

CHALLENGES OF POSTGRADUATE RESEARCH: GLOBAL CONTEXT, AFRICAN PERSPECTIVES

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Abstract

Research can generally be subdivided into basic, applied/action, collaborative, contract and/or sponsored research. Postgraduate research is a form of study offered by a university or an institution of advanced learning/education that is (academically) recognized and can take any form of the above types of research. The emphasis of postgraduate research is on developing systematic skills of investigation during the research process. The aim is therefore not necessarily to produce ground-breaking innovations or extend knowledge, as often emphasized by promoters. Most postgraduate research largely and rightly consists of basic research, and to a lesser extent, applied and collaborative research. This paper discusses the challenges of postgraduate research from a global context with specific reference to universities in Africa. The challenges are many and include low throughput; decreasing government subsidies; inadequate research capacity; poor preparation/grooming of students for postgraduate programmes; inconsistent postgraduate research guidelines; stringent, statutory research permit requirements; bureaucracy in the admission process; slow thesis examination process; poor supervision; balancing occupations (jobs) and academic work; inadequate facilities; and heavy teaching loads. These challenges can generally be reduced to three, namely research capacity, research productivity and research utility.

Research capacity refers to the availability of research facilities and the availability of trained human personnel. Research utility focuses on how the research outcomes relate to the national development agenda or priorities. Research productivity refers to the optimisation of the resources available to enhance the quality of research. While not peculiar to Africa, the continent lags behind the developed world in making discernible progress in addressing these challenges. The author proffers interventions to minimize these challenges with particular reference to Africa.

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Introduction

Universities the world over are recognized as institutions established for the advancement of knowledge, scholarship and innovation. Postgraduate programmes are considered conduits through which universities develop research capacity and generate the high end skills required for a functional economy and to address complex issues such as the current global financial recession, climate change, poverty alleviation, etc. Postgraduate research takes various forms but generally requires those admitted to such programmes to have completed a bachelor's degree or a diploma. Consequently, nomenclatures such as postgraduate diploma, Masters degree, Master of Philosophy, PhD or higher PhD are now commonly encountered in tertiary education systems. Postgraduate qualifications may be classified as traditional/academic or professional degrees. Traditional postgraduate qualifications tend to be generic, while professional ones reflect a deeper understanding of a discipline (Postgraduate Research, 2009). Requirements for admission into postgraduate programmes vary from institution to institution or from one jurisdiction to another. For example, in Australia, Canada and the United States, admission for a PhD may require prerequisite study over and above normal graduate study. Such prerequisites may take different forms, such as Masters course work, distinction in a bachelor's degree, or a distinguished academic track record. Another trend is to award a doctorate degree based on the evaluation of one's research and publication track record in a given field. The duration of a given postgraduate qualification also tends to vary from institution to institution, even within the same jurisdiction. For example, a full time Masters degree may take between 9 to 12 months (e.g. UK, South Africa) or up two years or more (in Africa) to complete, while a part time Masters degree, depending on the institution or jurisdiction, may take four years or even more. For a PhD, the duration lies between 2 and 6 (years), with the average duration being 4 years (Mouton, 2007).

Generally, postgraduate research is not intended to yield ground breaking results, discovery or innovation (Postgraduate Research, 2009). Most of the time, it is actually an apprenticeship for mastering systematic research processes. Ticinch (2006) agrees that the objective of postgraduate research is not to make breakthrough inventions or major scientific discoveries; rather it is a mechanism by which graduate students learn how to undertake a systematic investigation based on work done by peers in the field, and then to extend or add to the current state of knowledge. More emphasis is placed on systematic investigation than on the degree to which knowledge is enhanced. The doctorate recipient in the past was expected to assume some teaching role premised on the concept 'doctor' (Latin – 'docera') – to teach.

There are variations to the implementation and award of postgraduate qualifications. For example, the net product of a PhD is a thesis that has to be assessed by independent experts in the discipline. Some institutions also insist that theses, particularly at PhD level, be defended in a viva-voce oral examination where candidates present their research before an expert panel. Likewise, titles arising from the completion of a postgraduate study vary. For higher research levels, the qualification name tends to be general (with some exceptions), while for lower level qualifications (first degree, etc.) the qualification carries with it the discipline's name. For example, at bachelor's level, it is common to include the discipline in the qualification award, e.g. BSc (Chemistry), but a corresponding degree would be an MSc (without the name of the specific discipline). Similarly, at doctoral level, the degree would simply be a PhD with no mention of the discipline. Higher postgraduate qualifications represent the generic mastery of research techniques. In professional doctoral qualifications, i.e. where a demonstration of in-depth research knowledge of the discipline is the main outcome, the discipline is included (e.g. Doctor of business, Doctor of engineering, etc.). In some universities, particularly in the developed world, candidates are awarded higher doctorates, which is a demonstration of substantial contribution to their discipline through research. Usually, such awardees already have a PhD. Higher doctorates carry the title of the discipline (Postgraduate Research, 2006).

Kearney (2008) observes that research degrees continue to denote advanced study in a chosen discipline with a view to pursuing an academic career. In this respect, expertise in research methodology and investigative skills are required. There is a growing demand for Masters and Doctorate degrees related to a specific field of professional activities, such as business studies or administration. These degrees are sometimes referred to as taught qualifications that may occur concurrently with workplace activity. They involve some degree of research on the part of faculty members and students. This trend is common in Europe and OECD countries. In these postgraduate programmes, demand drives supply, with national education systems being forced to adapt to this changing paradigm. This demand has resulted in the emergence of new providers beyond the traditional market for higher education, such as the United Kingdom, United States, Australia, New Zealand, Germany, France, etc. Traditional markets for higher education are now establishing offshore campuses to tap into the new market occasioned by the paradigm shifts in postgraduate degrees in places such as East Asia, Eastern Europe and the Gulf States where there is great demand for English, computer science, business studies, and other subjects.

The purpose of postgraduate research is, among other things, to (Mutula, 2009):

- Test assumptions/observations

- Provide theoretical frameworks to help readers understand the information reported by individual scholars
- Create new knowledge
- Disseminate and apply the results of a research activity

Research can generally be subdivided into basic, applied/action, collaborative, contract and/or sponsored research. Basic research aims to create new knowledge and is not directly related to technical or practical problems (e.g. a study conducted to analyze online public access catalogue use). Applied/action research seeks to solve problems by developing solutions and recommendations that can be used to improve practices (for example conducting a study on how information systems can be used to reduce poverty). Collaborative research is jointly conceptualised and/or funded by a university and a partner. Contract research occurs when a request is made by industry or a government agency for a specified research project to be carried out with identified aims and objectives. Finally, sponsored research is when funding is based on a proposal that is submitted on a competitive basis. Most postgraduate research falls within the realm of basic research, although there is also some applied and collaborative research. For the most part, applied, collaborative, contract and sponsored research tend to be undertaken by faculty members (because of their proven expertise).

Post graduate research is a form of apprenticeship taken under the supervision of senior faculty members. The faculty member involved in the supervision of post graduate research must have the right expertise to play the role of promoter/supervisor. The skills they require include but are not limited to (University of South Africa & National Research Foundation 2007):

- Guiding postgraduate students towards sound preparation of research
- Assisting with methodological choices
- Documenting and publishing research
- Maintaining both supportive and professional relationships
- Helping the candidate challenge dominant ideas, redefine problems, and develop a theory

In a survey of postgraduate students, the Task Group on the Future of Graduate Research Supervision at the University of Botswana (University of Botswana, 2009) listed the following as reasons given by students for pursuing graduate studies: advancing or improving one's academic qualification in order to become more competitive on the job market; a requirement for promotion by the employer; enhancing personal career, life, development and academic credentials; expanding intellectual knowledge and gaining a deeper understanding of one's profession or subject of study; and the desire to contribute to research and applicable science or knowledge. The general perception of the role of postgraduate studies seems to

place less emphasis on research and more on better career prospects. There seem to be stringency requirements for a thesis/dissertation to significantly extend knowledge or generate new products and services.

For students planning to pursue postgraduate studies/research, the choice of the institution that will meet their expectations is critical. The Task Group on the Future of Graduate Research Supervision at the University of Botswana (University of Botswana, 2009) found that in the choice of the institution, students were motivated by:

- Reputation of the university/programme
- Quality of education at the university
- Access to postgraduate education
- Affordability of fees
- Familiarity with the system of the institution
- Level of financial support offered
- Facilities available
- Diversity of postgraduate programmes
- Availability of skilled faculty staff
- Provision of scholarship and grants

Enhancing Postgraduate Research

The research quality of a university is measured by the excellence of its library facilities, quality of ICT infrastructure, supportive institutional framework, qualified staff, diversity and strength of postgraduate programmes, level of research funding, links with the international scholarly community and industry, provision of grants for young researchers, mentorship programmes, integration and use ICT in teaching and research, availability of digitized local content, functional institutional repository, international students and faculty members, and the quantity of collaborative and multidisciplinary research, among other characteristics (Mutula, 2009).

To further enhance the quality of research, it is important that seminars and workshops are built into postgraduate programmes to impart knowledge and skills in areas such as time management, project management, business communication, oral examination, thesis writing, responsible conduct during research, formatting research essays, citing and referencing techniques, using archival sources, content analysis, critical discourse analysis, ethnographic research, action research, quantitative/qualitative research, literature reviews, and basic and applied research (University of Botswana, 2009).

During 2008, as a visiting professor at the Department of Library and Information Science at the University of Zululand (DLIS, UZ), a few research best practices regarding students' supervision were learnt. Most impressive was the research output attributed in part to a close working relationship between staff and postgraduate students. Furthermore, postgraduate students seemed rigorously vetted before admission into postgraduate programmes. Students were also guided in the selection of their research topics and the department provided leadership in setting the research agenda based on niche areas such as social informatics, informetrics, user studies, etc. Regular reports of progress based on well formulated research schedules functioned as a powerful feedback and tracking tool. The practice of team supervision and joint authorship between the faculty and students also helped accelerate research output (Mutula, 2008). The other positive attribute of the research portfolio of DLIS (UZ) included the use of ICT in teaching; documentation of research output; an annual DLIS report; and the publication of annual DLIS conference proceedings online. Similarly, the inclusion of research projects in the undergraduate curriculum and engaging postdoctoral/visiting faculty members enhanced the research profile of the department while enriching the postgraduate programmes. However, there was concern over the heavy teaching loads of faculty staff members and the large numbers of students at undergraduate level that required remedial interventions (Mutula, 2008).

Challenges of Postgraduate Research

Postgraduate education in general and postgraduate research in particular faces challenges of demand, supply, quality and returns on investment with respect to both providers and clientele (Kearney, 2008). As already noted, postgraduate research challenges are not confined to developing countries and are also experienced in the developed world. However, developed countries such as Germany, Australia, Canada, the United States and New Zealand have made some progress in trying to address them (Scholtz, 2007). Research in most universities in Africa is poorly coordinated. Often, variations exist in the approach and even requirements for the fulfillment of postgraduate research in the same university, for example in the number of years it takes to complete Masters or Doctoral degrees for full as well as part-time students. Research and development in third world countries was negatively affected when there was a shift in focus from higher to basic education by the World Bank and IMF during the 1980s and part of the 90s. Presently, this is exacerbated by the unimpressive figures of student completion of postgraduate programmes. It takes on average 6-8 years to complete a PhD in most African universities because of inadequate resources and bureaucracy in the approval process, which involves departments, faculties and universities (Manyika and Szanton, 2001)

In South Africa, the transformation of technikons [polytechnics] into universities of technology created a serious research skills shortage. Lamprecht (2008) pointed out that the South African government and the public are dissatisfied with the quality of graduates from universities in terms of the nature and appropriateness of their qualifications, training and competitiveness in some fields. The former Minister of Education in the Mbeki government, Naledi Pandor, noted that the drop-out and through-put rates of most universities were bad not only because of poor pre-varsity schooling, but also due to poor teaching at the universities (Ministry of Education, 2006). The Southern African Regional Universities Association (2008) noted that there was a 60% university dropout rate in South Africa. The students affected were mainly from poor families who dropped out before completing their studies on account of pregnancy, finding campus life too boring and structured, social and personal problems, having to care for sick relatives, peer pressure, and more. Jordaan and Biermann (2008) carried out a study on research skills in South African universities and found that students at graduate level experienced a large array of problems related to writing and information retrieval skills and presenting original work. Students from first year were also exposed to a culture of copying, especially within the programming fields. They also found that the state of research at the universities of technology was poor because of the scarcity of research expertise, inexperienced supervisors, and supervisors working in fields outside their specializations. This resulted in low research outputs and generally discouraged students who would have opted to continue with their postgraduate studies.

Botha and Simelane (2007) observed that in most South African universities, research was either not published or not digitized, making it largely inaccessible. The University of Stellenbosch's 2007 Annual Report suggested that the university faced challenges related to student access and success; backlog with regard to facilities, equipment and other capital; and decreasing government subsidies, impelling universities towards far reaching structural changes. Moahi (2007), in a study of library and information science research in Botswana between 1980 and 2006, found that most research was of a descriptive nature and lacked the empirical rigor that would make any impact on national development. She noted that the country had seen little cross-disciplinary research endeavors, and more often than not, no collaborations between practitioners and academics. Moreover, research in East, Central and Southern Africa was also generally not informed by a research agenda. This is despite the fact that increasingly, the complex global environment demands academics to work with others across disciplines to address emerging priorities that cut across traditional disciplinary boundaries.

Oosterlinck (n.d.) observes that most universities have a structure that is relatively hostile to society's major problems that require an interdisciplinary approach. Often, academic research suffers from more time being spent on data collection than on analysis and robust reporting. Findings that are not clearly presented and

explained for the end user to understand are of little value in terms of their application. It is also common to find students wanting to cover a number of objectives in a single project, which calls for elaborate data collection and analysis, making it difficult to relate one objective to next. Such research more often than not lacks definite focus. Although there is no unanimity on the number that is suitable for a research project (such as a dissertation), 3 – 5 objectives is considered realistic

Zakri (2006) outlines what he believes to be three main challenges affecting the research process, namely research capacity, research productivity and research utility. Research capacity refers to the availability of research facilities and the availability of trained human capital. Research utility focuses on the relevance of research outcomes as they relate to the national development agenda or priorities. Because national or international development is a cross disciplinary subject, research should try and involve researchers from different disciplines, otherwise the outcome would be of limited value. Research product refers to the optimisation of the available resources in order to enhance the quality of research. Zakri notes that universities in developing countries are not fully geared towards solving development-related problems. The study found gaps in linking research with development priorities. For example, there are weak links between knowledge producers and knowledge users and between knowledge production and innovation.

Postgraduate research processes that are carried out to meet the requirements for the award of a qualification face other unique challenges. A study focusing on LIS schools in East, Central and Southern Africa on the supervisor-supervisee relationship among postgraduates revealed the following (Mutula, 2009):

- Delays in receiving feedback
- Lack of guidelines stipulating supervision
- Poor supervision - i.e. no schedule for meetings, no records of discussions, etc.
- No mechanisms for redress (40%)
- Supervisors were always too busy to meet students
- Lack of support for students from non-LIS disciplinary backgrounds
- Inadequate preparation for postgraduate study
- Heavy teaching loads for faculty members
- Unnecessary administrative assignments

Other challenges that were identified in the study include: poor quality of the students admitted, students' delays in submitting their work, and the inability of students to balance work/occupations and their studies. The students were asked when they consulted their supervisors and responded as follows: once a week (28%); once in four weeks (16%); once in two months (16%); once in more than two months (8%); 3 to 4 times a year (4%); no time specified – depends on the supervisor (16%); and by mutual agreement (16%). 56% of the respondents preferred one

supervisor, while 32% preferred more than one. Those who preferred more than one supervisor stated that they required one supervisor to cover the absence of the other (when necessary), and more supervisors meant a wider range of opinion, which added value to the research process. Whereas some supervisors guided students on what sources to use (64%), others (32%) did not. Those candidates who preferred one supervisor said that if a supervisor is well-versed on a subject, there is no need for more supervisors. They noted that with more than one supervisor, there are delays in getting feedback because one has to wait for both parties to agree. And often there are conflicting views or opinions, thus confusing students. The study by Mutula (2008) also revealed the following challenges: delays in approving the topic (44%); unnecessary delays in getting feedback (36%); supervisors' unavailability (36%); problems balancing work/occupations and school (44%); intimidations by supervisors (28%); difficulties in finding relevant literature (28%); and delays from external examiners (24%).

The Task Group on the Future of Graduate Research Supervision at the University of Botswana (University of Botswana, 2009) found that the timely completion of postgraduate degrees at the University of Botswana varied from 14% - 37% of the total number of students registered for Masters, M. Phil and PhD degrees. Factors affecting the rate of completion were found to include: availability/access to the supervisor; commitment on the part of both supervisor and candidate; design of a work plan; and the frequency of meetings between the supervisor and the candidate. Delays in completing postgraduate studies were attributed to a lack of facilities - equipment, software, chemicals; problems combining studies and work/occupations (for part-time students); inadequate financial support; poor preparation at undergraduate level for research; inadequate guidelines for writing theses/dissertations; inadequate supervision; and the change of project focus midway, among others. From the perspective of supervisors, delays in completing postgraduate projects were caused by laziness on the part of candidates, heavy teaching loads for the faculty staff, poor research culture, inadequate institutional support, lack of research skills on the part of students, some students expecting supervisors to do the work for them, red-tape in the examination process, and delays in securing research permits.

Among the recommendations suggested to alleviate the problems cited above were the following:

- The staff members supervising students should be given less teaching loads and other responsibilities
- Thesis writing should be optional (32%)
- Guidelines for supervision should be provided (40%)
- Schedules for meetings between students and supervisors should be defined and agreed on (32%)

- Feedback on submitted work should be provided within a week (32%)
- Students should be allowed frequent meetings with the HOD to discuss progress and behaviour of errant supervisors (28%)
- Matching student topics and supervisor skills (36%)
- External examiners should be carefully selected to ensure they can examine theses in time

Opportunities for Postgraduate Research in Africa

Despite the challenges facing postgraduate research, especially in Africa, there are still considerable glimmers of hope. Some governments are recognizing the importance of research and are increasing support for research to universities. South Africa now spends 1% of its gross domestic product on R&D. International support for research is also growing from bodies such as the Overseas Development Agency (ODA), which provided \$105.5 billion in 2005, a figure expected to increase to \$130 billion by 2010 (Zakri, 2006). Postgraduate students are now freely accessing hundreds of scientific and professional journals, papers, documents, encyclopedias, reports, presentations and lectures from services such as African Journals Online (AJOL). This shows considerable progress in comparison to the situation prevailing only a few years ago. Several bibliographic networks or digital libraries, such as SABINET (Southern Africa), Ain Shams University Network (ASUNET) in Egypt, African digital library and African Online Digital Library have made possible access to resources that include digitized theses and dissertations, e-books, and databases. Moreover, a number of universities in Africa, like their counterparts in the rest of the world, are increasingly using their web-based online public access catalogues (OPACs) as gateways not only to information outside their libraries, but also to their own local digitized content. For example, the University of Botswana library's OPAC is used to provide access to digitized full-text past examination papers. At the University of Pretoria in South Africa, the library provides access to its institutional repository that contains locally generated content (Pienaar and Daventer 2007). Rhodes University, also in South Africa, publishes electronic theses and dissertations (ETD) and makes them available on the university's intranet. Overall, digital content is increasingly being generated in Africa as many tertiary institutions, especially universities, turn to e-learning. Such digital content consists of a variety of learning materials that range from basic text to multimedia, e.g. assignments, reading lists, course notes, course syllabi, course objectives and external content links.

Libraries are also transforming/translating their print collections into electronic format through digitization or subscription to e-journals (with or without print alternatives) as a strategy to make them more accessible and to enhance resource sharing (Youngman, 2007). Scholars and publishers are now required to make their publications available through Open Access so that they can be easily and widely

accessed (Association of Research Libraries, 2006). These tools are needed to ensure that scholars involved in research know what their counterparts are doing elsewhere, thus enhancing collaboration, the sharing of knowledge and best practices.

Conclusion

African universities are faced with a number of challenges that hamper effective postgraduate research. Most countries do not have funding for postgraduate research. Consequently, only a few students are able to attain higher degrees. Universities must try and find alternative ways of generating third-stream money. Diversifying research efforts into areas considered niche rather than duplicating what other universities are already doing is important. Such niche research areas would form the basis for postgraduate student dissertations as well as for joint studies between faculty members and students. These niche research areas should be aligned with national development priorities and international agendas, with students' projects demonstrating relevance to such priorities. Investing in Open Access and institutional repositories (departmental, national, academic, specialized, etc.) as well as capacity building through the training of researchers would enhance the research environment. Research should be coordinated in order to avoid duplication and instead make optimal use of the resources available. It is very important to impart information literacy on to postgraduate students to develop their ability to seek, organize and apply information. Students' theses should be digitized and made available online to make them more accessible, 24/7. It is also important for universities to work closely with industry in research endeavours in order to address market needs. This collaboration could enable research in an industrial environment. Improving the quality of undergraduate's programmes would lay a strong foundation for postgraduate programmes.

Other actions that our universities need to implement in order to enhance the capacity of the research environment include: offering faculty-wide postgraduate programs (rather than departmental-based degrees), improving capacity through collaboration and partnership to facilitate skills and technology transfer, and ensuring that research is tailored to help address poverty and make life much easier.

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