

Extended Candidature And Non-Completion Of A Ph.D. At Makerere University, Uganda

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ABSTRACT

Although student persistence in graduate programs is widely regarded as an important topic in the literature of higher education, many such works focus on the completion of studies. This paper examines the dynamics of attrition resulting in either delayed or non-completion of doctoral studies. Administrative data of 294 Ph.D. students at Makerere University in the 2000 to 2005 enrollment cohorts were analyzed. The total elapsed time from first enrollment to submission of a final dissertation or thesis copy was taken as a measure of completion time. A multinomial logistic was applied for assessing the likelihood of completion and extended candidature, rather than withdrawal, five years after initial enrollment in doctoral studies. In the results, the estimates rates of extended candidature (48.6%) and withdrawal (36.4%) indicate a low timely completion rate of doctoral students at Makerere. The observed associations, modeled by a range of candidate, candidature, and institutional variables, including discipline area, suggest the need for establishing measures to promote progress in doctoral studies at early stages of commencement as well as throughout the course of candidature.

Keywords: Completion Rates of Doctoral Studies; Graduate Studies at Makerere University, Uganda

INTRODUCTION

While web-metrics rankings and enrollment figures remain useful indicators in evaluating the performance of academic universities, issues related to completion and attrition in graduate studies are increasingly becoming important in describing the quality of educational services. Attrition and completion rates are not only important in attracting students to highly competitive tertiary institutions (e.g., Willging & Johnson, 2004; Vladimir, 2010), but also useful in assessing the next generation of academics (Tetty, 2008). In affirming the importance of completion statistics, Tetty (2008) underscores the need to focus not on enrollment figures, but on the proportion of graduate enrollees who complete their studies as a more crucial determinant of the potential pool of future academics. In light of the late age at which students begin their doctoral studies in numerous African academic institutions (e.g., Wamala, Oonyu & Ocaya, 2011), the proportion of graduate enrollees who complete their studies in a timely fashion would certainly be a better potential pool of future academics.

In an extensive review of reports on attrition statistics, Bourke, Holbrook, and Lovat (2004) mention rates that vary from lows of 10–20% to as high as 85%. Yet, regardless of the precise value, it is doubtful that students, universities, and governments alike would find these rates acceptable. In any case, attrition estimates are subject to a varying number of characteristics including, but not limited to, student characteristics (Tinto, 1993; Wright & Cochrane, 2000; Siegel, 2005; Vladimir, 2010), discipline area (Wright & Cochrane, 2000; Martin, Maclachlan & Karel, 2001; Elgar, 2003; Mugimu, Nakabugo & Katunguka, 2009), research facilities, and resources (Tinto, 1993; St. John et al., 2000), as well as supervision and scholarly environment (Ginns, 2004; Neumann, 2003; Harman, 2003; Leonid & Mahsood, 2007). In their study of completion time dynamics of doctoral studies at Makerere University, Wamala, Oonyu, and Ocaya (2011) indicate low completion rates. The overall completion rate reported for doctoral studies (30.1%), out of a total enrollment of 295 doctoral students admitted and registered across faculties and institutes at Makerere in the commencement cohorts for the period of 2000 to 2005, indicates either

high attrition or extended candidatures. These findings corroborate recent research that has suggested high levels of attrition among graduate students at Makerere University (Mugimu et al., 2009; Sanders, Guwatudde & Alexander, 2008; Wamala et al., 2011). However, no documented evidence has yet been presented regarding the extent of the problem. In other words, the dynamics of attrition and extended candidature by potential predictors comprising—but not limited to—candidate, candidature, and institutional variables, including discipline area, remain unexplored.

Extended candidature in graduate studies is worth mentioning: Although it may lead to completion, it can also affect the resources available per student and often postpones the delicate process of transition from full-time education to the labor market, thereby reducing labor supply and tax revenues (Hakkinen & Uusitalo, 2002). At Makerere University in particular, the financial implications of extending doctoral candidature beyond the stipulated three-year period represents a considerable waste of resources. Thus, it is not surprising that graduate students in many African countries, including Uganda, often opt to enroll in international institutions, where they are assured timely completion of courses. In the effort to ensure timely completion of doctoral studies at Makerere, the University Human Resource Manual stipulates a maximum permissible period of five years for academic training (Makerere University, 2009, p. 53). Although the stipulation ideally targets staff at the university, it would be interesting to know how the duration generally relates to doctoral studies at the University. Therefore, this paper aims to investigate the dynamics of attrition resulting in delayed and non-completion of doctoral studies at Makerere University based on the five-year period.

DATA AND METHOD

The status of students' doctoral studies five years after their initial enrollment was classified into one of three possible categories on the basis of data extracted from the Graduate School records: 1) Completed: Evidenced by submission of a final thesis or dissertation copy, after a VIVA or public defense; 2) Still enrolled: Evidenced by recent proof of progress on doctoral studies; and, 3) Withdrawn: Evidenced by no recent proof of a load on doctoral candidature for two or more consecutive years; however, there is no guarantee that some of these students will not resume their studies despite the extended candidature.

Administrative data were collected for all 294 doctoral students admitted and registered across academic units at Makerere University for the time period 2000 to 2005 and their status was evaluated by November 2010. The likelihood of completion and extended candidature five years after initial enrollment in doctoral studies were evaluated using a Multinomial Logistic Regression (MNR) with "Withdrawal" as the base category. In light of the fact that "Completed" would be the most desirable status of a doctoral candidate, the ordering for the set of items does not assume a single meaningful pattern; thus, the outcome variable was considered to be nominal.

RESULTS

The doctoral enrollees examined in this study were full-time students at Makerere and can be characterized in the following manner. They were predominantly Ugandan by nationality (94.2%), registered in thesis-based studies (81.4%), male (76.6%), married (90.9%), and solely studies at Makerere University origin for their Bachelor's and/or Master's Degrees (63.9%). The median age at commencement of doctoral studies was 37 years (range: 24–61). Further, slightly over five in every eight students (63%) were in the 2003 to 2005 enrollment cohorts.

Five-year Doctoral Enrollment Status

Table 1 presents a descriptive summary of doctoral enrollment status by enrollment cohort. As stated earlier, the status was evaluated according to the three categories of doctoral candidature.

Table 1: Five-year Enrollment Status of Doctoral Studies by Enrollment Cohort

Enrollment Cohort	N ^a	Enrollment Status (%)		
		Completed	Enrolled	Withdrawn
2000	31	9.7	48.4	41.9
2001	43	20.9	60.5	18.6
2002	34	23.5	38.2	38.2
2003	79	13.9	48.2	37.9
2004	43	13.9	48.8	37.2
2005 ^b	64	10.9	46.9	42.2
Total	294	15.0	48.6	36.4

Fisher's Exact Sig. = 0.376

^a Number of doctoral students enrolled^b Enrollment status evaluation for this year was somewhat incomplete

In the results presented in Table 1, a total of 44 (15.0%; 95% CI 10.9–19.1) out of 294 doctoral students admitted and registered across disciplines at Makerere in the period 2000 to 2005 were confirmed to have successfully completed their studies within 5 years. This indicates a low timely completion rate of the university's doctoral students. On the other hand, the estimated withdrawal rate among doctoral students was 36.4% (95% CI 30.9–41.9); this statistic represents doctoral students who were not studying at the time of this study, as evidenced by no proof of recent load on their doctoral candidature for two or more consecutive years. No significant five-year status differentials by enrollment cohort on doctoral studies were observed ($p > 0.05$).

Likelihood of Completion and Extended Candidature of Doctoral Studies

The likelihood of completion and extended candidature of doctoral studies five years after initial enrollment was evaluated adopting an MNR with “Withdrawal” as the base category. The potential predictors, represented by three major groups, comprised the following: 1) Candidate characteristics; 2) Candidature characteristics; and, 3) Institutional factors including discipline area or broad field of study. The analysis did not explore the possibilities of factor interactions due to limitations of the sample size.

Regression Diagnostics

The following regression diagnostics were performed: **1)** With regard to the sample size requirement for an MLR,¹ the model of doctoral studies in general (31.5 to 1) and that of thesis-based studies (28.8 to 1) satisfied the minimum and preferred ratio requirements (Hosmer & Lemeshow, 2000); **2)** results for the goodness-of-fit test, based on the Pearson and deviance statistics, support the hypothesis for good fit of both models ($p > 0.05$); **3)** concerning the assessment of utility for the model of doctoral studies in general (54.9% vs. 48.8%) and that of thesis-based studies (55.0% vs. 48.1%), the results satisfy classification accuracy criteria—classification accuracy rate is greater or equal to the proportion by chance accuracy criteria (25% more than); and, **4)** outliers and/or influential points were examined using standardized residuals (greater than 3.0) and Cook's distance (greater than 1.0) following the binary logistic procedure. In the results, the improvement in classification accuracy of both models was less than the 2% increase suggested by Hosmer and Lemeshow (2000), thereby implying the need to report the model(s) comprising all the cases. Tables 2 and 3 present results of likelihood estimates of completion and extended candidature of doctoral studies five years after initial enrollment following an MLR, with “Withdrawal” as the base category.

¹ Hosmer and Lemeshow (2000) specify the minimum and preferred ratio requirements for the number of valid cases to the number of independent variables in a Multinomial Logistic Regression to be 10 to 1 and 20 to 1, respectively.

Table 2: Likelihood Estimates of Completion and Extended Candidature of Overall Doctoral Studies

Explanatory Variables	Completed ^a				Enrolled ^b			
	β	Std. Err ^c	RR ^d	P	β	Std. Err	RR	p
Age								
Over 40	0.00	.	1.00	.	0.00	.	1.00	.
30–40	1.35	0.55	3.88	0.003	0.154	0.29	1.16	0.604
Under 30	2.02	0.67	7.60	0.015	-0.017	0.48	0.98	0.970
Marital status								
Single	0.00	.	1.00	.	0.00	.	1.00	.
Married	-0.55	0.69	0.60	0.466	-0.20	0.49	0.81	0.683
Doctoral registration								
Thesis-based	0.00	.	1.00	.	0.00	.	1.00	.
Coursework and research	-0.40	0.63	0.66	0.531	0.05	0.35	1.05	0.876
Citizenship								
Ugandan	0.00	.	1.00	.	0.00	.	1.00	.
Non-Ugandan	1.48	0.75	4.41	0.048	-0.30	0.66	0.74	0.653
Year of enrollment								
2000-2002	0.00	.	1.00	.	0.00	.	1.00	.
2003-2005	-0.75	0.42	0.51	0.078	-0.33	0.30	0.81	0.283
Sex								
Male	0.00	.	1.00	.	0.00	.	1.00	.
Female	-0.24	0.49	0.79	0.617	0.18	0.32	1.25	0.573
Prior schooling								
Makerere University	0.00	.	1.00	.	0.00	.	1.00	.
International University	-0.20	0.46	0.78	0.663	-0.01	0.31	0.93	0.953
Financial assistantship								
Privately sponsored	0.00	.	1.00	.	0.00	.	1.00	.
Scholarship held	0.87	0.53	2.40	0.100	1.21	0.39	3.36	0.002
Discipline area								
Sciences	0.00	.	1.00	.	0.00	.	1.00	.
Arts	-1.03	0.44	0.35	0.020	-0.62	0.28	0.53	0.036
Cons.	-0.82	0.96	.	0.394	0.65	0.65	.	0.319

Note. Base category is "Withdrawal."

^a Completed = Likelihood of Completion rather than withdrawal, five years after initial enrollment in doctoral studies

^b Enrolled = Likelihood of Extended candidature rather than withdrawal, five years after initial enrollment in doctoral studies

^c Std. Err = Standard Error of Beta Coefficients

^d RR = Relative Risk

Table 3: Likelihood Estimates of Completion and Extended Candidature of Thesis-based Doctoral Studies

Explanatory Variables	Completed ^a				Enrolled ^b			
	β	Std. Err ^c	RR ^d	p	β	Std. Err	RR	p
Age								
Over 40	0.00	.	1.00	.	0.00	.	1.00	.
31-40	1.71	0.69	5.54	0.013	0.01	1.00	0.22	0.994
30 and under	2.35	0.79	10.54	0.003	-0.26	0.76	0.65	0.611
Marital status								
Single	0.00	.	1.00	.	0.00	.	1.00	.
Married	-0.86	0.76	0.41	0.253	-0.28	0.61	0.75	0.641
Citizenship								
International	0.00	.	1.00	.	0.00	.	1.00	.
Ugandan	1.69	0.81	5.46	0.037	-0.44	0.80	0.64	0.582
Year of enrollment								
2000-2002	0.00	.	1.00	.	0.00	.	1.00	.
2003-2005	-0.697	0.44	0.49	0.113	-0.31	0.31	0.73	0.327
Sex								
Male	0.00	.	1.00	.	0.00	.	1.00	.
Female	-0.19	0.536	0.82	0.714	0.09	0.38	1.09	0.812
Prior studies								
Makerere University	0.00	.	1.00	.	0.00	.	1.00	.
International University	-0.32	0.508	0.72	0.519	-0.35	0.35	0.70	0.318
Financial assistantship								
No assistance	0.00	.	1.00	.	0.00	.	1.00	.
Assistance held	0.98	0.57	2.67	0.085	1.28	0.43	3.62	0.003
Discipline area								
Sciences	0.00	.	1.00	.	0.00	.	1.00	.
Arts	-1.27	0.50	0.27	0.011	-0.71	0.33	0.48	0.031
Cons.	-0.78	1.09	.	0.472	1.01	0.77	.	0.195

Note. Base category is "Withdrawal."

^a Completed = Likelihood of Completion rather than withdrawal, five years after initial enrollment in doctoral studies

^b Enrolled = Likelihood of Extended candidature rather than withdrawal, five years after initial enrollment in doctoral studies

^c Std. Err = Standard Error of Beta Coefficients

^d RR = Relative Risk

SUMMARY OF THE FINDINGS

In the analysis of overall doctoral studies, presented in Table 2, significant associations with the likelihood of completion rather than withdrawal were observed for the variables of age at commencement of studies, discipline area, and nationality ($p < 0.05$). The following is a summary of the results.

- Candidates under 30 years of age at the commencement of their doctoral studies (RR = 7.6) and those in the age group 31–40 years (RR = 3.8) were more likely to complete rather than withdraw when compared to those over 40 years of age.
- Doctoral candidates registered in the Arts discipline had a 65% reduced rate of completion compared to those in the Sciences (RR = 0.35).
- International doctoral candidates were more likely to complete their studies rather than withdraw compared to their native counterparts (RR = 4.4).

Further, significant associations with the likelihood of extended candidature rather than withdrawal were observed for the variables of financial assistance and discipline area ($p < 0.05$). The following is a summary of these results.

- Doctoral students with financial assistance for tuition, living, and/or research allowances were more likely to have extended candidatures rather than withdraw compared to their counterparts without such assistance (RR = 3.3).
- Doctoral students registered in the Arts discipline had a 47% reduced rate of extended candidature rather than withdrawal compared to candidates in the Sciences (RR = 0.53).

In a model of thesis-based studies, presented in Table 3, significant association with the likelihood of completion rather than withdrawal were observed for the variables of age at commencement, discipline area, and nationality ($p < 0.05$). The following is a summary of these results.

- Thesis-based students aged 30 years or younger at the commencement of their doctoral studies (RR = 10.5) and those in the age group 31–40 years (RR = 5.5) were more likely to complete rather than withdraw as compared to students over 40 years of age.
- Thesis-based students enrolled in the Arts discipline had a 73% reduced rate of completion rather than withdrawal compared to their counterparts in the Sciences (RR = 0.27).
- International thesis-based students were more likely to complete their doctoral studies rather than withdraw compared to Ugandan natives (RR = 5.4).

Further, significant associations with the likelihood of extended candidature beyond five years, rather than withdrawal, were observed for the variables of financial assistantship and discipline area ($p < 0.05$). The following is a summary of these results.

- Thesis-based doctoral students with financial assistance for tuition, living and/or research allowances were more likely to have extended candidatures rather than withdraw as compared to those without such assistance (RR = 3.6).
- Thesis-based students in the Arts discipline had a 52% reduced rate of extended candidature, rather than withdrawal, as compared to candidates in the Sciences (RR = 0.48).

However, the likelihood of completion and extended candidature did not vary significantly by sex, type of registration (thesis-based vs. coursework and research), prior schooling, marital status and enrollment cohort.

DISCUSSIONS AND CONCLUSION

The five-year course completion rate of doctoral students at Makerere (15%: 95% CI 10.9–19.1) is low. Noticeably, the figure is significantly higher than the 10% average six-year rate of doctoral completion reported among 15 of the 22 member universities of the Partnership for Higher Education in Africa (Tetty, 2010). The

Partnership comprises universities in seven countries, namely, Ghana, Kenya, Uganda, Tanzania, Mozambique, Nigeria, and South Africa. The results of this study demonstrate a higher completion rate of studies at Makerere, although the university was positioned lower than South African institutions in the July 2011 web-metrics ranking of world universities (CSIC, 2011). Nevertheless, the low course completion rates of students at African universities suggest a great disconnect between intake and output. Makerere's estimated 15% five-year completion rate of doctoral studies does not compare favorably with doctoral completion rates at international universities in the US, UK, Canada, and Australia, as presented in the literature. For example, Bourke et al. (2004) report a 51% four-year and 70% six-year completion rate at one Australian university, while Vladimir (2010) reports a 50% four-year completion rate at the University of Adelaide, Australia; in Canada, Elgar (2003) reports 45% and 70% rates in the Arts and Science disciplines, respectively; in the US, a report by the Council of Graduate Schools (2008) reports 23% five-year and 36% six-year doctoral completion rates using quantitative data submitted by 30 American institutions.

The estimated rate of attrition among doctoral students at Makerere (36.4%: 95% CI 30.9–41.9) compares favorably with rates presented in the literature for selected African and international universities. For example, Tetty (2008) reports a 35% rate in the Faculty of Health Science, University of KwaZulu-Natal; Vladimir (2010) reports a 33% rate at the University of Adelaide, Australia; Robert (2008) reports a 31% attrition rate based on quantitative data submitted by 30 American institutions. Nevertheless, it is evident that the highest proportion of doctoral students at Makerere had extended candidatures beyond five years after initial enrollment (48.6%). Although it points to delayed course completion among approximately half of the doctoral students at the university, the extended candidature is certainly a better status than withdrawal. In the results, extended candidature rather than withdrawal was more likely among candidates in the Sciences and those with financial assistantships ($p < 0.05$). To this end, recent research by Mugimu et al. (2009) suggesting a greater backlog of graduate students in the Arts discipline of Makerere, according to the student perspective, was supported.

In view of the fact that the likelihood of completion was noted to be significantly higher among candidates who were younger when they began their doctoral studies, international students, and those enrolled in the Sciences disciplines, efforts toward enhancing doctoral completion must critically assess the contextual issues surrounding these special groups of timely graduates. With regard to discipline differentials at Makerere, Mugimu et al. (2009) argue that high enrollments in the Arts discipline create a heavy teaching, administrative, and supervisory workload, which becomes counterproductive; thus, isolation of the students and staff in the Arts discipline becomes unavoidable. Indeed, recent research aimed at increasing the completion rates of higher degree programs has highlighted an interactive research culture as an important driving force (e.g., Tillman, 2002; Golde, 2005; Mendoza, 2007; Mugimu et al., 2009). The consensus is that establishing activities that promote student interaction with peers at the university is vital to establishing a high completion rate among graduate students.

Numerous studies have cited financial assistance as an important factor in enhancing the completion rates for higher degree programs (e.g., Ismail & Abiddin, 2009; Bourke et al., 2004; Mugimu et al., 2009; St. John, 2000; Tinto, 1993; Valentine, 1997). However, recent literature on studies at Makerere did not find that financial assistance for tuition fees, research, and/or living allowance enabled timely completion (Wamala et al, 2011; Wamala & Oonyu, 2012). In contrast, this study shows that financially aided students were more likely to remain enrolled beyond five years. Even though students with financial assistance are often recruited with more impressive grades, recent research at Makerere has identified entry qualifications as a predictor of performance rather than as an enabling factor for timely completion of the degree (Wamala & Oonyu, 2012). Thus, research by Bourke et al. (2004), which did not find entry qualification to be a significant predictor of timely completion, is supported. Notably, Makerere doctoral students begin their studies at later ages (median: 37 years) in comparison to their counterparts at international universities that report timely completion of doctoral studies (For example, Bourke et al. (2006) quotes the 2003 national average age of beginning doctoral studies in Australian universities as 34 years). Such adult learners are undoubtedly faced with family and work commitments (Ely, 1997; Mugimu et al., 2009). Thus, they often work part-time or even full-time to meet their family and personal expenses; this reduces their contact with faculty. If indeed "faculty student contact is an important factor in student achievement, persistence, academic skill development, personal development and general satisfaction with college" (Kramer & Spencer, 1989), then efforts towards achieving a timely completion of doctoral studies at Makerere should not overlook the need to establish measures for enhancing student interactions with peers and faculty.

Lovitts (2000) indicated the academic unpreparedness of adult learners; a majority of students at Makerere University fall in this category (median age at commencement of doctoral studies: 37; age range: 24–61), although it should be noted that the practical working experience of such learners gained over the years would give them an advantage over the younger ones. Even so, it is no wonder that the timely graduates (i.e., those who finished within five years) in the study were candidates who were younger when they began their doctoral studies. Thus, the need to offer solid remedial programs to address the academic unpreparedness of new students, particularly those in thesis-based programs, must not be overlooked.

Overall, the results of this study suggest that student persistence in doctoral studies is influenced by factors during enrollment as well as those present during the course of doctoral candidature. To this end, efforts aimed at encouraging the completion of doctoral studies at Makerere should be modified to deal with factors that hinder doctoral success at various stages of doctoral candidature.

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