POOR COMPLETION RATES OF GRADUATE PROGRAMMES: A REVIEW OF SELECTED LITERATURE

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Abstract
Despite the growing concern for universities across the globe to perform well in increasing graduate output to participate and function more effectively in the knowledge economy, literature worldwide points to the prevalence of both low graduate output and delayed graduate programme completion. The factors influencing completion are varied, however, the purpose of the paper is to review selected literature on demographic and institutional factors affecting graduate programme completion in universities. The factors include race-ethnicity, finances, study mode, gender, first-generation, and supervisory model, mindset, context, and experience. The article focuses on both quantitative and qualitative studies on completion of the Masters and Doctoral level studies. It covers research questions under investigation, the theoretical and conceptual frameworks used, the methodology used, graduate programmes included, participant inclusivity, the studies' findings and recommendations. The article critiques the studies with the view to identify the limitations in the studies.

Keywords: graduate programmes, completion, literature, university, graduate output

1.0 Introduction

There is a growing concern for universities across the globe to perform well by increasing graduate output who are expected to participate and function more effectively in the knowledge economy. However, literature worldwide points to the prevalence of both low graduate output and delayed graduate programme completion. Factors influencing graduate programme completion in the different studies vary depending on the research aims, objectives, design, approach and context of the studies.

The purpose and focus of this paper is to review selected literature on demographic and institutional factors affecting graduate programme completion in universities and other tertiary education providers. The demographic factors include but are not limited to race-ethnicity, finances, study mode, gender, first-generation; and the institutional factors include but are not limited to supervisory model, mindset, context, and experience. The paper focuses on quantitative and qualitative studies on completion of the Master and Doctoral level studies. The paper covers and makes comparisons of various research studies on the research questions under investigation, the research methodology used, the theoretical and conceptual frameworks used, the form of data needed, data location and type of analysis (statistical and/or qualitative analysis), the graduate programmes included, participant inclusivity, the studies'

findings and recommendations. The article further critiques the studies with the view to identify the limitations in the studies if any.

2.0 Quantitative and qualitative studies

Studies on completion of graduate programs appear to be limited compared to those on access and equity, perhaps due to the late/not so early recognition of the important of access to higher education which led to the drive to increase access to that level of education, resulting in massive expansion but not paying sufficient attention to quality as the resources were overly stretched (Albrecht & Ziderman, 1991).

The expansion in the provision of tertiary education is noted within the era of the World Conferences on Higher Education of 1998 and 2009, which began the shift in position of the World Bank. The World Bank had denounced recognition of education as an investment in the 1940s to 1950s. It was not until the conferences that the World Bank's position shifted to an acceptance of "education as productive investment in human capital" in the 1980s to 1990s as emphasised by Tafa (2003, p. 64; UNESCO, 1999, 2009)).

A research study considered to be the "largest survey of doctoral students ever conducted" because of its sample size of over nine thousand doctoral students in twenty-one universities across different faculties, was conducted in the United States of America. It explored the students' experiences and factors influencing the completion of doctoral level studies (Nettles & Millett, 2006). The findings revealed that some of the demographic factors which were negatively influencing their "time to completion" were race-ethnicity, financial needs and part-time status. The study is important because of its large and varied sample of doctoral students and its rigour in the use of statistical data analysis, allowing the research findings to be generalisable.

A related survey by the Department of Education and Youth Affairs of Australia showed that "many full-time research students funded by the Research Councils failed to graduate in the expected and funded time period" (Moses, 1985, p. 2) in both Australia and Britain. The study findings showed that for a cohort of students who started studies between 1974 and 1976, 32% of the PhDs were (either) still studying by 1981-1982 and/or awaiting results, while 17% had dropped out from the studies. In addition, the study reported that 37% withdrawal of the research Masters students (Moses, 1985).

The problem of not completing within the stipulated and funded time in the PhD programmes was more notable with full-time students, as "part-time students take only 25 per cent longer than full-time students … dropout rates vary between 29 and 48 per cent ... research Master students may take as long as PhD students" (Moses, 1985, p. 3).In September 2000, the Australian Research Training Scheme redefined the provision of higher education by tying institutional performance to funding and thus compelling the institutions to perform (Green & Bowden, 2012). The completion of

doctorates was set at 'a maximum of four years or equivalent' and despite changes in measures for university performances, this has remained so (Green & Bowden, 2012).

Green and Bowden (2012) followed the qualitative approach, interviewing 25 doctoral candidates and 25 supervisors. Acknowledging the centrality of supervision in doctoral progress and timeliness of completion the study's two central questions revolved around the creation of an environment by a supervisor and an approach to be taken by a candidate towards timeliness of completion. The result was the development of the Relationality, Intellectualism, Physicality and Emotionality (RIPE) model, an extension of and earlier model Relationality, Intellectualism, Physicality (RIP) by Green (2012).

Gardner and Holley (2011) using Pierre Bourdieu's theory of capital, argue that resources have an impact on "enrolment and persistence in doctoral education" and the study examines the barriers for first-generation students pursuing doctoral studies (p. 79). Noting that there is limited empirical research on for first-generation students at doctoral level in contrast with studies at undergraduate level, the study investigates the experiences of the group at doctoral level. It is noted that in 2002, 37% (over one third) of doctoral students fitted the category of first-generation, that is, their parents did not have an undergraduate degree (Gardner & Holley, 2011). The group is considered an at-risk population likely to fail to complete their doctoral education because of these four characteristics: female, of colour (African American, Latino and Native American), attended a community college and report more debt at the end of their studies. First-generation students have been noted to "rely heavily upon self-motivation, self-efficacy, and an internalized locus of control to persist" (Gardner & Holley, 2011, p. 78). The 'capital framework' suggests that "as students progress through the education system with varying degrees of capital, they accumulate knowledge and contacts that either facilitate or inhibit their success" (Gardner & Holley (2011, pp. 79-80).

Gardner and Holley (2011) used qualitative semi-structured interviews of 20 students, using convenience sampling of first-generation doctoral students, across disciplines, in two doctoral offering institutions in the United States of America. They were drawn from a population of 46% and 48% first-generation doctoral students in the two institutions. Data was analysed using Glaser's steps constant comparative method. Trustworthiness of the findings was done through member checking of the emerging theme after the interviews (Gardner & Holley, 2011). The use of semi-structured interviews is appropriate for the nature of study.

The findings that came from the study brought up four themes about the experiences of the first-generation doctoral students and these are: "breaking the chain", "knowing the rules", "living in two worlds" and "seeking support" (p. 82). While students expressed happiness in being the first in their families to pursue PhD, termed, "breaking the chain", something that required "sacrifice and resiliency" as they

experienced obstacles from the familial gender bias that as women they need not study to high levels, to educational and social challenges such as not knowing what pathway to follow nor having a family member who knew and could provide guidance. One theme that emerged from the students was the notion of getting the idea of college from their educational environment and circles through actors such as teachers and school mates who were ahead of them at school and were to transit to college level education.

The second theme, "knowing the rules," relates not only to the first-generation doctoral students' application of attributes such as "self-reliance", "resilience" and being "self-directed", but also expressing feelings of "frustration" which they experienced through the "ambiguity of expectations within the higher education system" which they felt was not the experience for other students whose parents knew and prepared them for how the system works and made them ready to do what needs to be done; this saved them the time and the frustration of having to find that out (p. 84).

Thirdly, the students expressed that they were constantly battling for a balance between "living in two worlds", of non-identical values: being the world they grew up in, which characterised the present family world vis à vis the world of academia, which they were moving towards and in which they did not yet belong and which they sometimes felt not belonging to because of the lower numbers of their races and gender.

The fourth theme, "seeking support," reflects the students' access to the much-needed external support from their 'two worlds' through family, non-first-generation PhD students, mentors who have achieved it and faculty members. In addition, they needed financial support because their families were unable to assist them financially and their funders did not often cover all their graduate education expenses. Despite a description of their struggles, the insufficiency of funds is a situation they describe as needing "survival." In addition to acknowledging the support from other students, the first-generation students also noted that their "individual motivation and self-reliance was essential" to persist through graduate education (p. 86).

The use of the Bourdieu's capital theory by Gardner and Holley (2011) may be summed in this: "to gain economic capital, they must also gain more social and cultural capital through the acquisition of the doctoral degree" (Gardner & Holley, 2011, p. 88). An important contribution of the study is its pioneering role in first-generation doctoral students' studies and its indication for further research. The authors make suggestions for further studies in methodological and theoretical areas. In methodology, they suggest the use of purposive sampling of students, a diverse variance of institutions, and a focus on "race, gender, institutional and disciplinary context[s], and geographical location" as well as age and family status (p. 89). In the area of theory, their suggestions are to investigate the students using "self-efficacy and imposter syndrome" theories (p. 89).

In the African region, eight countries and their universities are also in a similar

collaborative partnership arrangement as that of the Organisation for Economic Co-operation and Development (OECD) and Asian countries. The collaborative research that exists in the African region covers the University of Botswana (Botswana), University of Ghana (Ghana), University of Nairobi (Kenya), University of Mauritius (Mauritius), Eduardo Mondlane University (Mozambique), Nelson Mandela Metropolitan University (South Africa), University of Dar es Salaam (Tanzania) and Makerere University (Uganda) (Bailey, Cloete & Pillay *(n. d.)*. A case study of UB and Botswana (Bailey et al. *(n. d.)*) that made comparisons with some regional universities, particularly Stellenbosch, Dar es Salaam, and Limpopo discusses graduation rates. The study notes that these universities measure output performance in terms of a university's ratio between graduates in any given year and student enrolments in that same year. These ratios serve as proxies for cohort output rates, which indicate what proportion of any cohort entering a university can be expected to eventually complete their degrees or diplomas. The benchmark of 25% is a proxy for a cohort success rate of 75% of entering students obtaining their degrees or diplomas (Bailey, T., et al. *n. d.).*

The findings reveal that the University of Botswana (UB)'s average graduate rates were below the benchmark. With specific reference to the Science, Engineering and Technology "UB's average cohort success rate for 2001–2007was 63%, Dar es Salaam 65%, Stellenbosch 68% and Limpopo's 50%" (Bailey et al. *(n. d.,* p. 73). In one's judgment, the targets in graduation rates would be more accurate if they came from one cohort. To use enrolments of a different group and sample size to estimate graduation rates seems an apparent inaccuracy in the use of statistics.

An important note of relevance to this research study is the case study's reference to the University of Botswana, and to the others mentioned in the Higher Education Research and Advocacy Network in Africa (HERENA) and Centre for Higher Education Transformation (CHET) partnership which had doctoral students completing their studies on an average timeline of five years. It is worth establishing what it is that informs the stipulated five-year time period, especially in view of the fact that the various institutions have different time frames for their different doctoral degrees.

Another study, Centre for Higher Education Transformation (CHET) (*n. d*.), also used proxies to calculate Botswana's graduate output efficiency, "by dividing the graduate data for each year … by the corresponding enrolment data for that same year" (p. 7) it is reported that "Botswana's average ratios suggest that efficiency levels dropped in all qualification types" (p. 7) and particularly ratios for Masters degrees averaged 21% from 2000/2001 to 2009/2010.

Further, CHET *(n. d.*) reports research output for the ten-year period, from 2000/2001 to 2009/2010 and doctoral output for an eight-year period 2000/2001 to 2007/2008. It indicates that using a benchmark of 0.50 for research output/publications, expecting "that each permanent academic staff member should produce one research

publication every two years," that average output was 0.12, implying one research publication every eight years. According to CHET (*n. d.)* the benchmark of 0.50 is used for the doctoral output than using a benchmark of 0.15 assuming "that each permanent academic staff member should produce an average of one doctoral graduate every seven years," the average output was reported to be "well below the benchmark" in the eight years (p. 13). Botswana's doctoral graduate output totalled 53 for that period. Placing these low statistics against UB's strategic direction of becoming "a research intensive University," is indicative that more needs to be done to achieve that beyond the establishment of the School of Graduate Studies in 1996 (University of Botswana, School of Graduate Studies, 2015/2016, p. 2).

The importance of graduate education in training for participation in the higher education sector as well as for knowledge generation cannot be overemphasised. In the USA context, Gardner and Holley (2011) argue for the training role and state "doctoral education … and the successful completion of degree programs, ensures a more robust, diverse academy" (p. 90).

Like many developing countries in Africa, at the close of the millennium Botswana awoke to the importance of developing her human capital by establishing the Tertiary Education Council in 2003 and opening sponsorship for students beyond public tertiary education institutions to privately owned ones. Botswana's National Human Resource Development Strategy (NHRDS) of 2009 articulates its vision that by 2022, Botswana will be famous for its human resource development through quality, skilled, well-educated and productive people (Republic of Botswana, (*n. d.*).

The strategy to develop the human capital challenges the tertiary/higher education institutions to be carrying out this mandate. It is worth noting that with the expansion of opportunities at tertiary education level there is bound to be increased chances of admitting students who are not competent. Perhaps the abundance of opportunities at diploma instead of degree level and above attests to this. Regrettably, Botswana has for over a decade experienced declining results at primary, junior and senior secondary levels (Republic of Botswana, 2013, pp 21-23). Many of the school leavers from the lower levels of education, whose performance is questionable, form the pool from which admission and enrolments into tertiary education are obtained.

While education is a global commodity and tertiary education in Botswana could be training for international competitiveness, there is an effort and, in the researcher's view, an illusion of training for skills that are relevant for the national needs. A problem noted by Molwane of the BQA is that Botswana's tertiary qualifications are not readily accepted abroad (Muluzi, 2013). This means that students who have difficulties completing at their initial tertiary education institution for whatever reasons cannot transfer their credits and finish elsewhere. This compounds non-completion. Molwane states "Qualifications should be accepted globally, so that our learners are mobile" (Muluzi, 2013).

A related study on graduate degree at UB explores graduate students' choices of research methods and finds that graduate students make choices for the methods that are not based on "the nature and needs of the problem to which they are trying to contribute a solution" (Nenty, 2009b, p. 10). The study points to factors such as supervisors' preference for the methods or students' personal factors. Though the study was limited to one class of UB Foundations of Education students in 2006, findings from a sample of 78 participants responding to a questionnaire are that more students were inclined towards qualitative than quantitative, more males were inclined towards quantitative methods, and the quantitative oriented research students "showed … significantly more favourable attitude towards research," and those using quantitative and mixed methods "showed significantly higher research motivation" than the qualitative oriented counterparts (Nenty, 2009b, p. 15). Despite the choices of methodology, the students' performance did not show that any group performed less than the other in the research course. The study is important in highlighting some factors such as students' preferences by gender but the statements about supervisor's imposition of their preferred methods does not seem to emerge from this research. It would be interesting to investigate further the findings of the questionnaire with in-depth interviews to explain the emerging trends.

An observation is expressed in Mmegi, April 2015, that among other Faculties "the Education Faculty where many Colleges of Education lecturers were sent to UB to acquire [a] Masters Degrees … went back to work empty handed" (George Junk).While timely completion means no additional costs by the sponsor; later completion equals additional costs such as through unplanned increased labour cost of the replacement staff member (if full time), increased workloads for staff where no replacements are availed, and loss of income by the student, loss of salaries due to the half salary arrangement by the government for public officers governed by the Public Service Act (2008).

The continuing stay of the student in the university means the university's capacity to enrol new students is curtailed and so is the limitation on the university's residence and other resources such as the already limited library cabins for post-graduate students.

Failed and/or non-completion results bring additional costs for the sponsor and the unplanned increased cost of the replacement staff member or increased workload for remaining staff where no replacements are availed. There is also the unplanned loss of money by the non-completer due to the government's 'policy' to recover costs incurred on a student who does not complete a programme of study sponsored by government. The government deducts from the failed student's salary expenses incurred by the government on the student while enrolled in the programme of study. The student would have also suffered delayed occupational or career progression.

It is also important to note the loss of the employer and society in general who expected the officer to acquire that education and get knowledge, skills and competencies that had been identified as a gap. The resulting losses of private and social benefits are enormous.

On the part of the graduate student, delayed completion results in the loss of salaries—the financial income on which the lecturer and his/her family may be dependent. This is due to the Government of Botswana's earlier policy which stipulated that when a non-military government worker was on study leave on government sponsorship, attending full-time studies, the government officer was paid their full salary for the first year of their studies and then receives half their salary when they enter their second year of study and for all subsequent years. In addition, the government workers on study leave lost out on salary increments and promotion prospects and this means extensions, delayed completions not only added to their financial burdens, but they also increased the workers' losses. The policy has been changed to allow all government workers to receive their full salary for the entire duration of their studies. It is important that tertiary education institutions, such as UB, are held accountable to the students, to support and ensure that the students' completion is on time. Delayed completion affects people's lives. The trends in statistics compiled annually by different tertiary education, including UB, should be understood not just as figures but as lives affected—psychologically, emotionally, financially, and otherwise.

International studies on low completion rates and variables of gender, ethnicity and age are revealed in a New Zealand longitudinal study (Scott, 2005) which shows a 40% timely completion rate on the tertiary education level with women being more likely to complete than men (Scott, 2005). A cohort of 1998 tertiary education students was studied to find out their status in 2002. At the post-graduate level "while five-year completion rates for doctorates are higher for men than women, estimated final completion rates are about the same (estimated 57% for women compared to 56% for men)" (Scott, 2005, p.12). Ethnic comparison was made between students of Asian, Mäori, Pasifika, European/Päkehä ethnic groups, Mäori (five-year) completion rates were low at Honours/Masters and doctorates (Scott, 2005, p.12). The findings on age reveal that students under 25 years of age have higher chances of completion at all tertiary education levels and it is partially attributed to the fact that older students tend to do part-time studies which they combine with work or family commitments (Scott, 2005, p.13).

The New Zealand study's definitions vary and lack comparability with the only available international standards of Organisation for Economic Co-operation and Development (OECD) (OECD, 2007a, 2007b, 2007c; OECD, 2009). Despite this the study has acknowledged the gap and is pointing this as an area for further research. The reasons for the findings in the Australia and Britain study of dropouts and long completion time are the inadequacy of quality supervision, limited study time for

students engaged in part-time studies, and finances causing stress and/or compelling students to find employment resulting in reduced time to study (Moses, 1985).

Botswana's need to be concerned with, particularly, graduate completion rates can be justifiably placed in the broad national development goals in NDP 10 which speak of 'adequate supply of qualified, productive and competitive human resources, innovative and productive use of information and technology, Vision 2016 pillar of 'an educated and informed nation whose key result areas are: competitive and productive human resources and creating a knowledge society are a case in point. The concern with the output from the investment and an assessment of progress towards goals is therefore justified.

Although the area of factors affecting academic performance and completion rates has not been studied at tertiary education level in Botswana, Tlou in Tertiary Education Council (TEC) (2009, p. 3) alludes to some qualities needed for accessing tertiary education, such as qualifying and possessing "the requisite aptitude and ambition." By implication these factors are considered important facilitators of not only enrolling into the tertiary education institution but also for coping with as well as successful completion of studies at the tertiary education level.

There is a general consensus in studies across the world about the critical role of supervision in graduate research outcome (Cassim, 2011; Green & Bowden, 2012; Wu, et. Al, 2024). The authors point to the prevalence of dynamics of power that characterize the supervisor-supervisee relationship and for South Africa where traces of racism still exist, Cassim (2011) suggests that the use of structures and modalities such as memorandum of understanding between the parties should considered and be enforced. She points to the need to consider provision of funding and physical resources to enhance studies and to allow the student to focus on studies. The article suggests that gender, disability, and racial groups that have been disadvantaged should be considered for empowerment without compromising the quality of the research output. The article expresses a very positive and stimulating supervisor-supervisee relationship between Cassim and the supervisory team best expressed as "… much of the joy I experienced while working on my PhD emanated from the sense of purpose and passion for research that my supervisor imparted to me …" by "providing his students with great opportunities to collaborate with local and international research groups" (para. 3). Cassim's articles (Mail & Guardian, 27 August 2010) note that the problem of inadequate supervision has reached courts in the United Kingdom in the 1990s where postgraduate students successfully sued their universities. She notes being aware of one similar case of suing in South Africa but cautions that rather than universities being sued, they should be held accountable at institutional level.

In recognition of the important research role of universities to both the society and universities, in 1974 Australian universities had enrolled "more than 16, 000 higher degree students representing 11.3% of the total university student population" (Moses,

1985, p. 1). This was an increase from 11.3% to 13.9% as reported in CTEC (Moses, 1985, p. 1). While there was increased access in post-graduate education in Australia, there is a concern "about high dropout rates and long completion times" (Moses, 1985, p. 2). This is attributed to increased numbers of inexperienced supervisors who are not sufficiently guided to supervise postgraduates and insufficient financial support for students, compelling them to find jobs with the dire consequences of reduced study time and lessened chances of timely completion; and where they do not find income they worry and are stressed at the detriment of their attention to study and complete on time (Moses, 1985).

Moses (1985, p. 3) argues that factors resulting in drop out and long completion time could be "insufficient preparation or ability of students … financial burdens … institutional requirements … unfavourable conditions … supervisor's lack of experience or concern". In addition to reasons mentioned earlier, Moses (1985, p. 21) adds that the other reasons for a student's "unsatisfactory progress include illness … personal problems." Moses further notes that students doing part-time studies, especially for employed students are noted as the most at risk to be lost because "supervisors put on little pressure knowing that higher degree studies are only part of their whole work commitments" (p.23). The part-time students are additionally vulnerable "as they normally do not even have the benefit of intellectual intercourse in staff-student research seminars" (Moses, 1985, p. 23).

The statistical findings of the study by Moses (1985), in parts, do not corroborate the reasons and explanations given for whether the part-time students are less likely to complete than their full-time counterparts. While advancing strong arguments of the disadvantages faced by both groups, from the statistics provided, it is not conclusive which group is less likely not to complete. It however seems clear that the part-time students will complete later than the full-time students. It may not be the intention of the researcher to make this comparison, but it is notable that the researcher makes a case for and against the part-time and full-time students and suggests the part-time students are more vulnerable. Perhaps this is a case where the qualitative aspect of the research by Moses does not seem to follow through on the quantitative aspect and information collected.

Low research output is a phenomenon common to sub-Saharan African universities which "lag[s] considerably behind university academia research output in the rest of the world" (Musiige & Maassen, 2015, p. 110; Wangene-Ouma, Lutomiah & Lang, 2015). The main factors regarded as influencing research output at Uganda's Makerere University and therefore the framework for the research are "individual, organizational, funding and research culture" (Musiige & Maassen, 2015, p. 110). For the individual factors, including age, gender, passion, confidence and motivation, among others, academic qualification was considered the most measurable and it was found that in 2011, 43% of their academic staff held PhD's and this has implications for the university's research output.

The organizational factors raised in the article relate to academic staff's research output and they are lack of funds for research, no PhD mentorship programmes nor incentives, and insufficient time for academics to carry out research as well as teach (Musiige & Maassen, 2015). The factors discussed are not graduate students, however graduate output will be affected by the context.

The Musiige and Maassen research is a case study of two colleges of Makerere University, the College of Agricultural and Environmental Science and the College of Education and External Studies, employing the use of semi-structured interviews of their six academic staff holding a PhD degree and two Heads of Department and one Research Administrator (Musiige & Maassen, 2015). Data analysis was "through a three-phase coding process" … of open, axial, and selective (p. 116). The findings show that personal interest and activeness in research was motivated by promotion or money. One organisational factor was lack of doctoral students' scholarships. The university reported low PhD graduation rates and delayed completion attributed to students financial constrains which forced them into work and study. The study's findings also point to the quality of supervision as characterized by "feedback delays and inconsistent follow-up" which is attributed to "lack of incentives towards supervision" (p. 120). In my view, the new development in Makerere University whereby "senior, tenured academics" are expected to supervise at least two PhD students and, especially the new requirement for "PhD students to publish at least three articles in reputable journals to qualify for graduation" seems to be addressing more the academics needs towards research output than the development of the students. For instance, that does not seem to address the problem of the self-sponsored, fee-paying students, nor to improve completion time. Perhaps this is a result of the selection of participants and the limitations of self-reporting, because the academics are addressing their concerns and there is no consideration for the students' perspectives nor efforts towards supporting students complete timeously.

On the other hand, the requirement for publication of articles in reputable journals alongside the doctoral dissertation is viewed as enhancing the students with skills and competencies towards timely completion of their dissertation and not having an adverse effect on completion time (Nettles & Millett, 2006). Despite its limited scope of research participants being only faculty, the article makes a significant contribution to knowledge and particularly the framework of the factors it employs.

Similarly, Wangene-Ouma, Lutomiah and Lang (2015) explore the role of incentives in Mozambique and Kenya in research and research postgraduate output using a "principal-agent theory" which among others suggests "incentive pay positively affects the agents' effort." The research was part of four universities (South Africa's University of Cape Town, Uganda's Makerere University, University of Nairobi (UoN) and Mozambique's Eduardo Mondlane University (EMU)). This was a case study of two universities and it used different methods, with EMU using quantitative analysis of university salaries in comparison with those of other professions and documentary

review. On the other hand, UoN used documentary review, a survey, and qualitative structured interviews data to explore the relationship between incentives and research output. The sample size was reported as "50 academics and administrators", and it is not clear how many participants in each category, that is, how many were in the survey and how many participants for the interview.

The findings for University of Nairobi, the Kenyan context, revealed that the incentives for research and/or graduate student supervision were in the form of promotions. The principal-agent theory is therefore confirmed as applicable to the Mozambique context because teaching academia offers a better pay than a research career, and the career path is less popular than the teaching one as evidenced by "out of about 1 700 academic staff, fewer than 100 have taken the research career track" (Wangene-Ouma, Lutomiah & Lang, p. 136). The researchers conclude that "the pursuit of monetary rewards in academia is a reality and has implications for the advancement of core academic activities, namely, teaching, supervision of postgraduate students and research" (p. 142). However, the research finds "no correlation between the remuneration of Mozambican academics and research productivity" (p. 142-143).

Cloete, Sheppard and Bailey (2015) recognize the shift in purpose of university training from training to fill posts in the academic arena in the past to training to create a critical mass towards the generation of a knowledge society through graduate research output. While acknowledging the countries that have a high doctoral output as South Korea, Singapore, Taiwan and Mexico, Cloete, et al. (2015) point to a remarkable growth in China, whose graduate output was 50, 000 in 2011, "producing more PhD's that any other country" (p. 76). The authors point to the South African landscape being prepared to be a hub for PhDs in a number of ways, one of which was the focus on strengthening the supervisory capacity, thereby acknowledging its centrality towards research graduate output. Though significant in contributing to the debates on higher education, this is not an empirical paper.

3.0 Summary

This article provided a review of selected literature on graduate programme completion globally. Literature on graduate completion point to the universality of the problem of low graduate level output and time to completion although some countries and higher education institutions have taken steps to achieve graduate output efficiency (Moses, 1985, Scott, 2005). The studies point to among other factors, demographic and institutional factors. In the USA they include race-ethnicity, financial needs and part-time status. In New Zealand a study of masters, and doctoral studies found that gender and part-time mode of study were influencing timeliness of completion (Scott, 2005, Nettles & Millett, 2006**)**. For Australia and Britain, factors influencing dropouts and long completion time are part-time, and additional ones are the supervision experience and finances for masters and doctoral studies (Moses, 1985).

Supervision as a key factor in completion seems to be central in a number of

studies in Botswana, South Africa, Ghana, Kenya, Mozambique, Tanzania, Uganda, and in Australia, Britain, New Zealand and USA (Cassim, 2010, 2011; Green & Bowden, 2012; Wangene-Ouma et al., 2015; Musiige & Maassen, 2015; Cloete et al., 2015).

For Botswana, as well as other regional universities such, Ghana, Kenya, Mozambique, Tanzania, Uganda and South Africa, five years' average completion time for doctoral students was established through the use of proxies, enrolments and graduates of one year used to calculate output (Bailey, Cloete & Pillay (*n. d.*)). The researcher is of the view that the use of proxies only provides estimates and averages but may also be inaccurate as opposed to the use of cohorts.

Although the studies are insightful and make a significant contribution to knowledge, theories, and models for understanding factors influencing graduate output, the studies discussed are mostly either quantitative surveys of the research area or qualitative interviews. Except for the Bailey et al. *(n. d.)* and CHET (*n. d.)* studies, most studies were done in countries and universities in the African and international contexts but not in Botswana. Even for the Bailey et al. *(n. d.)* study, their use of proxies to calculate completion can only allow for an estimation of the completion rates but it is short of accuracy. Further, the studies discussed used different theoretical frameworks such as principal agent theory, RIPE model and in explaining factors influencing graduate output.

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