

Full Length Research Paper

Challenges of research conduct among postgraduate research students in an African University

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Postgraduate research students often experience various problems during the course of their programmes which hamper the timely completion of the MPhil/PhD and full doctoral (PhD) programmes. However, there is limited documented information on these barriers among Nigerian postgraduate students in Nigeria. This study was conducted to assess the barriers to research and training needs of these students at the University of Ibadan. A cross sectional survey of 137 MPhil/PhD and PhD students was carried out using a semi-structured self-administered questionnaire to obtain data from respondents in the various faculties of the university. Data were analysed and presented in tables and percentages using SPSS version 15. Majority of the students (67%) were full doctoral students and 54% were in the biomedical and public health faculties. Reported barriers to postgraduate research were: lack of funding (61%), irregular electricity supply (51%), and lack of access to research materials (56%). Others included lack of reward/recognition for outstanding research (29%), non-functional laboratories (19%), university bureaucracy (18%) and inadequate support for research collaborations (18%). In terms of accessing research funding, the identified barriers included lack of information (46%) and inadequate mentoring (35%). Only 20% had obtained international research grants for their research projects. Ninety-one percent of the respondents required training on proposal development (90%), seeking funding (86.0%), and evaluation of interventions (83.0%). Research students at the University of Ibadan face numerous obstacles, which hinder their ability to successfully conduct research. Appropriate courses and training workshops should be organised to address the identified barriers. Additionally, financial and infrastructural support should be provided for postgraduate research.

Key words: Postgraduate students, research, barriers, funding.

INTRODUCTION

As universities and governments seek to strengthen and grow their research base, higher education especially doctoral research is receiving particular attention. There is no doubt that postgraduate/doctoral research affects a

country's research output which in turn affects the community. Doctoral level research is the seed-bed for ideas and practices of a profession (Bates, 1999). While some high-income countries (HIC) have an over supply

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and demand of PhD graduates, there have been reports showing that there is a deficiency in the number of doctoral holders in Africa and Nigeria is no exception (Cyranoski et al., 2011). Recent university rankings generally show that most African universities apart from a few South African universities are performing poorly (Times Higher Education (THE) 2012, 2017). In the University of Ibadan, according to the 2012 reports made by the Committee on Needs Assessment for Public Universities in Nigeria, only 43% (16127) instead of 75% of lecturers have a PhD degree (NUC). The University of Ibadan has a total of 1,536 academic staff of which 60% had a PhD degree (UI Annual Report, 2013). The deficit in the number of PhD holders among academic staff is hinged mostly on number of issues which have posed challenges to the timely completion of research programmes among postgraduate students (Tight, 2012). Research activity in African universities has been influenced by a number of socio-political environmental factors; predominant among these are governmental policies of reduced tertiary education funding (The Economist, 2010). There have been varying degrees of deterioration from country to country and institution to institution but many institutions commenced on the road to recovery in the last decade (Sawyerr, 2004).

In Nigeria, the demand for tertiary education is so high because education is not only an investment in human capital, but also a pre-requisite for economic development (Aderinto et al., 2015; Adeyemo, 2000). Universities all over the world are regarded as engines of economic and sustainable national development. They transmit knowledge and train the human minds (Johnstone, 2005). The belief that education is an engine of growth rests on the quantity and quality of education in any country (Akinsanya, 2007). In Nigeria, the universities are veritable tools for the realization of national development; the development of cultured citizens and the promotion of basic research. University education is therefore the most powerful and critical success factor for individuals and the society (Aina, 2007). The Nigerian university system has grown astronomically in size and has undergone deep transformation since its inception over 60 years ago (Ogbogu, 2011). A major challenge to research output in Africa is the failure to consistently compete with international research. In developed nations like Europe and North America, there is a constant and continued quest for new avenues to ensure that higher education is competitive and remains dynamic knowledge-based economy in the world (Kehm, 2006). This could be due to a number of identified challenges (Salako, 2014) including inadequately organized doctoral programmes which also fails to compete with that found in institutions in developed countries. Some countries and institutions have realized this gap and tried to solve it by introducing collaborative research. For instance, the African

Economic Research Consortium (AERC), along with universities and other stakeholders within and outside Africa agreed that a collaborative PhD degree programme would be the optimum way to address the quality issues (AERC, 2014).

Another well-known challenge with doctoral research is the issue of funding (Adebisi, 2014; Bamiro, 2012; Kehm, 2006; Salmi, 2001). It is unfortunate that the ability of research students to act as engines of growth and development is being challenged by the long-standing problem of inadequate funding. Most public universities in Nigeria, Africa are poorly funded by the national governments and quite often this translates to inadequate funding for research and research capacity development. In contrast, the United States, Australia government and many countries in Europe and Asia expend hundreds of billions of dollars annually on funding research in academic institutions, as well research capacity building. Poor funding could in turn delay in the completion of research work (Adebisi, 2014). Developed countries have been able to tackle this challenge by providing financial support to doctoral education and researchers through fund raisers, government grants and various funds from industries. Research funding is also available through private foundations, charities and various trusts such as the Carnegie Foundations, John and Catherine T. Macarthur, Rockefeller Foundation and Welcome Trust to name a few (Nigeria Higher Education Foundation (NHEF), 2014).

Furthermore, another well know challenge among doctoral students is the challenge of not knowing how to write good proposals to access grants (be it foreign or domiciliary).

Though successful research is often attributed to individual researchers or research teams; it is well known that such success is determined by more than individual brilliance, hard work and team competencies. Factors such as the nature and quality of the research environment, mentored supervision, generally the facilities and other means at the disposal of the researchers, and access to prior work by other researchers in related field are also contributory (Sawyerr, 2004; Mutula 2009). The role of the supervisor in doctoral programmes in the British education system is also critical to the success of the doctoral process. Poor supervision can have a significant impact on students by not only limiting the quality of their work, but also reducing their motivation for work (Abiddin, 2007). Independent of the skills or the values of the individual researcher, the macro-environment of public policy and resource allocation are factors which hinder research development in a number of African countries (Akinsanya, 2007).

The purpose of this survey therefore was to determine the barriers to postgraduate research training needs of the University of Ibadan among postgraduate research

students, assess their research training needs, and make recommendation for proffering solution to the identified research needs.

METHODOLOGY

Study area

The study was conducted in the University of Ibadan which at the time of the study had 13 faculties, namely: Art, Agriculture and Forestry, Basic Medical Sciences, Clinical Sciences, Dentistry, Education, Law, Pharmacy, Public Health, Sciences, Social Sciences, Technology and Engineering, and Veterinary Medicine. There were also number of institute and centres which offer postgraduate programmes including the Institute of Child Health, Institute of Education, Institute of African Studies, Centre for Peace and Conflict Studies, Centre for Population and Reproductive Health, Centre for Adolescent Mental Health, etc. The institution also has a Distance Learning Centre (DLC), which has over 17000 students in various undergraduate academic programmes. This centre is located on a satellite campus of the University of Ibadan.

Study population

The study population included available and consenting male and female research students (MPhil/PhD. and PhD) in the various faculties who were registered for MPhil/PhD and PhD programmes in the University of Ibadan at the time of the study. There were 252 MPhil/PhD and PhD students registered for the 2011/2012 session during the study. In all, 137 were available to participate in the study and this gave a response rate of about 54%.

Research design

A cross sectional research design was used in the survey and purposive sampling was used to select all available research students. A semi-structured, self-administered questionnaire, which was predicated on information obtained informally from doctoral students during interactive sessions at workshops, was used to obtain data from consenting respondents in the various faculties of the university. The 38-variable questionnaire contained questions on respondents' demography, research interest, barriers to conduct successful research, fund seeking experience, and research needs. The respondents were also requested to rate their competence in these different aspects of research formed the basis for respondents' competency ranking. This was assessed on a scale of 1 to 7; where 1=<10%, 2= 10-20%, 3= 20-30%, 4=30-40%, 5= 40-50%, 6= 50-60%, 7=70-100%. Data collected from the survey was analysed using SPSS version 15.

RESULTS

A total of 137 questionnaires, which was administered among the research students, were coded and analysed. The ages of the respondents ranged from 20 to 70 years and most of them were aged 30 to 39 (44.5%), male students (56.2%) were slightly higher than female students (43.8%) and most were registered on the doctoral programme (Table 1).

Research interest and competencies

The respondents were requested to itemise the types of research conducted in their programmes. These included review of literature, secondary data analysis, quantitative and qualitative surveys, animal experiments, technical (engineering) experiments, clinical experiments/trials and behavioural surveys, focus group discussions, interventions, and mathematical models. All students reported that their MPhil/PhD or PhD programmes involved a research component. Table 2 shows the respondents' perception of the competence in various aspects in the conducted research. In terms of requisite competencies in various aspects of research methodology, conduction of research and documentation of results are common among respondents. Overall, the majority of the respondents rated their competencies quite low for all the aspects. The highest rating selected was five, which was within a range of 40 to 50% competency. Most of the respondents assessed their competencies and selected the option for proposal writing quite highly, especially in the areas of setting objectives (70.8%) and proposal writing (65.7%). However, only slightly over half of the respondents rated their competencies as five in questionnaire design (55.5%), data management and interpretation (54.0%). While only 42.9% rated their competency in publishing of research findings as high as 50%, whereas the rest rated it much lower.

Barriers to successful research conduct

Table 3 shows the respondents' ranking of barriers to successful conduct of postgraduate research. In all, 185 (85.4%) acknowledged the presence of barriers to conduct successful research. The identified barriers were ranked on a scale of 1 to 5 where 1=not a barrier; 5=extreme barrier. The major barriers identified by the respondents were lack of research funding (60.5%), irregular electricity (50.5%) and lack of access to research materials (34.2%).

Sources of research funding

Virtually all of the respondents (92.7%) indicated that their research was being funded with their personal funds. Slightly over a third of them (36.7%) reported that their research was being funded partially or totally by grants from local or international funding agencies and private corporations. These included inadequate mentoring from senior colleagues (69.3%), lack of funding opportunity information (45.6%), and absence of local research funding opportunities (34.6%). Other barriers identified by the respondents included poor

Table 1. Respondents' characteristics (N = 137).

Variable	n	%
Gender		
Male	77	56.2
Female	60	43.8
Age		
20-29	30	21.9
30-39	61	44.5
40-49	34	24.8
50-59	9	6.6
>60	3	2.2
Faculties		
Social Science	35	25.5
Clinical Sciences	34	24.8
Public Health	25	18.2
Technology	8	5.8
Pharmacy	8	5.8
Science	7	5.1
Basic Medical Sciences	7	5.1
Arts	6	4.4
Veterinary Medicine	5	3.6
Centres	2	1.5
Type of Study		
Full-time	107	78.8
Part time	29	21.2
Type of post graduate Program		
MPhil	46	55.6
Ph. D	91	66.4

internet access which hampered their ability to search for funding opportunity information and perceived grant application committee (Table 4).

Research training needs

In terms of research training needs, majority of the respondents indicated that they were interested in receiving training on developing research proposals and seeking funding opportunities and evaluation of interventions (Table 5).

DISCUSSION

Majority of the respondents were males (77%) within the age range of 20 to 70 years. Half (50.3%) of these were

from the faculties of social sciences and clinical sciences, while the rest were variedly distributed among the other faculties and were mostly in fulltime (78.1%) mode of study and were in PhD programmes (91%). This is comparable with the distribution of research students in a reported study among students at the Manchester University as reported by Abiddin (2007).

Unsurprisingly, almost all the postgraduate students had quite high interest for research development and implementation; most (98.5%) were interested in conducting research which constitutes a major part of the generic and existing doctoral programme. This is quite in line with the report of Yee (2010) in which training for PhD students was based on generic university wide programme in which basically methodologies in science and humanities were dominant. Additionally, Yee (2010) and Sauermann and Roach (2012) also confirmed that many of the doctoral programme focused on exploring

Table 2. Respondents' competences in different aspects of the research.

Aspects of research	Rating of competencies				
	1 [n (%)]	2 [n (%)]	3 [n (%)]	4 [n (%)]	5 [n (%)]
Proposal Writing	6 (4.4)	1 (0.7)	7 (5.1)	9 (6.6)	90 (65.7)
Choosing Topic	3 (2.2)	4 (2.9)	3 (2.2)	9 (6.6)	89 (65)
Setting objectives	5 (3.6)	1 (0.1)	2 (1.1)	7 (5.1)	97 (70.8)
Literature review	4 (2.9)	1 (0.7)	2 (1.5)	11 (8.0)	82 (60.0)
Methodology	4 (2.9)	2 (1.5)	7 (2.9)	16 (11.7)	87 (63.5)
Sampling	5(3.6)	6(4.4)	6(4.4)	14(10.2)	84(61.3)
Questionnaire design	7(5.1)	5(3.6)	10(7.3)	15(10.2)	76(55.5)
Data collection	3(2.2)	1(0.7)	5(3.6)	5(3.6)	91(66.4)
Data management	5(3.6)	3(2.2)	8(5.8)	7(5.1)	74(54.0)
Interpretation of results	5(3.6)	3(1.7)	3(2.2)	12(8.8)	74(54.0)
Writing of discussion	4(2.3)	2(1.5)	9(5.1)	15(8.6)	98(56.6)
Referencing	5(2.9)	3(1.7)	4(2.3)	10(5.7)	91(52.0)
Abstract writing	6(3.4)	7(4.0)	14(8.0)	16(9.1)	95(51.3)
Report writing	9(5.1)	6(3.4)	10(5.7)	14(8.0)	102(58.3)
Publishing of research Findings	14(8.0)	15(8.6)	17(9.3)	29(16.6)	75(42.9)

Table 3. Respondents identified barriers to conduct of successful research.

Extreme barriers	n	%
Lack of funding	69	60.5
Irregular electricity	55	50.5
Lack of access to research materials	38	34.2
Lack of incentives	33	29.2
Lack of reagents	25	22.9
University bureaucracy	21	19.6
Lack of access to laboratories	21	19.6
Lack of access to reagents	21	19.6
Lack of laboratories	20	18.5
Lack of interdisciplinary collaborations	20	18.5
Lack of perceived value	13	11.8
Insufficient time due to other work	11	10.0
Conflicting supervisor/student interest	9	8.3
Insufficient time due to family responsibilities	8	7.1

Table 4. Respondents' sources of research funding.

Funding sources	n	%
Personal	127	92.7
Local aid/grant	16	11.7
Foreign grant	21	15.4
Private/Corporate organization	13	9.6

*Multiple responses included.

methodologies, structures, processes and solving concrete questions. In consonance with other studies in

Table 5. Respondents identified research needs.

Identified research needs	Very interested [n (%)]	Some-what interested [n (%)]	Not interested [n (%)]
Developing a research Project/ proposal	123 (90.4)	7 (5.1)	6 (4.4)
Seeking institutional support	118 (86.8)	13 (9.6)	5 (3.7)
Writing a proposal	113 (83.1)	19 (14)	4 (2.9)
Evaluation and Assessment	112 (83)	15 (11)	8 (6)

*Multiple responses included .

doctoral education as reported by Maggs-Rapport (2000) which emphasised the ethnography and interpretive phenomenon in qualitative research, some aspects of research conducted by respondents included qualitative and quantitative surveys, clinical experiments/trials, animal experiments, secondary data analysis, interventions, mathematical models, and behavioural surveys. About two thirds of the respondents rated their competencies at about average which complements the expressed need of further training in research methodology. Manathunga and Lant (2006) corroborated this finding as they identified the need for a systematic and strategic appraisal of the higher education system in order to frontally address the developmental and training needs of research higher degree and doctoral students

The major barriers to successful conduct postgraduate research included lack of funding, irregular electricity, lack of access to research materials including laboratory materials and reagents. However, lack of funding for research was the mostly mentioned barrier. This is in line with a previous studies and reports by Sawyerr (2004) and Mutula (2009) in which most of the challenges to higher studies in the universities were inadequate funding and resources including research materials and access to ICT.

Funding has always constituted a major challenge/barrier to successful completion of research based studies; this is supported by the report of by Salako (2014), Ogbogu (2011) and Bamiro and Adedeji (2010), in which inadequate funding was identified as a major limitation to the ability of the universities to effectively and efficiently perform their duties, particularly the traditional roles of teaching and research. Almost all the researchers indicated that they spent their personal funds on research. Lack of information of funding opportunities to respondents (45.6%), lack of funding opportunities (37.6%) and lack of mentoring (34.6%) were mostly mentioned by respondents as barriers to seeking funds for research. Additionally, supervision was identified as a major contributor to successful PhD programmes in University of Manchester (Abiddin, 2007); this supports the challenge related to adequacy of mentoring and mentored supervision.

The research training needs of doctoral research based

postgraduate studies and other categories of professionals in higher institutions are quite varied. As identified in the training needs analysis conducted by Barratt and Fulop (2016) and at UCL, these could range from need for training related to identifying viable research topics, subject knowledge/proposal development, introducing new ideas, handling routine data, critically evaluating published research, interpreting research findings, accessing relevant research literature to inform your work, designing research studies, research methods (discipline and subject specific), language skills, research skills, research environment (especially related to seeking funding, making do with limited resources), writing up the findings of research studies or audits, statistically analyzing your own research data, and research information dissemination, including personal and transferable skills. In line with this, the research needs of the respondents included in this study ranged from identifying viable research topics and proposal development, research methods, seeking funding and institutional support, grant writing and research evaluation. The mostly mentioned training needs included developing research proposal seeking institutional support, grant proposal writing, and research evaluation.

Limitations

The main limitation of this study is related to its generalizability. Most of the research students in the study area were on part-time study, since they had to keep a regular job to support their self-funded research. Thus, the data collected were taken from only those students who were on ground at their departments during the 3-months period of the data collection.

CONCLUSION AND RECOMMENDATION

The study documents the challenges of research students in tertiary institutions in Nigeria which are quite varied and multifaceted. These included inadequate research infrastructures (facilities, equipment and electricity) and funding. The research students also

expressed need for further training in the research methodology at their different levels to enhance their knowledge and build their capacity for advanced research.

It is therefore recommended that the research institutions in Nigeria establish well-structured channels of meeting and solving research needs of students. This could be in form of provision of basic research infrastructures. It is also very important that workshops and capacity building and mentoring programmes be mainstreamed into the curriculum of these students. Funding and research grants should be made available to research student via competitive proposal writing and institutional research granting schemes. The results of this research could also serve as a baseline in design and prioritisation of research need intervention plans by research institutions.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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REFERENCES

- Abiddin NZ (2007). The role of an effective supervisor: Case studies at the University of Manchester, United Kingdom. *Eur. J. Sci. Res.* 16(3):380-394.
- Adebisi TA (2014). Higher education and skills development: An overview of Nigerian National Policy on Education (NPE). *Int. J. Dev. Sust.* 3(12):2218-2227.
- Aderinto AA, Adediran O, Alarape AI (Eds) (2015). *Higher Education and National Development*. University of Ibadan, Postgraduate school interdisciplinary Discourse Series. Ibadan University Press. 1-173.
- Adeyemo B (2000). Public School Funding; The case of community mobilization and effective management. *J. Edu. Dev. J.* 1(2):27-28.
- African Economic Research consortium (AERC) (2014). *Enhancing Capacity for African Agricultural Research: selected Models and Lessons*.
- Aina OI (2007). Alternative modes of financing Higher education in Nigeria and implications for university governance. In Babalola, J.B. and Emunemu B.O. (Eds.) *Issues in higher education: Research evidence from sub-Saharan African*. Bolabay Publications.
- Akinsanya OO (2007). Financing higher education in Nigeria. *Int. J. Afr. Am. Stud.* 6:1.
- Bamiro OA (2012). Tertiary Education in Nigeria and the Challenge of Corporate Governance. Speech at the TETFund Year 2012 Strategic Planning Workshop, held at the Idris Abdulkadir Auditorium, National Universities Commission, Maitama Abuja, 7th to 8th August, 2012.
- Bamiro OA, Adedeji OS (2010). *Sustainable financing of higher education in Nigeria*. Ibadan: Ibadan University Press.
- Barratt H, Fulop NJ (2016). Building capacity to use and undertake research in health organisations: A survey of training needs and priorities among staff. *BMJ Open.* 6:12 doi:10.1136/bmjopen-2016-012557
- Bates MJ (1999). *The role of the PhD in a Professional Field*. Department of Information Studies. University of California, Los Angeles.
- Cyranoski D, Gilbert N, Ledford H, Nayar A, Yahia M (2011). Education: the PhD factory. *Nature* 472:276-279; doi:10.1038/472276a
- Johnstone OB (2005). The costs of higher education: World- wide issues and trends for the 1990s. Paper presented at the Pennsylvania state university sesquicentennial celebration.
- Kehm B (2006). Doctoral education in Europe and North America: A comparative analysis. In *The formative years of scholars*, Edited by: Teichler, U. London: Portland Press.
- Maggs-Rapport F (2000). Combining methodological approaches in research: ethnography and interpretive phenomenology. *J. Advanced Nursing.* 31(1):219-225. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/10632812>
- Manathunga C, Lant P (2006). How Do We Ensure Good PhD Student Outcomes? *Edu. Chem. Engineers.* 1(1):72-81. <https://doi.org/10.1205/ece.05003>
- Mutula S (2009). Challenges of doing research in sub-Saharan African universities: digital scholarship opportunities; *Inkanyiso, Jnl Hum. Soc. Sci.* 1(1).
- Nigeria Higher Education Foundation (NHEF) (2014). Importance of higher education to National economic development. September 2014
- Ogbogu CO (2011). Modes of Funding Nigerian Universities and the Implications on Performance Obafemi Awolowo University, Nigeria. A paper presented at the 2011 Barcelona European Academic Conference Barcelona, Spain.
- Salako CT (2014). Challenges facing university education in Nigeria: The way forward. *J. Edu. Foundation.* P 4.
- Salmi J (2001). Tertiary Education in the 21st Century: Challenges and Opportunities. *Higher Education Management. J. Programme on Institutional Manage. higher Educ.* 13(2):120-129
- Sauermann H, Roach M (2012). Science PhD Career Preferences: Levels, Changes, and Advisor Encouragement. *PLoS ONE.* 7(5):36307. doi:10.1371/journal.pone.0036307
- Sawyer A (2004) African Universities and the Challenge of Research Capacity Development. *JHEA/RESA.* 2(1):211-240.
- The Economist (2010). Why doing a PhD is often a waste of time. Doctoral degrees: the disposable academic. Available online from <http://www.economist.com/node/17723223>.
- Tight M (2012). Academic Staff in UK Higher Education Institutions: Are They Fit for Purpose? In Grove, J. *Proportions of Academics with PhDs.*
- Times Higher Education (2012). <http://www.timeshighereducation.co.uk/news/proportion-of-academics-with-phds-2012/421657.article>.
- Times Higher Education (2017). <http://www.timeshighereducation.co.uk/news>.
- UI Annual Report (2013). Office of the Vice Chancellor, University of Ibadan.
- Yee JSR (2010). Methodological innovation in practice-based design doctorates. *J. Res. Pract.* 6(2):15. Retrieved [date of access], from <http://jrp.icaap.org/index.php/jrp/article/view/196/193>