

Assessment of Polytechnic Academic Staff Inputs into Nigeria's National Development

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Abstract. The pace of Nigeria national development has been reported to be at variance with vision 20:2020 projections. This paper assessed the contributions of academics in the polytechnic system to the Nation's development. Through the involvement of 6 polytechnics in southwest Nigeria that were purposively selected, 182 academics participated in the survey with the filling of questionnaire which sought for their opinions on the input of research and teaching effectiveness into the nation's development. Responses were analysed with both descriptive and inferential statistics. Findings revealed that research output and teaching effectiveness contribute to national development. It was concluded that Nigeria cannot attain that development pedestal with the present teaching methods and research output quality. The study therefore recommended that one of the ways through which Nigeria can fast track her national development process is for her academics, especially those in the polytechnics who prepares students for future resource management, to possess the right knowledge, skills, experience and qualifications to drive the process by way of ground breaking research output and effective teaching delivery.

Keywords: Academic Staff, National Development, Research, Nigeria, Polytechnic, Teaching.

1. Introduction

Discussions around national development has been found critical to all nations of the world and remain focal issue to governments and other stakeholders in the world. In Nigeria, different national development plans (1962 – 1968; 1970 – 1974; 1975 – 1980; 1981 – 1985; 1986 – 1990; 1990 – 1992; 2010 - 2020)

have been rolled out to facilitate the nation's development. However, the pace and state of Nigeria development when compared to other nations with less resources can be said to be retrogressive over the years. Attempt to identify the underdevelopment quagmire of the Nigerian state by scholars such as Lawal (2011) and Makinde (2005) pointed towards failures of the Nigeria national plans as one of the reasons for the continued underdevelopment of the country while some other scholars like Okereke and Ekpe (2002) further opine that effort at developing Nigeria has not adequately involved academics.

Admittedly, it is assumed that no nation can develop without functional educational system. It is therefore hoped that every country needs functional educational institutions to develop. Although, the existence of these institutions does not mean the nation is developed, what is imperative is the quality of what is provided in the institution. In this regard, the academic staff have vital role to play. When the academics have the required knowledge and skills, they would be able to research into how to solve existing problems and provide recommendations; and teaches effectively, the people are prepared for effective participation in every facet of national issues that can promote the nation's development. Therefore, the quality of academic staff as human capital would in no small measure, contribute to national development through the impact of research output and effective teaching, as research is the driving force of any national development. In other words, for a nation to attain its desired development, her resources (especially teachers) must be encouraged to engage in researches. Without researches (innovations and inventions), there would be no meaningful development around the world.

Academic staff research and teaching effort is therefore considered critical to national development. In the polytechnic system, academic staffs are lecturers/technologists/instructors ranging from graduate assistant/instructors/technicians' cadre to chief lecturer cadre. Study such as Chiemeké, Longe, Longe and Shaib (2009) pointed towards the low substance of research output from the polytechnic system among its academic staff. This suggested that the polytechnic system have low contributions to promote the country desire development. Oziengbe and Omonkalo (2014) acknowledged academic irregularities among academic staff in plagiarism, and journal or research articles co-authored by more than two authors without substantial contribution from others. In another instance, it has been ineffective teaching of the academic staff in the Nigerian polytechnic system.

The inability of academic staff in polytechnics to have fulfilled the mandate that establishes the polytechnic which encapsulate high quality of education, which will enhance the knowledge capacity of the students that will enable them to contribute to the development of the country as overt in the substance of research output or innovations and quality of students produced by the polytechnic system. It is against this backdrop that this paper assessed the contributions of academics in the polytechnic system to the Nation's development. The specific objectives were to: 1. assess the contributions of academic staff in terms of their research output to national development and, 2. assess the contributions of teaching effectiveness of the academic staff to national development.

2. Literature Review

2.1 Concept of National Development

The term development is understood as diversely as the numbers of scholars. This makes the concept multifaceted depending on the perspective such as economy, social and political (Adah & Abasilim, 2015; Burkey, 1993). According to Ajagun (2003), development represents the state of advancement which makes life more meaningful in its various aspects, including the economic, administrative, political, social, cultural and religious aspects. In line with this view, Gboyega (2003) described development as an idea that embodies all attempts to improve the conditions of human existence in all ramifications. In the opinion of Todaro and Smith (2015), development was perceived as 'both a physical reality and a state of mind in which society has secured the means for obtaining a better life'

while Adah and Abasilim (2015) described development as the capacity of a nation to increase its static economy to a level where it can generate and sustain an annual increase in its Gross National Product (GNP).

From the above positions, it is obvious that development can be described and measured at different levels among which are individuals and organizations such as a nation. At the national development which is the direction of this study, Lawal and Oluwatoyin (2011) described national development as the overall development or a collective socio-economic, political as well as religious advancement of a country or nation. It can rightly be said that **national development** refers to the ability of a nation to improve the lives of its citizens. Among the common indices of national development in both developed and developing countries include; standard of living of the mass of the population, per capita income per person, Gross Domestic Product (GDP), income distribution, Human Development Index (HDI), and so on (United Nations Development Project (UNDP) (2010). However, available statistics shows that in development rating, Nigeria is a developing nation (International Union of Geodesy and Geophysics, 2015), with facts on low standard of living of the mass of the population, low per capita income, lack of basic services, poverty, poor quality of education, high illiteracy, etc have been widely reported by authorities such as United Nations Development Project (UNDP) (2010), United Nations Education, Scientific and Cultural Organization (UNESCO) (2009).

With reference to education, Ajuzie, Okoye and Mohammed (2012) and Adedokun (2011) maintained that education holds the key to the development of the society. It is obvious that education plays a vital role in any nation development. One of the areas through which education has been found contributory to nation development is based on the quality of research output and teaching effectiveness (Yusuf, 2012; Lawal & Oluwatoyin, 2011; Orobosa, 2010). Therefore, one of the reasons why Nigeria development remains underdeveloped can be linked to her educational status. For instance, Orobosa (2010) reported a strong linkage between national development and higher education system because of the importance of research to national development. Therefore, the role of academic staff as the principal agent of education is critical and calls for assessment to know the extent to which they have contributed to the project of Nigeria's national development. Within the context of this study, academic staffs in the

polytechnic system are lecturers/technologists/instructors and their major responsibility is teaching and conducting applied research relevant to the needs and aspirations of the nation (National Policy on Education, 2004).

2.2 Research and Teaching: Input of Academic Staff

Many notable scholars such as Okiki (2013) and Ibidapo- Obe (2010) identified research as critical deliverable of academic staff in tertiary educational institutions. Research is a conscious effort to collect, verify and analyse information (Rashid, 2001). It is the process of creating new knowledge or new insights on knowledge, or unlocking knowledge (Ibidapo- Obe, 2010). The importance of research performance among academic staff was heightened by Print and Hattie (1997) as they concluded that effective teaching cannot take place without research. A number of authors such as Okafor (2011), Bieschke, (2006), Seyyed, Al-haji umar and Al-haji (2004) remarked on the output of academic research as research publications like the number peer-reviewed journal articles written in calendar year, books, book chapters, monographs and conference papers and innovations or inventions.

Therefore, the sum of these articles or creative works published in refereed journals, articles or creative works published in non-refereed journals, reviews of books, articles or creative works and chapters in edited volumes and textbooks, other books and monographs is what can be referred to as research output. Where there are no gaps between industry and academia, research output help in development through the transition of research outcomes/findings into tangible products and services that will make life more meaningful to people and therefore enhance the quality of life which is critical to nation’s development. Based on this proposition, hypothesis one was formulated that:

H0₁: Research output of academic staff in polytechnic significantly contribute to the national development

Model Specification: National Development (ND) is a function of research output (RO) i.e. $NP = f(RO)$.

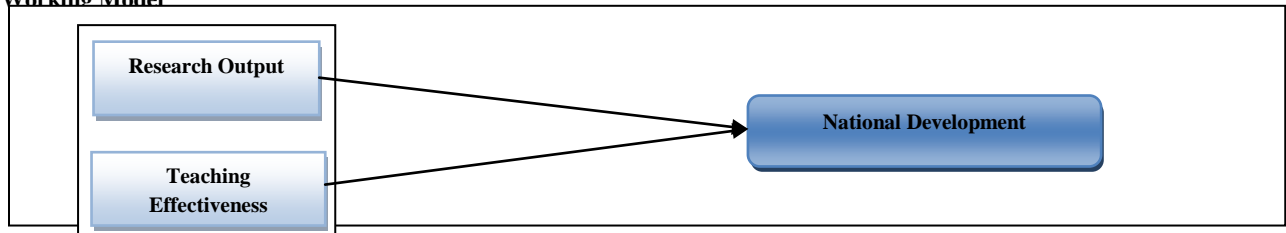
On the other hand, teaching as described by Rhemtula and Rollnick (2006) involves transformation, by the teacher, of the subject matter (content) into forms that are accessible to learners. Teaching is now beyond standing before students, holding chalk, reading from textbook, and giving out different kinds of instructions to students (Akinduyo, 2014). In this regard, teaching can be delivered when the academics has a good mastery of the subject matter, deployed appropriate teaching skills, among others. Ferdinand (2007) and Omoifo and Urevbu (2007) defined effective teaching as the use of clearly formulated objectives by the teacher, illustrated instruction that will enable students to acquire desires knowledge content, apply the knowledge to classroom and other related problem, think and take independent decision and the use of effective evaluation technique by the teacher. In order to teach effectively, academics require skills. However, there are instances where teaching become burden on the teacher. The resultant of this brings about teaching ineffectiveness.

Doyle (1985) defines the effectiveness teaching as follows: 1. Teaching goals are clearly formulated; 2. The course material to be followed is carefully split into learning tasks and is placed in sequence; 3. The teacher explains clearly what the pupils must learn; 4. The teacher regularly asks questions to gauge pupils’ progress and understanding; 5. Pupils have ample time to practice what has been taught, with much use of “prompts” and feedback; 6. Skills are taught until mastery is automatic; 7. The teacher regularly tests the pupils and calls on them to be accountable for their work. It is based on the above views that the second hypothesis was proposed:

H0₂: Teaching effectiveness of academic staff in polytechnic significantly contribute to the national development

Model Specification: National development (ND) is a function of teaching effectiveness (TE) i.e. $NP = f(TE)$.

Working Model



Source: Researchers’ Working Model

2.3 Empirical Studies

Studies have shown that either research output or teaching effectiveness contribute or affect national development. Chiemeké, Longe, Longe and Shaib (2009) empirically appraised research output from the Nigerian tertiary institutions with nine journals randomly selected from African Journals Online (AJOL) between 1999 and 2005 and discovered that research output from Nigerian Polytechnics is not effective while those from the Universities are effective. This, our opinion, could be as a result of the minimal attention given to the polytechnics when compared to that of the universities. They are seen as inferior to the universities, as more value is placed on the degree awarded by universities than that of the polytechnics. For many years now, there has been an inconclusively debate about equating the Higher National Diploma award by polytechnics to degrees awarded by the universities. In a related study carried out by Okafor (2011) among six federal universities in southern Nigeria which assessed research output between 1997 and 2006. It was established that both local and international publications have highest research output of 12.17 publications per head was from University of Benin and the lowest of 8.13 at the University of Uyo.

Yusuf (2012) appraised the status of research in the Nigeria University and concluded that it was difficult to appraise the research capacity of the universities because statistics on the research capacity of Nigerian universities are limited. However, he suggested the reasons why there is decline in research in the Nigerian universities included poor and irregular funding, declining research infrastructure, poor research motivation, rising workloads associated with deteriorating staff/student ratio, which leave little time for research. Oziengbe and Omonkalo (2014) acknowledged academic irregularities among academic staff in plagiarism, and journal or research articles co-authored by more than two authors without substantial contribution from others. This signaled a non-substantial contribution to knowledge and replication of ideas which cannot bring forth any new innovation or invention.

In a study carryout by Mawoli and Babandako (2011) on the performance of the Nigeria tertiary institutions, it was established that **Nigerian public**

tertiary educational institutions are affected by **ineffective teaching of academic staffs**. Sajuyigbe, Madu –Igwe & Babalola (2015) study shows that many of the lecturers have been preoccupied with high number courses allocated to them coupled with high number of students in the Nigerian TEIs and this on the one hand has made effective teaching impossible.

3. Methodology

The survey research design method was used in this study. This involved a systematic data collection of data from academic staff to explain their contribution to the nation development through their teaching and research. The survey covered all the polytechnics in Nigeria (federal, state and private polytechnics). The choice of polytechnics for this study was based on her mandate which is to provide quality of education that will drive nation's development and to re-assess the findings of Chiemeké, Longe, Longe and Shaib (2009) which established that research output from Nigerian Polytechnics is not effective while those from the Universities are effective. There were eighty-nine (89) accredited polytechnics in Nigeria (National Board for Technical Education NBTE, 2017), with twenty-six (26) of these Polytechnics located in South-west part of the country as at the time of the survey. The choice of south-west as study area is informed by the concentration of polytechnics in the geopolitical zone of the country. The south-west states comprise of six (6) States namely; Lagos, Ogun, Oyo, Osun, Ondo, and Ekiti.

The selection of polytechnics was based on the oldest Polytechnics in each of the South-west Nigeria States while that of individual participants who are academics were selected through purposive sampling technique with the following criteria to justify their inclusion: 1. Faculty spread in the polytechnics and 2. Academics with minimum of 5years work experience in the polytechnic. This approach was considered in order to ensure that the sample used in the study was a true and fair representative of the population of the population of the study. Subsequently, questionnaire was used to collect data from the respondents (academic staff) and data collected was analysed and presented with simple frequency table in percentage and correlation analysis.

Table 1: Summary of the Selected Polytechnics in South-West and Sample Size

S/N	Name of Polytechnic	State	Year Established	Sampling Distribution
1	Yaba College of Technology	Lagos	1947	43
2	The Polytechnic, Ibaan	Oyo	1970	32
3	Federal Polytechnic Ado Ekiti	Ekiti	1977	27
4	Federal Polytechnic, Ilaro	Ogun	1979	31
5	Rufus Giwa Polytechnic, Owo	Ondo	1979	23
6	Federal Polytechnic, Ede	Osun	1992	26
Total				182

4. Results

The personal data of respondents as summarized in Table 2 shows that six (6) Nigerian polytechnics academic staff participated in the survey. For the polytechnics that participated, 43(23.6%) of the respondents were from Yaba Technology, 31(17%) of the respondents were from Federal Polytechnic Ilaro, 32(17.6%) of the respondents were from Ibadan Polytechnic, 26(14.3%) were from Federal Polytechnic Ede, 23(12.6%) were from Rufus Giwa Polytechnic while 27(14.9%) were from Federal Polytechnic Ado Ekiti. It was overt that the selected polytechnics were averagely adequately represented and this has provided reasonable feedback on the subject for inferences and generalization.

The filter on respondents’ gender shows that 139(76.4%) of the respondents were male while 43(23.6%) were female. This gives impression that academics remain a male dominated profession. Therefore, more results are expected from both research and teaching activities. Also, on status of employment, 42(23.1%) of the respondents were instructors, 19(10.4%) were technologists while 121(66.5%) were lecturers. With more of lecturers in the polytechnic system, one would expect robust research activities. On respondents’ highest educational qualifications, 47(25.8%) were either

HND/First Degree certificate holders, 127(69.8) of the respondents holds Master’s Degree certificate while 8(4.4%) of the respondents were Ph.D. holders. With the percentage of the respondents who has second and third degree (74.2%), This shows that the bulk of the respondents have what is take to champion ground breaking research exercise and effectively deliver excellent teaching.

On respondents’ academic work experience, 23(12.6%) respondents have worked in the academia for between at least five years and 10 years, 41(22.5%) have been in the academia for between 11years to 15 years, 72(39.6%) have worked in the academia for 16 years to 20 years while 46(25.3%) have worked in the system for 21 years and more. This gives the assurance that majority of the respondents have spent quality years and should have enough publications and teaching that would have contributed to the nation’s development. Finally, respondents academic field of study was filtered and this revealed that 46(25.3%) were in management, 52(28.6%) were in engineering, 49(26.9%) were from pure sciences while 35(19.2%) were from other faculties in the polytechnic system. With the spread of respondents across the possible faculties in the polytechnic system, the various areas of contributions to the nation’s development is possible.

Table 2: Distribution of Respondents of Personal Data

Filters	Classifications	Frequency	Percentage
Polytechnics	Yabatech	43	23.60
	Fed Poly, Ilaro	31	17.00
	Ibadan Poly	32	17.60
	Fed Poly, Ede	26	14.30
	Rufus Giwa Poly	23	12.60
	Fed Poly, Ado	27	14.90
	Total	182	100.0
Gender	Male	139	76.40
	Female	43	23.60
	Total	182	100.0
Status	Instructor	42	23.10
	Technologist	19	10.40
	Lecturer	121	66.50
	Total	182	100.0
Highest	HND/First Degree	47	25.80

Educational Qualification	Master's Degree	127	69.80
	Ph.D.	8	4.40
	Total	182	100.0
Academic Work Experience	5– 10 years	23	12.60
	11 – 15 years	41	22.50
	16 – 20 years	72	39.60
	21 years above	46	25.30
	Total	182	100.0
Academic Field	Management	46	25.30
	Engineering	52	28.60
	Pure Sciences	49	26.90
	Others	35	19.20
	Total	182	100.0

Source: Computed Data, 2018.

Hypotheses Testing

Table 3: Relationship between research output and national development

		Research output	National development
Research output	Pearson Correlation	1	.383**
	Sig. (2-tailed)		.000
	N	182	182
National development	Pearson Correlation	.383**	1
	Sig. (2-tailed)	.000	
	N	182	182

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Computed Data, 2018.

Table 3 shows the result of hypothesis one which was tested for with Pearson correlation ascertained the degree of relationship between research output and nation’s development. The Pearson correlation of $r = 0.383$ implies that there is a positive relationship between the two variables. The reported level of significance indicates the fact that the relationship is significant at (0.0001). However, the strength of the relationship is moderate. Thus, as obtained from the table ($r = 0.383, p < 0.05, n = 182$). The r value was used to establish the coefficient of determination in order to ascertain value of shared variance. The coefficient of determination is obtained using formula $C.O.D = r^2 \times 100\%$. This results to 14.66%.The result revealed that research output contribution to nation development is 14.66%. It connotes that research output of the academic staff in polytechnic made 14.66% contributions to the state of nation’s development.

Decision: Since there is a positive relationship between the two variables and the relationship is significant, the null hypothesis (H_0) was therefore rejected and the alternate hypothesis (H_1) was accepted. This implies that research output of academic staff significantly contribute to the nation’s development.

Table 4: The relationship between teaching effectiveness and national development

		Teaching effectiveness	National development
Teaching effectiveness	Pearson Correlation	1	.274**
	Sig. (2-tailed)		.000
	N	182	182
National development	Pearson Correlation	.274**	1
	Sig. (2-tailed)	.000	
	N	182	182

** . Correlation is significant at the 0.01 level (2-tailed)

Source: Computed Data, 2018.

Table 4 shows the results of the correlational analysis conducted ascertained the degree of relationship between teaching effectiveness and nation's development. The Pearson correlation of $r = 0.274$ implies that there is a positive relationship between the two variables. The reported level of significance indicates the fact that the relationship is significant (0.0001). However, the strength of the relationship is weak. Thus, as obtained from the table ($r = 0.274$, $p < 0.05$, $n = 182$). The r value was further subjected to coefficient of determination in order to ascertain value of shared variance. The coefficient of determination is obtained using formula $C.O.D = r^2 \times 100\%$. This results to 7.51%. The result revealed that there is a shared variance value of 7.51% between the two variables. It connotes that teaching effectiveness made 7.51% contributions to the nation's development.

Decision: Since there is a positive relationship between the two variables and the relationship is significant, the null hypothesis (H_0) was rejected while the alternate hypothesis (H_1) was accepted. This implies that teaching effectiveness significantly contributes to the nation's development.

5. Discussion of Findings

Based on the findings, it was firstly established that research output of academic staff significantly contributes to the nation's development. This implied that national development is a function of research output. However, the strength of the contribution which is 14.66% is positive but low. This implied that the polytechnic academic staffs are not more into researches. This finding agreed with the position of Chiemeke, Longe, Longe and Shaib (2009) which established that research output from Nigerian Polytechnics is not effective. It is therefore imperative for the academic staff in the polytechnic system in Nigeria to look more critically into conducting researches that will bring out innovations and inventions to fulfill their essence of existence.

Secondly, finding also indicated that teaching effectiveness significantly contribute to the nation's development with the low contributory percentage of 7.51. This implied that in the rating of the academic staff in the polytechnic system, teaching students contribute little to nation's development. Although a number of issues contribute to national development however it should not be this low. This can be as a result of the imbalance in the lecturer-students ratio which has resulted into ineffective teaching. **This corroborate the opinion of both** Mawoli and Babandako, (2011) and Sajuyigbe, Madu –Igwe and

Babalola (2015) which attributed ineffective teaching to enormous teaching workload and high student-lecturer ratio mostly in the Nigerian public tertiary educational institutions. Therefore, for the academic staffs in the polytechnic system to contribute significantly into the nation's development, issues affecting ineffective teaching must be looked into.

6. Conclusion

Present outlook of the state of things in Nigeria shows that the nation is stranded in her quest for national development. To get out of this situation, the academics have enormous responsibility to play. However, with the present academic staff commitment to research and teaching little will be achieved in this direction. Therefore, government need to, as a matter of urgency, pay more attention to academics as the driving force of national development. Academic staff commitment to key performance indicators (research and teaching) is critical to achieve. With the motivation staff and provision of conducive working environment, the academic will be gingered to work towards this direction. More importantly, researches should be seen as a means of adding to the body of existing knowledge and not as a means to merely increase the numbers of publications or articles. Furthermore, teachers should equip themselves to face the challenge of the ever-changing society, and thus, employ better tools for teaching the students in order to reposition them for greater challenges ahead.

7. Recommendations

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

- For Nigeria to accelerate her development pace, academic staff in her tertiary institutions and precisely the polytechnic system needs to continuously seek ways to possess the right knowledge, skills, experience and qualifications to drive the process by way of effective teaching and worthwhile research output.
- There is need for academic staff to carry out problem solving research based studies that will promote national development as against re-cycling what has been done by existing researchers.
- Polytechnic systems also need to strengthen their partnership with town (industry) by sharing their research outputs through a well-defined memorandum of understanding

(MOU) to promote the nation's development.

- More encouragement and support from the Federal Government in terms of making more funds available for researches and provide more modern teaching tools for the academic staff in the polytechnic system.
- Also, we recommend that there is the need for the Federal Government to create a proper framework for the full implementation of these research findings.

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