Students' motivations and socio-professional integration as drivers of doctoral program completion: a reflection on personal experience

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Abstract
Doctoral education allows individuals to acquire necessary skills needed to carry out research-related careers and/or creates the opportunity to show one's potential to do research. To complete doctoral programs, much effort is needed by doctoral candidates. However, the completion of the program is not resolved to students' effort and motivations; it is a combination of other factors operating within their working environment. The institutional frameworks on the requirements for the award, the scientific communities mainly comprising the supervisory team and the peers are key determinants of student's success. Based on lived experience and on theories such as choice theory, self-determination and socialization, the present paper intends to provide insights into the nature of doctoral studies and how motivation and socio-professional integration determine successful completion of the program. Furthermore, the author's experience serves to enlighten prospective and present doctoral students, supervisors and managers of doctoral programs on tips that support success into the program.

Keywords: *Doctoral Education, Motivations, Self-determination, Mentorship, Persistence*

Introduction

Formal education is organized into various levels from nursery to tertiary or higher education. Whereas primary and secondary education mainly focuses on literacy and basic knowledge and skills, higher education is expected to equip learners with more advanced knowledge and workplace skills. Governments do invest in higher education so as to get necessary manpower for the implementation of different policies. This is more evident for developed countries which have a higher number of doctorate holders than developing ones (Cloete, Mouton & Sheppard, 2015). However, only a small fraction of students who finish their undergraduate studies can enrol into graduate schools for either masters or doctoral degrees. This means that many people in many countries can be employed with an undergraduate degree. Here, two questions can be raised: 1) why do universities and their stakeholders choose to invest in doctoral education, and 2) why do some students choose to continue their studies up to doctoral degrees? Regarding the first question, Louw and Muller (2014) have highlighted three institutional drivers of higher education, especially at PhD or doctoral level: a) sustaining the supply chain of researchers, b) preparation of employment of graduates, and c) internationalization and global competition. This shows the need to develop knowledge and skills in specific areas so as to maintain and perform effectively their job duties. Doctoral education is largely about the contribution to the knowledge economy and maintains the link between research and development through an innovation cycle. Doctoral students are not expected to be consumers of knowledge but producers of original research. The degree is awarded following a successful thesis and the recognition of the later, by the academic community, as an original contribution to knowledge.

The masters' degree or equivalent is mandatory for admission to the doctoral program or candidacy. Most doctoral schools/universities require potential candidates to pass an interview or written test prior to admission (Sadlak, 2004). In many countries, especially European ones, the enrollment into doctoral degree entails a contract between the departments, supervisors and individual students (Sadlak, 2004). The content of

the contract includes the following: mutual rights and duties, theme of dissertation, duration of the agreement, funding plan, matters concerning supervision, place of work and training component. When students start doing research, they are assigned a supervisory team formally comprising the main and assistant supervisors (Cloete, Mouton & Sheppard, 2015; Sadlak, 2004). The duration is 3-4 years in many countries but it can extend up to 7 years especially for social sciences and humanities. In many universities such as American and European ones, doctoral students are an integral part of the research system. They provide a research and teaching personnel at relatively low cost who do much of the research under the supervision of senior professors (Sadlak, 2004). In this context, the doctoral education is recognized as the beginning of professional career rather than a continuation of individuals' studies. Thus, doctoral degrees qualify individuals for a career in universities of research institutes

As clearly described by Louw and Muller (2014), there are up to 5 types of doctoral degree but the most common include the traditional (research) PhD, the PhD by course work, and the professional or work-based doctorates. In the traditional PhD, which is very common worldwide, the student normally works alone on the thesis and under the supervision by senior researchers. PhD by coursework or taught doctorate is the doctoral model very common in USA and Canada, containing substantial taught elements. The taught elements are formally examined separately from the thesis, and the students cannot embark on their research projects unless they successfully pass the training courses. The professional or work-based doctorate is very common since 1990s in UK, Australia, Netherlands and USA in fields such as Education, Clinical Psychology, Engineering and Business Administration. Like the taught PhD, this program contains a substantial coursework designed to emphasize generic skills and interdisciplinary approaches to problem solving. The research or thesis project is often smaller than the traditional PhD, more applied, and carried out in conjunction with a company or potential employer.

Whatever type of program, students register for doctoral programs on a voluntary basis. The motives to undertake and complete the doctoral degree are complex but a strong commitment to the research topic along with a desire to reach the summit of academic achievement seems to act as forceful motives (Brailsford, 2010). This desire can be translated into one's internal quest for personal and professional transformation including the possibility of entering academia or an enterprise, and for personal development: general intellectual interests such as acquisition of research skills, interest in the research area, the joy of the study, and the acquisition of the degree itself, and creation of a network.

Despite students' initial motivations and universities' effort to recruit and maintain doctoral students up to program completion, high rates of attrition are reported in some universities. This may compromise government and society expectations since attrition constitutes a waste of resources in terms of funds and time. There are various reasons to explain attrition trend notably personal and institutional determinants. Moreover, there is no straight line leading to degree completion; individual motivations and social integration in academic and research settings, what is usually qualified as student-environment-fit (Devos et al., 2016), prime all determinants of successful degree completion. Indeed, the intellectual processes leading to degree award are clear-cut starting from application for admission to the program up to the award. However, the psychological

and/or emotional processes emerging as the student progresses in his/her studies/research may have a more determinant impact on student persistence in the doctoral program (Phillips & Pugh, 20015).

This paper borrows from personal experience and from analysis of available literature on general and focused studies on doctoral education to unravel determinants of successful doctoral program.

Theoretical frameworks

The choice to pursue doctoral studies depends on individual motivation but the success in doctoral program depends on multiple factors. The analysis and interpretations made throughout this paper are supported by many theories. However, the "*choice theory*" developed by Glasser (1998), the self-determination theory (Deci & Ryan, 2008), and the socialization theory (Austin & McDaniels, 2006) can best serve in understanding how and why students, despite numerous obstacles, persist and succeed in their doctoral programs.

The choice theory posits that "*the behavior is a choice made by an individual, based on his or her feelings and needs, and is therefore not determined or controlled by external circumstances*" (Gabriel & Mathews, 2011, p. 21). It asserts that the humans have five basic needs - survival, love and belonging, power, freedom and fun- which constitute a source of intrinsic motivation and determine the behavior. While survival, love and belonging can be applied in any social context, power, freedom and fun can best fit to what students seek when choosing to undertake doctoral studies. Pursuing doctoral studies characterizes the individuals' need to get power through personal growth and acquisition of knowledge and skills that can enhance their standard of life, achievement and self-worthiness. The individual's power determines how he or she will respond to the demands of the social and physical environment. Thus, individuals should be perceived as self-determining beings who take responsibility for the consequences of their choices. Making the wise choice is the essence for the need for freedom. The fun refers to engagement into activities that give joy, pleasure, satisfaction (Gabriel & Mathews, 2011).

The self-determination theory addresses the concept of motivation, which can be categorized as either intrinsic, extrinsic or altruistic (Rockinson-Szapkiw, Spaulding & Bade, 2014). Indeed, the choice to pursue a doctoral degree may be based on a variety of internal (e.g., pursuing a doctoral degree for the love of learning), and external (e.g., promotion, pay raise, recognition) motivators. According to its promotors, intrinsic motivation is behaving for the sake of the behaviour itself, while extrinsic motivation includes motivators that aimed at obtaining outcomes external to the behaviour. Both intrinsic and extrinsic motivators stimulate engagement in an activity. Altruistic motivation is that motivation to do something selfless so as to advance the opportunities and the well-being of others.

The socialization theory refers to the process in which students "internalize the standards, norms and expectations of a given society, which includes learning the relevant skills, knowledge, habits, attitudes, and values of the group that one is joining" (Austin & McDaniels, 2006). In the context of higher education, the society refers to an ecosystem comprising of multiple contexts such as the specific program in which the student is enrolled, the department in which the program is administered, interactions that students have with professional communities and practitioners in their discipline, and the student's personal communities (Weidman, Twale & Stein (2001). It is this ecosystem that nurtures the students. Their relationship with each components of the

ecosystem determines the socio-professional integration, and therefore success in the doctoral program. Indeed, many authors/researchers have highlighted on the importance of host institutions in student socialization and persistence into the doctoral program. Doctoral students who benefit from a working atmosphere characterized by regular and social interactions with peers and the supervisory team are likely to have a successful journey during their program and beyond (Hunter & Devine, 2016). Furthermore, socialization entails that students fit in well in the doctoral program when a clear communication is made on information about admission requirements, program expectations, performance criteria, use of preliminary and qualifying exams, opportunities to engage in research early in graduate training, and the opportunities for diverse skill development needed for further career success (Gilmore, Wofford & Maher, 2016; Gardener, 2009; Holbrook et al., 2014). In this regard, the departmental culture and support are particularly important contributors to graduate student socialization (Golde, 2005).

3. Key determinants of doctoral students' success

To begin, let us ask the same question as Brailsford (2010): "*Why would someone commit several years of his or her life studying for a degree when there is no guarantee of success at the end*? This question shows the important decision taken by students who choose to undertake doctoral studies. In my view, without motivations, students will find it difficult in spending their time for doctoral studies. Potential doctoral candidates need to ask themselves this question. As the success is shared between the students and the society in general, hosting institutions, doctoral program managers and supervisors should consider students' aspirations and needs to make it happen. Indeed, as highlighted by Grabowski and Miller (2015), understanding motives behind students' choice to pursue doctoral studies helps not only future students to succeed in their studies but also enrolled students to maximize their academic experience. It also helps doctoral school administrators to improve their programs so that they can better meet students' expectations. From my personal experience, motivation cannot solely lead to success if the doctoral student does not abide by the internal regulations of the hosting institutions and if he/she is not well integrated in the scientific or research community.

3.1. Students' motivations

London et al. (2014) have highlighted the importance of individuals' prior success in graduate school, an interest in a discipline or research topic, construction of a sense of identity, self-enrichment, ones' need to prove themselves at the highest level as motives towards undertaking doctoral studies. This has been the case for me, but I do also agree with Rockinson-Szapkiw, Spaulding, Swezey, & Wicks (2014) who emphasize that intrinsic, extrinsic and altruistic motivations drive students to enrol, persist and complete undertaken doctoral program The intrinsic motivations pertain to the inner feelings such as feeling called to do so, love of learning, a personal accomplishment, a personal fulfilment; feeling just never finished without it. The extrinsic motivations pertain to opportunities and encouragements that pull individuals to undertake doctoral studies. These mainly comprise higher pay for degree holders, opportunities for career advancement, title and recognition associated with the degree (Churchill & Sanders, 2007). The interest to pursue doctoral studies can also come from the students' families and peers (Brailsford, 2010; London et al., 2014), and from the institutional research policy highlighting the need to develop research and make it a requirement for recruitment (Churchill & Sanders, 2007).

The altruistic motivations refer to those motivations to do something selflessly in order to advance others' means, opportunities and social, emotional and cognitive wellbeing (Rockinson-Szapkiw et al., 2014). As drivers of doctoral studies undertaking, they imply the following: aspirations to make an impact in the life of people, community and school one works with, the aspiration or feeling in making a difference via innovation and change in behavior; the need to give back via creation of knowledge for advancement of the society, teaching, and research; the need to serve as a model and exemplify for next generations; and the need to be a respectful individual. Indeed, the doctorate is a challenge which makes individual strong, allowing them to build a reputation for a high character and ethics and to set the bar for one's family including immediate children and extended family relatives (Rockinson-Szapkiw et al., 2014).

Motivations can vary depending on students' category. Indeed, students can be classified into three categories: young students joining doctoral school without transition, working students working in academia who want to upgrade their qualifications, and doctoral students working outside the academia but who want to have research skills as a challenge or an asset. The above mentioned motivations may hold for the two first categories. For the third one, Grabowski and Miller (2015) have explored their motivations and found three important motivations:

a. Foreseeing a future career in academia and dream a solid work-life balance: Such students seek a personal satisfaction and career transformation. They want to enjoy the credibility given to the degree in academia. For them, the degree supports the career development through the dissertation process, the quantitative underpinnings and freedom to choose the dissertation topic. They want to become leading experts in their field, and they see doctoral experience as personally satisfying and enriching the quality of life.

b. Intellectual stimulation and career advancement: Apart from credibility, the students are attracted by the rigorous and high-quality work and the fact that courses and trainings open up new ways of thinking. These students want to enjoy intellectual challenge, advance academic career, improve future career options; use content courses and peer network to read academic journals and gain helpful knowledge on globalization. Here, the importance is given to the personal relationship formed and research skills learned.

Motivations to pursue doctoral studies could theoretically be classified as intrinsic, extrinsic and altruistic. However, by considering individual and career perspectives, motivations stem from personal and professional factors. The need for intellectual stimulation and challenge, self-enrichment and personal transformation feature individual attributes. On the other hand, the need to keep a job, to get promotion, skills and competence, and the desire to enter the academia as a teacher or researcher refer to professional continuation, advancement and development. In my view, students should not only be self-motivated but they should also like learning and their research topics above all. This is because, as emphasized in Brailsford (2010), the success and completion require students to really enjoy research and learning and not force themselves to like it.

3.2. Importance of socio-professional integration for successful doctoral studies

Depending on the nature of the discipline, doctoral research may be of "work-alone" or "work-in-team" types. The work-alone mode is mostly prevalent in social sciences and languages where doctoral students can choose their own dissertation/research topics. This is different from hard sciences where students are usually given research topics within established research groups. In either case, socializing doctoral students within their departments or research groups is a key factor in supporting persistence and success (Austin & McDaniels, 2006). For doctoral students, the socialization is a process which leads them to internalize standards, norms and expectations of their university, faculty, department and research groups. Embedded into learning, socialization is meant to familiarize doctoral students with relevant skills, knowledge, habits, attitudes, and values of their host institutions, working groups and partners. Weidman, Twale and Stein (2001) have viewed socialization as allowing graduate/doctoral students to fit into multiple and intertwined contexts including the specific program, department in which the students are enrolled, the institution in which the program is housed, interactions they have with professional communities and practitioners in their discipline, and the student's personal communities.

3.2.1. Socialization with the university, department or research group

The successful completion does not only depend on good policies and practices but also the care and appreciation of the students' endeavor at the departmental level to contain emotional exhaustion (Hunter & Devine, 2016). Obviously, the socializing task falls to the university via its structure, norms and requirements but more specifically to the faculty and departments which are in charge of monitoring the progress of the students and report on any challenges. For students' persistence and success, the administering institutions should explicitly make available the information about program requirements and expectations, preliminary and qualifying exams which provide feedback to students early in their programs, opportunities to engage in research early in graduate training, and the opportunities for diverse skill development to strengthen post-graduation career success (Gardener, 2009; Thiry, Laursen & Loshbaugh, 2015).

The success of my PhD research resulted more from good integration into the research group and less from the institutional regulations. As my research was part of multidisciplinary project (Douay & Bidar, 2015), I have had the opportunity to collaborate with many and experienced researchers. This allowed me to gain tips underpinning the research careers. I have realized that project team members are very supportive if the student is socially-friendly, collaborative, cooperative, energetic, focused, motivated and eager to learn from collegial experience. The student has a challenge of not only meeting the requirements of the doctoral school, but also the expectations of project members. There is a high pressure to demonstrate one's ability to do a quality work so as to deliver reliable results. There is also a feeling of pressure to master every new skills learnt so as to speed up the weaning process and be independent. However, the desire to succeed at all costs and respect deadlines plunges the student into love of work and the need to maximize time for work. Much love of work without quick publication is detrimental for the student may progressively become frustrated, bored, stressed and less enthusiastic (Phillips & Pugh, 2005). The courage to overcome such feelings lies into ones' motivations and a sense of pride. To alleviate the stress due to workload, students should plan their work depending on what time during the day their productivity is the highest or most optimal. To feel useful, they can also build confidence on

the skills that they can easily perform at high level or very well. As for me, I had developed endurance and writing skills and I wanted to maximize it! I also developed a culture of reading which helped very much in literature review for my thesis and the many papers that I wrote in the course of my PhD. Carrying out literature review continuously allows one to know what is happening in ones' field of research, what are new publications, etc. Knowing what is happening in ones' field helps to avoid surprise in the process of publication: if a similar work to theirs is published, they can give a new direction so that it can be different from others'; or they can be first to acknowledge that published work. This ultimately alleviates the anxiety towards publication (Phillips & Pugh, 2005).

Self-discipline, organizational abilities and strategies are among tools that lead to success (Rockinson-Szapkiw, Spaulding & Bade, 2014). From my experience, these tools can lead to the success if doctoral students promise to be autonomous and independent academicians having hands-on about work planning. Moreover, the success entails efficient use of material and human resources available to serve for the common purpose. Although these skills could be of one's self-driven initiative, doctoral students are often inspired by teammates' best practices. During my PhD, I learned a lot from my research group and I finally found the following resources more helpful:

a. Internal and external professional networks: This comprised the teaching staff, research staff, engineers, laboratory technicians and PhD students. These people provided me with mentorship, encouragement, positive emotions, hence avoidance of emotional exhaustion that is experienced by many students (Hunter & Devine, 2016). Spending much time together and discussing with laboratory technicians, data collection assistants and peer PhD students allowed me not to feel isolated, especially when supervisors were not available to discuss the progress.

b. Time and work plan: I used the electronic calendar to feature all year-round activities. My work was organized into long-term and short-term tasks. The electronic calendar allowed visualization of daily, weekly and monthly activities. This made it easy to monitor accomplished and non-accomplished activities; and to clearly communicate with my supervisory team and collaborators. Alerts were also included in my calendar so as to remind me about important activities and appointments.

c. Personal work documents: these documents support the brain memory. They comprised the personal agenda or diary, notebooks for keeping important communication information, or information that needs further / thorough checking, explanation or consideration. I also possessed a laboratory notebook for lab analyses, for data collection; and a chemical reagent notebook to monitor the consumption of reagents and to order new ones. Nowadays, every person does not need to have this on hard papers, he/she can design them using ICT tools.

d. Database management: accessing knowledge and information is very important during doctoral journey. However, knowing how to save and retrieve it for use is very crucial. From my experience, I would advise students to try or improve on the following tools:

- Use of reference management software, notably Endnote, Mendeley, Zotero, etc. for organizing, retrieving and archiving important documents for literature review and referencing;

- Saving the information and data using computers in conjunction with external disks and the servers;

- Classification of the information/documents for easy access. Creation of folders and subfolders depending on themes. There are many techniques of naming files but the most helpful is usually including dates to allow remembering when the information was first accessed and saved;

- Use of web 2 resources: Web 2 tools refers to second generation web resources designed to facilitate communication, secure information sharing, collaboration among partners, etc. these tools include common software such as Google drive, Dropbox, etc. I used these two for document saving and sharing. I also register on research and academia forums to meet other researcher, be able to chat with them, share my profile, posting queries and opinions, etc.

3.2.2. Role of the supervisory team

In almost all universities in the world, doctoral research is carried out under supervision. In many universities, students are assigned a team made of at least two supervisors. The role of supervisors is retaining doctoral students on track The key functions of a supervisory team include guidance, information, support and encouragement, access to resources and opportunities, stimulation of learning and being a role model (Hunter & Devine 2016). Also, as per South African experience, the supervisory team provides input into the doctoral proposal and dissertations, attends the doctoral colloquia in which students make presentations, and provides feedback to them (Cloete, Mouton & Sheppard, 2015).

My supervisory team comprised of senior and assistant supervisors. We collaborated well, and my PhD success could be attributed to the good quality of supervisory relationship. Indeed, a good relationship between the student and the supervisory team determines students' success such that a poor relationship can result in student emotional exhaustion and attrition (Lovitts, 2001; Hunter & Devine, 2016; Gilmore, Wofford & Maher 2016). According to the authors, the supportive relationship at the department and advisory level reduces the exhaustion and intention to leave academia. Moreover, advisor experience and frequency of the meetings reduce students' emotional exhaustion because students are given due guidance and opportunities to discuss their expectations. In successful relationships, the members of the supervision team work as mentors toward their students, becoming a source of cognitive guidance. Also, they assess students' progress and provide feedback for improvement. To alleviate emotional exhaustion which is one of the attrition factors, supervisors provide a psycho-social and cognitive support that encourage graduate students to persist in the face of unexpected results (Hunter & Devine, 2016). Highly experienced supervisors are likely to initiate interactions with students, to collaborate with them throughout their doctoral studies. Indeed, such supervisors are eager to adopt the following as tools to manage their students (Cloete, Mouton & Sheppard, 2015): using electronic communications to motivate students regularly; remaining in contact with students and enquiring regularly about their progress; linking students with one another and with relevant resources; and ensuring good academic support, such as provision of access to any relevant knowledge and information database.

3.2.3. Role of peers: mentorship, advice and guidance

Doctoral students need guidance and mentoring to succeed in their studies (Bagaka's et al., 2015). I found it very helpful conducting PhD research with peers either doing their PhD or postdoctoral research. These people

provide answers to your queries for which you would need to see your supervisors. In addition, they are part of your companionship and this is very crucial during doctoral processes because it allows students to get rid of frustration and anxiety. Emotionally, it is not surprising that PhD students find more confidentiality in their peers or someone with whom they work on regular basis than their own supervisors. Peer mentoring encourages cohesiveness, inclusion and support and is considered to be a cornerstone for the preparation of scholars (Bagaka's et al., 2015).

To favor more peer relationship and alleviate isolation, some universities use the cohort approach (Ali & Kuhun, 2006; De Lange, Pillay, & Chikoko, 2011). With this approach, all students in a given cohort start the program at the same time, take the same courses each semester and are supposed to complete the program together (Ali & Kuhun, 2006). The cohort model emphasizes learning in communities where peers provide a valuable additional support to supervisors. The learning community provides space where doctoral students can collaborate, present their personal work and receive reviews and critiques from one another (De Lange, Pillay & Chikoko, 2011). This approach has been espoused by the university where I was enrolled. As a cohort, we were invited to register and attend common professional seminars during which we could share our experiences. I found that the collaboration among cohort students has great value in developing reflective practice in ourselves, and in sustaining one another towards the completion of the degree.

4. Conclusion and implications for successful doctoral program management

The students' success in doctoral program depends on many factors which may be both from within and the surrounding environment. For one to opt to undertake this degree, there should be some motivations. As mentioned above, the main determinants of a successful student stem from his/her career aspirations, interest in the topic and personal motivations such as a sense of identity, self-enrichment, and general intellectual interest to prove themselves at higher level. Also, the student integration into his/her academic community is of paramount importance.

As put forward by Brailsford (2010), "*the journey towards the doctoral degree is not straightforward, thus the success cannot be guaranteed, if not of a naive imagination*". Throughout the doctoral journey, the student may encounter difficulties which may lead to motivation fading out. This may be due to the stress, anxiety, boredom and decreased enthusiasm. The support from the department, the faculty members and peers comes in to re-ignite and revive the student's motivation and desire to get the award. Indeed, good quality advice based on real experiences by former students and experienced faculty members might help the enrolled and prospective students make informed choices and force them to question their motives and aspirations for doctoral studies. From my experience, doctoral students should avoid isolation. In difficult conditions when they feel less enthusiastic, somewhat confused and stuck in their journey, they should seek advice and moral support from the senior and peer members. Via the doctoral and/or university training schemes, students should be aware of, and learn to cope with emotional processes emerging as they are progressing in their studies. Failure to manage these processes can lead to attrition, and this undermines the relatively long-term effort and hope invested by the candidates themselves and their supporting communities to make doctoral education a success. The universities should also set policies that allow successful integration of the students and accompany them along their

journey. Emphasizing on awareness on what is involved in doctoral training, obligations and expectations of both parties the faculty members and students- is a key to success. This is because lack of information suggests unrealistic expectations. Moreover, unmet expectations may increase the likelihood of attrition intentions.

The persistence into the doctoral program and success of my PhD research were greatly attributed to my self-motivation and to the fact that I did my research within a multidisciplinary project. I didn't really suffer from isolation and I benefited the experience from senior researchers and peer students. For the universities to minimize the detrimental effect of isolation and to foster persistence of a doctoral student into the program, they should embrace new models of research organization which encourage collaboration and team work with a shift from narrow, disciplinary to multidisciplinary, from small laboratories to larger research institutes and centers of excellence, and from unbound research to research within programs or projects.

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