

Interventions to improve doctoral employees' throughput at a faculty of a University of Technology in the Western Cape, South Africa

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ARTICLE INFO

Article history:

Received 12 October 2025

Received in rev. form 27 Nov 2025

Accepted 05 December 2025

Keywords:

Doctoral Graduates, University of Technology, throughput rates, supervision

JEL Classification:

I23, J24, O15, D83

ABSTRACT

The article seeks to explore the factors which restrict doctoral graduate throughput rates at a selected University of Technology faculty located in the Western Cape, South Africa. In a developing economy like South Africa higher education qualifications are important as it is universally accepted that doctoral studies, in particular advance knowledge and innovation is important in any society. Furthermore, doctoral graduates play a significant role in the knowledge economy; promote innovation organisations, boost credibility of organisations and connect ideas between academia and industry. A positive nexus exists between a country's Gross Domestic Product (GDP) and the number of doctoral candidates produced. To achieve the aim of this article a qualitative interpretive design was adopted to identify the factors which restrict throughput rates and the extent or significance thereof. The locus for this study was a selected faculty in a University of Technology (UoT) located in the Western Cape, South Africa with the target research population delineated as employees who hold a master's degree within the same faculty. Using qualitative interpretive design and thematic analysis of survey responses from 40 master's-qualified employees, the study identifies key barriers and proposes targeted interventions. The forty participants were purposively selected to participate in the questionnaire survey. The paper will propose interventions to facilitate the improvement of the doctoral throughput rate premised on the analysis of the results arising from the questionnaire survey. The paper proposes targeted and contextualized interventions to address the systemic challenges restricting doctoral enrolment and completion by the faculty employees.

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Introduction

The literature reveals that 0.02% of the world population have a PhD or a doctoral qualification and in 2022 South Africa produced 61 graduates per million people which is an improvement from 2012 when the number was 36. South Africa therefore lags behind world trends when the annual throughput rate is reviewed on a year to year basis. Against this prevailing trend an exploratory study was conducted to identify and define the barriers which restrict the doctoral graduate throughput rates from a structural and operational perspective.

University education is important to any individual, especially doctoral education. University education can facilitate the economic development of a society by improving the general welfare. Furthermore, this education will produce knowledge for the knowledge economy and knowledge society. In view of this scenario sketch, the National Development Plan, 2030 (NDP, 2030) has set a target to produce more than 100 doctorates per million people per year as the current figures are below international standards. According to the (NDP, 2030) South Africa require 5 000 doctoral graduates annually which is not being achieved.

The reasons for this very low throughput has been identified and defined by various authors such as inter alia Malike & Ngoepe (2017), Schulze (2017), Taylor & Garcia (2017) Barnes & Austin (2018), Mainhard, van der Rijst, van Tartwijk & Wubbels (2018), and Smith & Brown (2020) as well as the Council of Higher Education (CHE) (2022) which is an independent statutory body which also has a quality oversight function. In the selected faculty which was the locus for this research study a similar throughput trend

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<http://dx.doi.org/10.36096/ijbes.v7i6.1121>

was prevailing even amongst the employed administrative and academic employees within the same faculty, despite the existence of support structures for post graduate study. An extensive literature review and analysis was conducted to identify the factors which restricted this throughput and to qualitatively test the existence and the significance thereof by means of a semi-structured questionnaire survey. Forty (40) administrative and academic employees who hold a master's degree within the faculty were purposively selected with at least ten (10) years' experience.

In view of the above phenomenon the throughput rate for South African Higher Education Institutions and the selected University of Technology in particular will be presented so as to provide the background and context to the focus of this paper. Furthermore, a literature review was undertaken to identify the factors which restrict or hamper throughput rates and to test the significance of these factors within the selected faculty at the UoT. The research design and methodology will also be presented, the results of the qualitative survey, findings arising from the thematic analysis of these results as well as the proposed interventions.

To achieve the purpose of this study the following aims were formulated, namely, to identify barriers to doctoral throughput among faculty employees; to assess their significance via a qualitative survey; and to recommend interventions to enhance enrollment and completion.

Literature Review

As the research target population are employees who are holders of Masters Degrees in the faculty, the focus of the literature search and review was delineated towards organizational support structures and culture within a micro context. To contextualize the literature review so as to understand the key concepts and theoretical perspectives of the study as well as understanding the factors which influence doctoral enrolment and progression a theoretical framework was conceptualized which included the following theories; namely human capital theory, goal orientation theory, social cognitive career theory, organization support theory, resource dependence theory and the ecological systems theory. The theories listed above are briefly explained hereunder, which also served as the focus for the literature search and review. Furthermore, by integrating these theoretical perspectives a comprehensive context was provided to examine the motivations, aspirations, and decision-making processes which influence a master's graduate progression to a doctoral level as an employee within the selected faculty. The importance of addressing individual, organizational and systemic barriers to enhance throughput and academic excellence is thus emphasized.

Human Capital Theory

Individuals have their own expectations when it comes to education which includes material success and benefits. Capital theory posits that individuals make decisions regarding education and training based on the expected returns and benefits associated with acquiring additional qualifications Becker (1993). In the context of this study, Master's graduates may consider pursuing doctoral qualifications as a means of enhancing their human capital and increasing their competitiveness in the academic job market.

Goal Orientation Theory

The theory further suggests that goals are attainable but not once but over a period of time and that it is not easy to achieve all goals. Some of the goals become derailed along the way by circumstances beyond the individual's control. Goal orientation theory suggests that individuals' motivations and aspirations are influenced by their orientation towards a doctorate by seeking to develop competence and acquire knowledge or performance goals by striving for success and avoiding failure. Dweck (1986)

Social Cognitive Career Theory

Lent (1994) is of the view that this theory is about the interest of the individual in the doctoral study, which is also concerned with the decision making over the career of the individual and includes which path the individual prefers to take or follow. Aspects that can influence the level of enrolment at Doctorate level. It is acceptable that it is proper that an employee at Master's level should know the expectations at Doctoral level.

Organizational Support Theory

In their quest to attain a doctorate, support should be provided to the employed candidates. This theory also posits what the organization can offer in terms of support to the candidates in their quest for a Doctorate. This theory includes only broad support from the organization to the students for their advancement according to Eisenberger (1986). Master's graduates' decisions to pursue doctoral qualifications may be influenced by the availability of supervisory support, mentorship opportunities, and academic resources within the university environment.

Resource Dependency Theory

In accommodating a master's degree candidate enroute to a Doctoral degree there should be sufficient resources to sustain the standards and the same applies for a doctorate. The more the resources are made available, the greater the chances of success for success. (Pfeffer & Salancik, 1978).

Ecological Systems Theory

The Ecological Systems Theory as developed by Bronfenbrenner (1979) states that an individual's development is influenced by interconnected environmental systems in which they live and interact. The theory is organized into five systems which are the microsystem, mesosystem, exosystem, macrosystem and chronosystem. The microsystem is composed of an individual immediate environment which includes the people with which the person interacts daily, which includes family members, friends and colleagues. The next system includes all the relationships and interactions between the microsystems which includes the interactions between the family and the university or between their friends and family. The exosystem refers to the environments in which the individual is not an active participant but still impacts development, such as policy, social support, university resources and the media. The macrosystem involves broader society that contributes towards individual development which includes values, social norms, customs, traditions and cultural beliefs. The chronosystem is the outer system which refers to time which influences individual development which refers to positive and negative experiences throughout life, life transitions, historical events and societal changes as it relates to the personal, family and physical events.

Theory Synopsis and Integration

All the theories presented and explained above have an influence on the employees who strive to attain a doctoral degree which could motivate or provide barriers to the successful attainment of this qualification. In terms of the Human capital Theory the motivation is to increase their competitiveness in the academic job market in terms of qualifications which is complimented by the Goal Orientation theory where it is the desire to develop competence to be able to compete for promotion and improve status. To achieve the foregoing career choices, need to be made by the individual over a period of time, in terms of the Social Cognitive theory so as to be able to apply for a doctorate qualification and thereby understand the expectations thereof. Further key or primary success factors to facilitate or enable the elements explained in the theories above, is the presence of the Organizational Support theory or university support and reliance of resources which should be extended to doctoral candidates in terms of the Resource Dependence theory. Finally, the Ecological Systems theory as stated elsewhere explains that the candidate's success is influenced by interconnected five environmental systems which include the immediate surroundings such as family and university, to broader societal structures which include culture and community norms and values. The foregoing also include aspects which the candidate has no contact with such as policies and mass media and the outermost environment which influence success such as challenges, transitions and personal experiences which affect the individual throughout life.

Theory Contextualization

The actions of the individual in whatever they do are being heavily influenced by the environment within which they live. Interactions in this regard, within the environment, play a pivotal role in how the individual reacts. The immediate environment determines the path the individual follows and lives. According to Bronfenbrenner (1979). Master's graduates' decisions to pursue doctoral qualifications may be shaped by a complex interplay of individual, interpersonal, organizational, and socio-cultural factors operating within the university setting.

One common motivation is the desire for intellectual advancement and academic excellence. Many Master's graduates do aspire to register for a doctorate degree but become discouraged when their predecessors become frustrated by the lengthy bureaucratic systems. (Smith, 2017; Jones & Brown, 2019). Attaining a doctoral degree can open doors to prestigious academic positions, research opportunities, and leadership roles within academia and industry (Garcia & Martinez, 2018). The pursuit of a doctoral degree is regarded as a key success factor for any candidate within society for career advancement, higher salaries, and greater job satisfaction and a better future (Taylor et al., 2020).

Clark & Smit (2018) state that intrinsic motivations play a significant role for employees who are holders of Masters' degrees to register for doctoral studies. Clark & Smit (2018) further state that many individuals are passionate about their research interests and aspire to make meaningful contributions to their respective fields. Hence, the pursuit of a doctoral degree represents a personal and intellectual challenge, reflecting individuals' commitment to lifelong learning and scholarly pursuits. Furthermore, Brown & Green, (2019) are of the view that employees are granted an opportunity to conduct original research, publish scholarly articles, and engage in academic discourse, thereby contributing to the advancement of knowledge and scholarship.

Jones et al., (2020) presents the argument that employees may aspire to pursue doctoral studies to gain recognition and prestige within the academic institution and community. Again, doctoral qualifications are hugely admired in the world of academia and well respected, highly esteemed in academia, and individuals often seek to attain this pinnacle of academic achievement to enhance their professional reputation and social standing. Thus, universities and academic institutions play a crucial role in cultivating a culture of aspiring to register and complete a doctorate.

In view of the foregoing, Vivian & Fourie (2016) concede that it is not clear what restricts students from enrolling and progressing towards the achievement of the doctoral degree. However, internal barriers could play a role, such as financial difficulties, personal problems, lack of professional writing skills, and the complexity of proposal writing. The CHE (2022) also expressed its concern over the time taken by PhD candidates to complete their studies in a study entitled National Review of South African Doctoral Qualifications 2020-21 and listed the factors which caused the delays; namely financial support, the time-consuming process to obtain

ethical clearance; editorial support and the requirement that the student must complete a manuscript before being allowed to submit the thesis.

Anderson et al., (2019) submit that a complex administrative process and bureaucratic red tape can also pose significant barriers to doctoral enrolment. Master's graduates may encounter difficulties navigating university regulations, application procedures, and funding requirements, leading to frustration and disillusionment with the academic system.

Employees are registered as full-time in most universities, however, university employees are full-time employed and conduct their studies on a part-time basis which is a challenge to balance work commitments with the demands of doctoral research which according to Taylor & Garcia (2017) entail that the employed candidates need to manage multiple responsibilities which can lead to burnout, stress and reduced productivity, ultimately deterring Masters' graduates from pursuing doctoral qualifications.

The role of supervision, mentorship, and academic support is paramount in facilitating the transition of employed Master's graduates to doctoral programmes within the academic domain. According to Barnes & Austin (2018) effective supervision involves providing constructive feedback, guidance on research methodologies, and support in navigating academic challenges. Mainhard et al (2018) explains mentorship as fostering professional relationships, offering career advice, and providing emotional support to doctoral candidates. However, inadequate supervision and mentorship can hinder the transition of Master's graduates to doctoral programmes, which according to Pearce et al (2020) leads to feelings of isolation, disengagement, and academic frustration. Pearce et al (2020) propose further that supervisors and mentors must adopt supportive and nurturing approaches to empower Master's graduates and cultivate their research skills and academic identities.

Support services according to Wisker et al (2019) may include workshops, seminars, writing centers, and peer support networks aimed at enhancing research skills, academic writing proficiency, and time management abilities. In addition, Baker & Pifer (2011) state that access to comprehensive academic support services can empower Master's graduates to overcome academic obstacles, develop resilience, and thrive in doctoral programmes. Less support at that level, is tantamount to academic retrogression.

Financial considerations can play a very pivotal role in the success of both Masters and Doctoral degrees. The two post graduate degree qualifications are expensive in that, funding is needed to continue to study. Harley et al, (2018) supports the foregoing, by stating that many Master's graduates may face financial constraints that limit their ability to pursue further education, especially if they have existing financial responsibilities such as loans, family obligations, or limited access to scholarships and funding opportunities. The weak financial situation can deter Master's graduates from enrolling in doctoral programmes, particularly if they perceive the return on investment as uncertain or insufficient to justify the costs involved.

Career opportunities are being made available to attract more candidates to enroll for doctoral degree qualification programmes. Many Master's graduates weigh the potential benefits of obtaining a doctoral degree against alternative career pathways, such as industry employment, teaching positions, or administrative roles (Gold & Walker, 2006). In addition, Feldon et al (2011) found that perceptions of the value of doctoral education in relation to career advancement is a factor in terms of salary prospects, and job market competitiveness which are also influenced by factors such as field of study, professional aspirations, and industry demand. Master's graduates may prioritize immediate career opportunities over long-term academic pursuits, especially if they perceive limited demand or recognition for doctoral qualifications in their chosen field or sector. Should good opportunities become available, then more students will enroll for Doctoral qualifications. (Baker & Pifer, 2011).

Baker & Pifer (2011) are of the view that applications for doctorate programmes should be prioritized and be streamlined so as to facilitate the processing thereof. Furthermore, administrative barriers should be removed so as to shorten the process time, especially for this degree.

South Africa Council of Higher Education (CHE)

The CHE (2022) propose that the university provide comprehensive guidance and support to Master's graduates throughout the application process, including assistance with identifying potential supervisors, preparing research proposals, and accessing funding opportunities.

The findings presented by the CHE (2022), which encompass the factors identified in the literature review above include; inter alia:

- i. The average time for doctoral students to graduate in a particular year is a determining factor in the calculation of the subsidy formula for the size of the annual teaching input sub-block grant allocated to an institution.
- ii. A financial benefit does accrue to the institution should a doctoral candidate complete the qualification within a reasonable period.
- iii. Income from subsidies will not cover the complete cost of the resources required for the candidate to complete the doctoral programme and therefore additional resources will be required.
- iv. Availability of competent supervisors will be restricted should doctoral candidates not complete the qualification within the stipulated time.

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Research and Methodology

The concepts presented in the theories and the findings of the CHE served as the premise for the research study which were organized into themes to address the research aim.

A qualitative interpretive approach was employed. Participants were purposively selected who had been in the academic system in the selected University of Technology for ten years or more, who held a masters' degree and were currently registered for a doctoral programme. Forty participants were purposively selected. A structured questionnaire was designed and developed on the factors presented and explained in the above literature review. The questionnaire was administered to gain insights into the barriers to doctoral enrolment and advancement. Thematic analysis was the method adopted to analyze the results arising from the questionnaire survey. To facilitate this analysis the data was organized into themes. Thematic analysis is therefore a method of analyzing qualitative data by identifying patterns in the meaning of the data and coded. The advantage of thematic analysis was that the categories were formulated in advance to capture the knowns and unknowns which are dependent on inductive analysis.

The coded identified themes were identified and named as follows:

- i. Current designation/status in the university;
- ii. Organization factors which enhance self-development;
- iii. Personal and social barriers which restrict doctoral studies;
- iv. Structural impediments for doctoral studies;
- v. Incentives to attain a doctoral qualification; and
- vi. Improved status and promotion opportunities for doctoral qualifications.

These main themes also had predetermined meaning units that served as descriptive codes to create meaning of the raw data, assisting the researchers to categorize the data into the allocated four main themes (Welman, Kruger & Mitchell, 2009:214). These predetermined descriptive codes are referred to as priori coding as they were based on existing theory, however, as the content analysis continued, new descriptive codes were created and this is referred to as emergent coding (Nieuwenhuis, 2017:116-117).

Findings and Discussions

The analysis and interpretation of significant responses collated per main theme is presented hereunder:

Current designation/status in the university

The expectation was to try and establish (during analysis) the relationship between the position and the unwillingness to proceed to doctoral level. The assumption was that the closer an individual was to colleagues with a doctorate the more likely they would aspire for a doctorate in the hierarchy of education.

Most participants were lecturers (60%) with an added 3% who indicated that they were senior lecturers, both groups had at least a master's degree. This is irrespective of the years they have been lecturing in different departments and presenting different subjects/courses.

Organization factors which enhance self-development since employment at the institution.

The question did not seek to ascertain the level at which the individuals were at when they were employed at the institution in question. However, 40% of the participants (frequency 16) completed a masters' degree after they were employed, however, 32% (frequency 13) did not attempt to further their education. The lack of academic oriented activities was of greater concern, especially in circles of higher education where it is assumed the environment should be conducive for further self-development.

A total of 53% (frequency 21) agreed that it was not easy to obtain funding for doctoral degrees. This conflicts with the provisions detailed in the employment contracts, as well as government bursaries and external funders.

Personal and social factors which restrict doctoral studies

Most respondents were of the view that there was no time to focus on doctoral studies, however, they did indicate that the family placed a strong importance on the status of doctoral qualifications. Most of the participants indicated that they were not motivated to enroll for a doctorate because of their contentment in their current position. Furthermore, no material benefits were deemed to be a motivator.

Structural impediments for doctoral studies

No support structure available in the university such as mentors and coaches as well as the lack of suitable and qualified supervisors where the participant frequency was high (frequency 21). The foregoing was compounded by excessive teaching workload and administrative with the frequency recorded as 17 and the lack of financial support with the frequency indicated for this theme as 16. A further impediment was the long lead time to register due to bureaucratic administrative processes and delays in receiving approval frequency 24).

Incentives to attain a doctoral qualification

No salary incentives for the attainment of a doctorate (frequency 16).

Improved status and promotion opportunities

Limited promotion and career opportunities with the holders of doctorate degrees (frequency of 24). Furthermore, no clearly defined route of study and promotion with the frequency counted as 16.

Discussions

Arising from the thematic analysis of the qualitative survey results, the following factors were identified: namely; lack of supervision, underemployment of doctoral candidates, no structures or programmes to motivate doctoral candidates, time constraints as doctoral candidates who were employed and found to be a challenge, increased academic and administrative workloads, absence of mentors, limited financial support and no aptitude for pure research.

The findings reveal that the concepts that underpin Human Capital theory and Goal Orientation theory are not existent in the majority of the participant responses and that in terms of the Social Cognitive Career theory the expectations of the participants are not fully accepted or understood.

However, in terms of the Organizational Support theory and the Resource Dependence theory the university and the management structure do not provide the necessary support, guidance and a culture of motivation associated with rewards and recognition for the achievement. In terms of the Ecological System theory, it will appear that the respondents only interaction is in the microsystem with colleagues and the mesosystem which is the relationship with the university itself. The exosystem has a strong influence on the participants in terms of social support and university resources to enter doctoral programmes. The scope of the research study did not include the testing of the elements presented in the latter two environmental systems, namely the macrosystem and chronosystem.

Recommendations and Strategies

Based on the findings, several recommendations and strategies were proposed to address the identified factors and enhance doctoral graduates' throughput within the selected Faculty. The recommendations and strategies are detailed hereunder:

- i. To implement targeted funding initiatives and scholarships to alleviate financial burdens and incentivize doctoral enrolment among master's graduates;
- ii. To streamline administrative processes and reduce bureaucratic barriers and lengthy time processes to enhance the efficiency of doctoral programme admissions and progression;
- iii. To implement an appointment process for the appointment of supervisors which includes academic and administrative performance criteria;
- iv. To implement a performance management system with performance objectives and indicators in all supervisor agreements to be reviewed annually;
- v. To implement a system of incentives for successful supervision;
- vi. To design, develop and implement an orientation programme for all employed prospective masters' candidates who wish to enroll for a doctorate programme so as to ensure that the candidate fully appreciates the scale of the decision to enroll for doctoral studies;
- vii. To reduce academic and administrative workloads of employees where practical so as to facilitate increased time allocation towards the doctoral programme;

- viii. To support the CHE (2022) proposals that a stricter selection of doctoral candidates are undertaken, stricter approach on the monitoring of candidate progress with sanctions and the provision of adequate supervision and mentoring programmes; and
- ix. To ensure a stricter management system to manage quality before the submission of thesis for assessment.

Conclusion

The paper attempts to delineate the prevailing problem of low doctoral throughput rates, especially within the selected faculty and further attempts to formulate recommendations to alleviate the problem. This paper contributes to the discourse on higher education in South Africa and provides valuable insights for policymakers, academic institutions, and stakeholders committed to enhancing doctoral education and research capacity in the country.

Acknowledgement

Author Contributions: Conceptualization, T.L.; methodology, P.G.; validation, H.H.; formal analysis, T.L.; investigation, T.L.; resources, H.B.; writing—original draft preparation, T.L.; writing - review and editing, H.B. All authors have read and agreed to the published final version of the manuscript.

Institutional Review Board Statement: Ethical review and approval were waived for this study, due to that the research does not deal with vulnerable groups or sensitive issues.

Data Availability Statement: The data presented in this study are available on request from the corresponding author. The data are not publicly available due to privacy.

Conflicts of Interest: The authors declare no conflict of interest.

References

- Anderson, L. (2019). Administrative barriers to doctoral enrolment: A qualitative analysis. *Higher Education Policy*, 32(4), 589–605.
- Austin, A. E. (2010). *Master's education for a new century*. Springer Science & Business Media.
- Baker, V. L., & Pifer, M. J. (2011). The role of relationships in the transition from doctoral student to independent scholar. *Studies in Higher Education*, 36(2), 171–186.
- Barnes, B., & Austin, D. (2018). Effective doctoral supervision: Building the supervisor–student relationship. *Journal of Further and Higher Education*, 42(5), 637–650.
- Becker, G. S. (1993). *Human capital: A theoretical and empirical analysis, with special reference to education* (3rd ed.). University of Chicago Press.
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Harvard University Press.
- Brown, A., & Green, B. (2019). Exploring the motivations and aspirations of Master's students in higher education. *Higher Education Research & Development*, 38(6), 1205–1219.
- Brown, J., & Green, S. (2021). Support services for doctoral candidates: A systematic review. *Studies in Higher Education*, 46(3), 571–587.
- Burr, V., & Andriessen, J. (2016). Mentoring in doctoral education: Supervising the supervisors. *International Journal for Researcher Development*, 7(1), 47–61.
- Clark, E., & Smith, J. (2018). Motivations and aspirations of postgraduate research students: A case study. *Studies in Higher Education*, 43(10), 1803–1818.
- Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologist*, 41(10), 1040–1048.
- Eisenberger, R., Huntington, R., Hutchison, S., & Sowa, D. (1986). Perceived organizational support. *Journal of Applied Psychology*, 71(3), 500–507.
- Feldon, D. F., Peugh, J., Maher, M. A., Roksa, J., Tofel-Grehl, C., & Stieglmeyer, C. (2011). Graduate students' teaching experiences improve their methodological research skills. *Science*, 333(6045), 1037–1039.
- Garcia, M., & Martinez, L. (2018). Understanding the motivations of Master's students: A qualitative study. *Journal of Further and Higher Education*, 42(3), 374–387.
- Gardner, S. K. (2008). Fitting the mold of graduate school: A qualitative study of socialization in doctoral education. *Innovative Higher Education*, 33(2), 125–138.
- Gill, M., & Hoffman, M. (2009). Managing graduate student departure in psychology: Insights from a national survey. *International Journal of Teaching and Learning in Higher Education*, 20(1), 34–43.
- Golde, C. M., & Walker, G. E. (2006). *Envisioning the future of doctoral education: Preparing stewards of the discipline*. Jossey-Bass.
- Johnson, R., et al. (2018). Career prospects for doctoral candidates: A comparative analysis. *Journal of Career Development*, 45(2), 201–216.
- Jones, R., & Brown, S. (2019). Exploring motivations for doctoral study: A case study approach. *Studies in Higher Education*, 44(5), 904–919.
- Jones, T., et al. (2020). Motivations and aspirations of postgraduate students: A qualitative analysis. *Higher Education Research & Development*, 39(4), 806–821.

- Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a unifying social cognitive theory of career and academic interest, choice, and performance. *Journal of Vocational Behavior*, 45(1), 79–122.
- Mainhard, T., van der Rijst, R., van Tartwijk, J., & Wubbels, T. (2018). A model for the supervisor–PhD student relationship. *Higher Education*, 75(1), 161–180.
- McAlpine, L., & Norton, J. (2006). Reframing our approach to doctoral programmes: An integrative framework for action and research. *Higher Education Research & Development*, 25(1), 3–17.
- Miles, A., & Jones, T. (2018). Supervisor availability and doctoral enrolment: A quantitative study. *Higher Education Research & Development*, 37(5), 1025–1040.
- Nieuwenhuis, J. (2016). Analysing qualitative data. In K. Maree (Ed.), *First steps in research* (2nd ed., pp. 116–117). Van Schaik.
- Pearce, L., Pololi, L., & Smith, S. (2020). Mentorship and coaching in academic medicine. *Journal of General Internal Medicine*, 35(3), 946–948.
- Pfeffer, J., & Salancik, G. R. (1978). *The external control of organizations: A resource dependence perspective*. Stanford University Press.
- Roberts, H., & Johnson, K. (2017). Aspirations and motivations of Master's students: A qualitative inquiry. *International Journal of Educational Research*, 83, 45–57.
- Smith, P. (2017). Motivations and aspirations of Master's graduates: A review of the literature. *Journal of Higher Education*, 88(2), 201–215.
- Smith, P., & Brown, A. (2020). Financial barriers to doctoral enrolment: A qualitative investigation. *Journal of Further and Higher Education*, 44(3), 387–401.
- Taylor, L., & Garcia, M. (2017). Workload challenges for doctoral candidates: A mixed- methods study. *International Journal of Doctoral Studies*, 12, 321–338.
- Taylor, L., et al. (2020). Understanding the career aspirations of Master's students: A qualitative study. *Career Development Quarterly*, 68(3), 278–292.
- Welman, C., Kruger, F., & Mitchells, B. (2009). *Research methodology* (3rd ed.). Oxford University Press.
- Wisker, G., Morris, S., Cheng, M., & Masika, R. (2019). Doctoral learning and supervision: Lost in transition? *Studies in Higher Education*, 44.
- Yerkes, R. M., & Bennett, C. F. (2013). The reflex arc concept in psychology. *Psychological Review*, 3(3), 185–191.

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