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The Influence of Teaching/Learning Resources on Completion Rates of Doctoral Studies in Education in Selected Public Universities in Kenya

Samuel K. Rong'uno

Lecturer, Faculty of Education, Kisii University, Kabarnet, Kenya

Abstract:

The study investigated institutional factors that influence completion rates of doctoral studies in Education in selected public universities in Kenya. Based on the study, this paper analyses the contribution of teaching and learning factors to completion rates of doctoral studies. Descriptive survey design was used in the study.

The participants comprised 115(62.09%) of a total of 184 lecturers/heads of departments in the three universities studied, namely Moi University, Kenyatta University and the University of Nairobi. The number of doctoral students who participated was 388(67.29%) of 579 doctoral students registered between the years 2009 to 2013 in the three universities. A questionnaire, document analysis guide and interview guide were used to collect data for the study. Quantitative data was coded and analysed using SPSS. Data from field notes was transcribed and organized to themes. Some data was coded and tallied based on their similarities and presented using descriptive statistics such as tables, percentages frequencies and graphs. The study found out that university libraries lacked adequate relevant T/L resources and ICT connectivity. The study concluded that teaching/learning related factors influenced doctoral completion rates and time-to-degree. Therefore, it was recommended that public universities ought to employ adequate number of qualified lecturers and improve teaching/learning resources.

Keywords: *Teaching, learning resources, completion rates, doctoral studies, education, public universities, Kenya*

1. Introduction

The number of applicants for doctoral programmes in many universities in Kenya has continued to rise over time. In addition to the pursuit of knowledge, the desire for educational advancement coupled with the ever-increasing demand for better services and quality work-output, has motivated the desire for higher academic qualifications among elite (Siringi, 2011). However, the process of acquiring a doctoral degree is, in itself, a daunting task to many students. Many students take a considerably lengthy period of time to complete their theses or fail to complete them at all (Canadian Association for Graduate Studies [CAGS], 2006).

Studies show that university faculties not only have an ability to ensure timely completion of quality education for their students but they also play a significant role in the process of students' effective learning (Pascarella & Terenzini, 2005). Institutional administrative elements that influence the rates of completion of doctoral studies and time-to-degree include student selection process, student mentoring programmes, study environment and programme process (Council of Graduate Schools CGS, 2009). The supervisors' role is a key factor in the entire process of thesis writing. Doctoral advising relationship not only affect a doctoral students' professional development, but also the thesis writing process (Barnes & Austin, 2009) therefore promoting effective learning and timely completion of doctoral studies. However, if the student does not receive adequate guidance, chances of timely completing of thesis writing process might be slim.

1.1. Teaching/Learning Resources and Completion Rates of Doctoral Studies

Library books, reference books, conference reports and journals are all important in research studies. The role of library on research work is a critical component and libraries have been historically the gateways to information, providing researchers with access to knowledge facts to support their studies (Ruiz, 2002). Academically successful students have adequate access to teaching/learning resources that are essential for their studies. The resources include materials on improved research practices, catalogues of research materials, better informed researchers as well as dedicated spaces that provide a better work environment for researchers. The dedicated space is important more so for some researchers who rely on printed manuscript content held in libraries (Ivankova & Stick, 2007).

However, studies show that most public Universities in Kenya are not adequately equipped in terms of physical facilities like print journals, teaching and research equipment, internet connectivity and maintenance of such equipment. Most of them are forced to work under adverse conditions (Eshiwani, 2009). The report notes that many institutions do not commit adequate funds to library resources nor address the deeper structural issues that ultimately shape student persistence and timely completion rates. Most of them align their

resources more so to projects that do not directly help the students' academic work. Lack of adequate library resources in public universities is a common problem in Africa.

Okwakol (2008) notes that most African universities do not have adequate physical facilities such as lecture rooms, Offices, library and laboratory space to provide a suitable learning and teaching environment. Moreover, Cheboi (2006) argues that lack of adequate facilities compromised the quality of university education. The Public Universities Inspection Board (Republic of Kenya, 2006) posits that the quality and quantity of teaching and learning resources affect significantly quality of teaching and research. The Board observes that accelerated growth in student enrolment in the public universities was not matched by expansion of physical and learning resources.

A similar observation has been made by Ndethiu (2007) who states that lack of adequate reading materials posed a challenge to the promotion of student reading culture. Scarcity of such resources implies the environment for higher education has changed from one of plenty to one of diminishing resources, thus negatively influencing students' effective studies. Nelson and Lovitts (2008) observe that libraries are critically important in helping researchers to exploit the full benefits and opportunities of the networked world including such developments as open access and social media. This promotes and exploits new technologies and new models of scholarly communication especially with the introduction of e-content which researchers interact with digital content, therefore accessing virtual as well physical libraries.

Sarkar (2012) strongly believes that the application of ICT is particularly instrumental to higher education's research work because it enables researchers to access not only information but also varieties of academic resources across the world. The combination of communication media and digital libraries enhances access to academic resources, greatly enriching research works; this is especially revolutionary for universities outside big cities. The use of ICT in data processing and the unprecedented growth in bandwidth and computing powers provide opportunities for processing huge amounts of data and performing complex computations quickly and accurately. However, taking advantage of ICT to create new dynamics in research requires national policies for ICTs in higher education and establishment of joint information systems linking all higher education institutions.

Manyasi (2010) argues that advances in information technology could be used to enhance quality and timely university education in Kenya. However, most institutions lack the necessary preparedness necessary for maximum utilization of such technology. Such a status acts as an impediment to provision of quality teaching and learning.

During the last four decades, African countries seeking support from World Bank and IMF to fund their social services including expenditure on higher education faced rude shock in many instances. The funding reduced sometime drastically thus pushing universities to financial turmoil. As university faculty salaries remain flat or decline, research funding dries up, university libraries stop purchasing books and journal. For the same reasons, student scholarships and both local and overseas faculty development funds have largely been eliminated. New faculty hiring was curtailed, in some cases halted for many years. All these have also occurred at a time when universities were experiencing high student enrolments and faculty expansions (World Bank, 2000).

Most African university face financial challenges thus making libraries lack the capacity to develop the resources required. In the long process, neither the doctoral students nor their local faculty supervisors are likely to have access to current theoretical and comparative literature that might bear on or provide new insights in. A few departmental or university libraries have been able to maintain or begin to rebuild their collections in particular topic areas with the support of donations from abroad, such as the Gender Studies Library at Makerere University, Margaret Thatcher Library at the Moi University among others. However, even these collections seem far from current. In several libraries, most books are few and ancient, and in some, where books are available, they are in fact simply shells.

International journals and intellectual discourse often are lacking (Research Libraries UK [RLUK] & Research Information Network [RIN], 2011). It has been suggested that African university libraries might not necessarily "over emphasize" the need for hard copy volumes but rather build broad and accessible collections of electronic books, international journals, and databases through the Internet (McNaire & Johnson, 2009). The study notes that the new ICT systems could make a great difference in providing access to a vast array of databases, bibliographies, networks and information sources from around the world. Such levels of technology as witnessed at the University of Nairobi and Kenyatta University have enabled students and other researchers access library resources even at their remote villages in the upcountry. However, in institutions, more so the newly established universities, connectivity is still limited, unreliable, expensive, and an unfamiliar tool. Very few students have their own computers, and departmental and campus-based computer centres are small, difficult of access, and tightly scheduled. As a result, most student are circumstantially forced to resort to business based cyber cafes – which again are usually congested leave alone being unreliable in terms of network connectivity.

Another variable determining doctoral completion rates is the inadequacy of public and other sources of funding to support doctoral students. Considerably greater financial support is required if doctoral completion rates are to be significantly improved. Not only does the overall funding for doctoral scholarships have to be increased but also individual awards have to be made for deserving students. Current awards are limited and often inadequate to attract and fully maintain doctoral students (Ivankova & Stick, 2007). The scholars note that in order to record significant improvements in terms of academicians acquiring doctoral degrees, adequate investments should be made in programmes offering such studies and enrolment be competitive and linked to institutional capacity building.

2. Materials and Methods

2.1. Research Design

Descriptive survey design was used for the study. The design was appropriate because the study tried to find out the factors associated with delayed completion of doctoral studies in education at public universities in Kenya. The findings may be generalized to a wider representation of the population.

2.2. Target Population

The study targeted all the students registered for various doctoral programmes in Education in Kenya's public universities between the years 2009 and 2013, heads of departments and lecturers (professors, senior lecturers and lecturers) in the departments of education. The study involved the University of Nairobi, Moi University and Kenyatta University. The three institutions offer doctoral programmes in education and are also the oldest in the country. They are also well established in terms of the number of professors and lecturers with doctoral degrees. The findings may, therefore, be generalized to all education doctoral programmes in universities in Kenya.

2.3. Sample Size and Sampling Technique

In order to ensure that the minimum empirically acceptable number of respondents is achieved, the study target 80% of the target population. However, only 62.50% responded. The total number of professors and doctors (senior lecturers and lecturers) as at 31st December 2014 and the proportion of those who participated were as summarized in Table 1 below.

Staff establishment				Actual responses			
University	Professors	Doctors	Total	Professors	Doctors	Total	%
UoN	6	30	36	1	22	23	63.88
MOI	13	38	51	3	31	34	66.67
KU	20	77	97	8	50	58	59.79
Total	30	145	184	12	103	115	62.50

Table 1: Number of Lecturers and the Sample Size

A total of 115 participants was selected representing 62.5 per cent of the target population.

The sampling procedure for doctoral students registered in the three universities between the years 2009-2013 was as shown in Table 2 below.

Universities	Gender		Target (80%)	Actual response		Total	%	
	M	F		M	F			
Nairobi	90	76	166	133	62	54	116	69.88
Moi	77	90	167	134	74	61	135	80.84
Kenyatta	126	120	246	197	78	59	137	55.69
Total	293	286	579	464	214	174	388	67.01

Table 2: Student Enrolment, Target Size and Actual Respondents

A total of 67.29% of the students participated. In all cases, purposive and stratified sampling techniques were used. Under stratified technique, the study ensured that all the departments offering doctoral study programmes in Education at the three universities were represented. Under purposive sampling technique, the study targeted, among others, doctoral candidates who experienced prolonged time-to-degree (10 years or more) and those who had timely completion (five years or less of studies). With respect to HoDs, only those who had been in that position for at least two years were involved.

2.4. Research Instruments

Questionnaires and interview guides were used. Questionnaires were used to collect data needed from doctoral students and lecturers. Heads of departments were interviewed. The lecturers interviewed were those who earned the degree within five years from the time they were registered for the programme. This category of respondents was identified from document analysis. Most of the students interviewed were those who had been in the programme for more than eight years and had not earned the degree.

Doctoral enrolment and completion records were analysed in order to study completion rate- line-trends and time-to-degree. The documents analysed were mainly policy documents, staff establishment records, student enrolment statistics and graduation booklets. The aim was to establish policies and regulations guiding practices in the institutions. Document analysis also provided the teaching staff establishment and the total number of students enrolled for different study programmes in the schools of education at the three universities. This was used to compute: (a) the overall lecturer/ student ratio and (b) doctoral student completion- line-trends. The documents were obtained from HoDs, schools of postgraduate studies, the examination offices, official websites, admission offices and the universities' central ICT centres. The information derived from these offices and documents were student enrolment statistics, staff establishment, graduation statistics and policies guiding practices at each of the universities.

2.5. Data Analysis Techniques

Data from closed-ended questions was coded and organized into themes based on the research variables investigated. It was coded and analysed using Statistical Package for Social Science (SPSS). Data from open-ended questions and interview were reduced, coded and tallied based on their similarities and integrated with data from closed-ended questions as suggested by Miles and Huberman (1994). The analysed results were presented using descriptive statistics such as pie charts, ratios, tables as well as percentages.

3. Results and Discussion

3.1. Teaching/Learning Resource and Doctoral Studies Completion Rates

The influence of teaching/learning resources was explored to determine the extent to which T/L resources influence completion of doctoral studies in education. Five items were presented to HoDs, lecturers and doctoral students to comment on. Respondents were asked to rate statements that sort to determine the influence of teaching/learning on doctoral studies completion rates in education at public universities in Kenya-based on a Likert scale where 1=SD, 2=D, 3=U, 4=A and 5= SA. Like in the preceding objectives, the responses for lecturers and that of students are presented in two separate tables. However, the two are analysed as one whole. From the responses for every statement, the mean score for every statement is presented in the last column in Table 3.

	KU			MOI			UoN			Mean
	N	Mean	Std Dev	N	Mean	Std Dev	N	Mean	Std Dev	
There is inadequate relevant functioning ICT equipment to support research work	58	4.26	1.09	34	4.29	.72	23	4.30	.77	4.28
There is need to use flexible mode of study, e.g. online teaching/learning programmes to improve communication with students	58	4.00	1.08	34	4.29	.71	23	4.30	.77	4.19
Most candidates fail to utilize resources available for their studies	58	3.21	1.24	34	3.68	1.22	23	4.04	1.15	3.64
Library resources that support doctoral programmes including, e.g. journals and books are adequately available	58	4.14	.95	34	3.97	1.11	23	4.09	1.08	4.06
There are inadequate facilities like and workshops to facilitate doctoral research work	58	3.00	1.39	34	3.65	1.2	23	3.57	1.16	3.40
Valid N (list-wise)	58			34			23			3.95

Table 3: Teaching/Learning Resources and Doctoral Studies Completion Rates (Lecturers' Responses)

Tables 3 provides a summary of lecturers' responses to research questions on Teaching/Learning resources influencing doctoral completion rates at public universities in Kenya. Concerning availability of ICT connectivity in their respective faculties, most lecturers noted that ICT was already in place in most institutions including their campuses. However, connectivity is still low and require improvement. On library resources, lecturers noted that most libraries in the public universities could be lacking adequate T/L resources necessary for doctoral studies. Other challenges noted by lecturers included lack of adequate work space (offices) for lecturers and reading space in the library purposely for students. However, in most main campuses, the issue of reading space was not a challenge. Responses from students were summarized and provided in Table 4 below.

	KU			MOI			UoN			Mean
	N	Mean	Std Dev	N	Mean	Std Dev	N	Mean	Std Dev	
There is inadequate relevant functioning ICT equipment to support research work		4.26	1.086		3.75	1.295		3.90	1.03	3.97
There is need to use flexible mode of study, e.g. online teaching/learning programmes to improve communication with students		3.81	1.059		3.75	1.295		3.90	1.03	3.82
Most candidates fail to utilize resources available for their studies		4.53	.674		3.85	1.184		4.02	1.08	4.13
Library resources that support doctoral programmes, including e.g. journals and books are adequately available		4.03	.791		3.96	.916		3.81	.91	3.93
There are inadequate facilities like and workshops to facilitate doctoral research work		3.23	1.113		3.64	1.198		3.79	1.13	3.55
Valid N (list-wise)	148			144			125			3.88

Table 4: Teaching/Learning Resources and Doctoral Studies Completion Rates (Students' Responses)

Table 4 provides a summary of students' responses to research questions on teaching/learning resources influencing doctoral completion rates at public universities in Kenya. Most students noted that libraries at most public universities lack adequate relevant reading materials to support doctoral studies. On the issue of ICT, students noted that the facility is still at low level of development- especially in use at the libraries. About effective utilization of T/L materials, majority noted that they hardly get time for library studies at campuses. Detailed analysis of both the lecturers' responses and students' responses are presented in the next paragraphs. The null hypothesis (teaching/learning resources do not influence doctoral completion rates) was tested to determine whether or not resources had a significant influence on doctoral completion rates. The results were provided in Table 5 below.

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std Error	Beta	t	Sig
1 Constant	2.569	.349		7.366	.000
Supervision factors	-1.024	.214	-.256	-4.779	.000
a. Dependent Variable: Completion rate					

Table 5: Regression Coefficient for T/L Resources

Table 5 interprets the standardized regression coefficients (Beta). From the results, it was established that T/L related factors had a significant contribution to doctoral completion rates ($p = 0.005$) at 0.05 level of accepting or rejecting the hypothesis. The hypothesis was therefore rejected. These results imply that there are a number of factors related to T/L that influence significantly completion rates and time-to-degree at the doctoral level.

In order to unlock these factors, responses from all the research instruments (questionnaire, interview guide and document analysis guide) were analysed and discussed. The first item required respondents to commend on the availability of ICT connectivity in their respective faculties. Both lecturers and students agreed ($m=4.28$) and ($m=3.97$) lecturers and students respectively. This implies that most libraries in the public universities could be lacking adequate T/L resources necessary for doctoral studies. This is contrary to progress in developed countries. For example, in a report associated with students' satisfaction, completion and attrition at the University of south Australia by Di Bills, students were reasonably satisfied with their access to computing facilities and work space. The full-time students were actually more satisfied with access to research equipment than their part time counter parts.

The next item required the respondents to rate mode of study in teaching and learning. In their responds, both lecturers and students agreed ($m=4.19$) and ($m=3.82$) lecturers and students, respectively. The respondents were asked to commend on students' utilization of available T/L resources. Both lecturers and students agreed ($m=3.64$) and ($m=4.13$) lecturers and students respectively. The last item under T/L resources required respondents to commend on availability of structural facilities that can support doctoral studies. Such facilities include lecture room, consultation rooms furniture and other relevant materials to facilitate doctoral studies. Their responses indicate that lecturers agreed ($m=3.40$) similarly to students ($m=3.55$). In average, supervisors and supervisees at public universities in Kenya agreed ($m=3.45$) that they hardly have structural facilities that can adequately support doctoral studies.

During interview sessions, some of the lecturers noted that they do not have offices and therefore, it is difficult to meet their supervisees or even have a good place to sit and work at their workplace. Some students interviewed noted that some supervisors required them to meet in hotels, which makes it camper some for many. Open-ended questions based on the research objectives were also presented to the students and lecturers. The first question asked: "If you were to choose between human (HR) development and infrastructure development (ID), which one would you choose?" To this item, 79.76% of the responses preferred human resource development. At least 15.45% of them opted for infrastructure while 4.76% noted that they see both (human resource and infrastructure) as equally important.

The second question asked them to provide reasons for their choices. The availability of library resources like textbooks, prescribed journals and internet connectivity was also inquired. Both lecturers and students agreed ($m=4.06$) and ($m=3.93$) lecturers and students respectively. The response depicts a picture about public universities' libraries as lacking adequate relevant resources for doctoral studies. Inadequate internet connectivity was strongly noted as one of the factors limiting student access to T/L resources such as prescribed journals among other publications. The interpretation here was that libraries in the public universities are not well equipped with reading materials for graduate

On the issue of ICT, it is interesting to note that if ICT connectivity is still not adequate as respondents noted and at the same time hard copy library resources are not effectively utilized, then what sources of information do students rely upon for their studies? What does such scenario say about the quality of grandaunts awarded degrees every year from Kenyan universities? Some of the students observed that due to factors like family and job responsibilities, they have no adequate time for library studies. This implies that even if libraries were to be equipped heavily, it is like most doctoral students will not maximize the use of the same.

The status of libraries at public universities in Kenya seemed contrary to the status of university libraries in developed nations as noted by a number of respondents. For instance, a lecturer interviewed had this to say: "On-line connectivity to libraries is a new development that might not be possible to avoid. Universities have to invest adequately in ICT and internet connectivity to enable students to access a variety of reading materials" (Personal Communication, Lecturer, 2014).

This comment is in line with the report of Sarkar (2012), that the use of ICT in academic research is not only limited to accessing information but provide opportunities for analysing/processing huge amounts of data and performing complex computations in a manner that is extremely faster, accurate and reliable. The report also noted that the use of on-line full text database and libraries provide researchers with online access to the content of thousands of books from major publishing houses, research reports and peer-

review articles in electronic journals. Given the faster growing preference for on-line access to information and use of ICT technology in computations and management of information, universities have no better option but to invest in ICT and internet connectivity. Due to the fast-changing modes of communication, books and any other library resource or information can be accessed irrespective of once geographical location. However, if the challenge is books, then the same should be imported because there are very few authors who have articulated on the local context. At the same time, local professors should publish widely to give students good literature to review.

Lack of adequate space, especially for those who rely on library textbooks, was identified as an issue in some institutions. The spaces available cannot accommodate the population of students in need of the space. This implies the libraries might be old because they were constructed when the student population was still low. Some lecturers noted that they do not have offices and therefore it is difficult to meet their supervisee or even have a place to sit and work at their places of work. This could be a challenge in some institutions especially in campuses and colleges suited far away from the main campus. Some students interviewed noted that some supervisors required them to meet in hotels, which makes it camper some for many. The issue of lack space may not be noticed in the main campuses and well-established university colleges.

Lecturers were asked: "If you were to choose between developing the institutional infrastructure and investing in human resource, which one would you choose?" From the responses, 79.76% were in support for human resource, 15.45% in support of infrastructure. These views underscore the need for human capital in the public universities. Indeed, human resource development reduces student per capita. Quality research and therefore highly educated grandaunts depends more on HR than good infrastructure. All the other developments are dependent more on HR and it enhances student/lecturer contact and thus timely completion. HR development determines the outcome of an institution in terms of nurturing and motivating of students. ICT facilities are prerequisite for HR development as well as the for flow of students from one level to another. ICT improve efficiently in supervision process.

Most HoDs and lecturers noted that development of ICT is progressing slowly in most universities partly due cost related factors. They argued that finding and retaining technical staff is like could be a challenge because of the related cost. This argument cannot be taken for granted because over and above the substantial costs of obtaining, installing, and trouble- shooting departmental and campus networks, hardware, and software, the difficulties and costs of training and retaining essential technical support staff are already huge costs and keep growing very rapidly. A wide range of technical staff are absolutely essential for maintaining the equipment and systems, for training faculty, staff, and students, for dealing with constantly needed upgrading, and for evaluating new programs and possibilities.

Unfortunately, people with such kind of skills are on high demand and so they find jobs offering better pay quite easily. Attracting and retaining them becomes another challenge altogether. Developed countries like American and Britain have reached higher levels of ICT development in most of their sectors –both public and private. Their institutions of higher learning use highly developed ICT facilities with sufficient network connectivity. It should be known however that such progress is as a result of many decades of heavily investing in ICT. Just like in most African countries, ICT is a recent development in Kenya and so to the institutions of higher learning. It might take some few decades before ICT and the Internet are widely and inexpensively accessible and broadly useful for doctoral research purposes in universities in African countries.

4. Conclusion and Recommendations

Lack of adequate relevant reading materials to support the dissertation or thesis writing process and low ICT connectivity lead to low completion rates and prolonged time to degree. The Commission for University Education should ensure that universities adhere to the Commission's guideline on ratio of students to a lecturer. The number of supervisors should be commensurate to the number of students-in line with CUE recommendations. A comparison of the CUE recommendations and the staffing situation on the ground show that there is a need to increase the number of the lecturers by approximately 100%. Doubling the current number of lecturers would reduce the current supervisor/supervisee ratio to 1:16.5 from approximately 1:17, which is within acceptable level as per the CUE recommendations. This will go a long way in promoting quality education. Doctoral students should equally be encouraged to be persistent and strive to complete their studies within the time limit stipulated by the university. Most universities give a minimum of three years and a maximum of five years.

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