahunanya. S. and Uche, C. M. (2011). Infrastructural development and quality assurance in Nigerian higher education. *Journal of Emerging Trends in Education Research and policy*.
- Akinyemi, S. & Bassey, O. 1. (2012). Planning and funding of higher education in Nigeria: The challenges. *International Education Studies*, 5(4), 86-96.
- Akinyemi, S. (2012). Funding strategies for qualitative university education in developing economies: The case of Nigeria. *International Journal of Higher Education*, 2(1), 53- 60.

- Akomolafe, C. O. & Aremu, E. T. (2016). Alternative Sources of Financing University Education in Lagos State, Nigeria. *European Scientific Journal*, 12(34), 284 - 296.
- Beck, D. & Black, K. (2001). Redefining research relationship: two heads are better than one. *Alberta Journal of educational research*, 3(7), 133-140.
- Bok, D. (2003). *Universities in the marketplace*. Princeton University Press.
- Business dictionary (2017). Commercialization. [http://www. Businessdictionarycom/ Com](http://www.Businessdictionary.com/Com).
- Calhoun, E. (2003). Action research: three approaches. *Educational leadership*, 5(1), 62-65
- Clow, D.W. (2004). Consultancy Roles in Library development. *International library Review*, 16 (1), 5-20.
- Che, C. M. (2013). Contract research in Nigeria universities: Alternative strategy' for funding higher education. Germany LAP Lambert.
- Doh, A. O. (2008). Alternative sources of funding university education in Nigeria. *International Multi-Disciplinary Journal*, 2(3), 98- 110.
- Doris, M. J. (2000). *The organization of academic research: faculty behaviour and perceptions*. ASHE Annual meeting paper (Association for the study of Higher education Minneapolis). Macmillan Publications.
- Educause, (2003). Come together: campuses find the road to success lined with partnership and collaboration. In national learning infrastructure initiatives. <http://www. Education. Edu/ir/library/ htm/miliars 2003/cometogether. asap>.
- Iberman, A. (2002). The meaning of scholarly activity and the building of munity. *Journal of Educational Research*, (5), 12.
- Jdebiji, A. I. & Ama, O. I. (2004). *Alternative modes of financing higher education in Nigeria and implication for university government*. Accra Press.
- King, J.A. & Lonnquist, M. P (2004). The future of collaborative research, qualities action research promises, problem, and prospect. Paper delivered at the university of Minnesota, college of education, 366-393.
- kpo, U. 1. & Okpa, O. E. (2017). Diversification of sources of funding university education for sustainability: Challenges and strategies for improvement. *Journal of Education, Society and Behavioural Science*, 21(2), 1-8.
- Nidapo-Obe, O. (2014). A speech delivered at the computer professional registration council of Nigeria information technology professionals assembly and induction of new members. Bose Press.
- Nkem, O. M. (2018). Alternative sources of funding and management of public universities in the Niger Delta States of Nigeria. *International Journal of Innovative Finance and*

- Economics Research, 6(3),66-73.
- Okorie, N.C & Uche, C.M (2004). University industry interface Activities.
- Olanigan, S. A. (2007). Information needs of the consultant to business enterprises. *International Library Reviews*, 19(2),345.
- Onyedimma, C.O. (2001). Financial management of federal and state institutions in Rivers State. Unpublished M.Ed Project, University OF Nigeria, Nsuka.
- Google, (2017). What is funding. <http://google.com>.
- Study, Corn (2019). What is commercialization? <http://study.com>.
- Sultana, R. G. (2002). Research in teaching and teacher education. Qualitative methods and grounded theory methodology south pacific. *Journal of Teacher Education*, 1(9),59-68.
- Suslick. K. S. (2001). Homogeneous chemistry in ultrasound: Its chemical and chemical and physical. San Diego Academic Press.
- Tzowitz, H. & Leydesdorf, L. (1995). The triple helix university industry government relations. A laboratory for knowledge based economic development. *EASST Review Research Policy*, 30(1),14-19.
- Uche, C. M. (2013). Management of academic research activities. Evidence of knowledge creation in Nigeria universities. Totan Publishers.
- Uzoma, A. & Adali, O. A. (2016). Sustainable funding of higher education in Nigerian universities in the austere period: Institutional analysis. *Research on Humanities and Social Sciences*, 6(20),121-125.
- Wagner, O. (2002). What makes a consultant? In using consultants in library and information centres. A management handbook. Westport Greenwood Press.
- Wikipedia. (2017). Commercialization. <http://en.m.wikipedia.org/wiki/Commercialization>