Chapter 7: Successful Supervision of Postgraduate Research: Experiences, Challenges, and Opportunities

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Abstract

Successful supervision of postgraduate research and students is a thorny issue in terms of research quality control, throughput, graduate quality and the employability of the qualifying graduates. Drawing on years of lived experience supervising master's and doctoral candidates, this chapter explores strategies for successful supervision, as well as the key stages, challenges, and opportunities. Discourse and literature review has been applied to support the narrative. Finally, I argue for greater investment in supervision through policy, capacity building, facilities, and awareness to enhance quality graduates, a pressing concern in South Africa. It is acknowledged that, while a lot is being done to achieve postgraduate quality, more investment into the recognised challenges is required to turn them into opportunities. This chapter is expected to improve postgraduate supervision, leading to higher student completion rates, and graduates of higher quality who are more employable. The paper is likely to improve postgraduate supervision at university level in South Africa, and perhaps elsewhere with a similar PG environment.

Keywords: Research, graduate research, postgraduate research, research supervision, post graduate students, South Africa

Introduction

Supervision of postgraduate (PG) research for master's and doctoral qualifications is important for research capacity building and supporting the graduate quality and employability of the qualifying graduates. However, it remains challenging for both the supervisor and the students for several known and unknown

reasons. While students are often blamed for poor performance, quite often the supervisors also bear a significant burden of blame. Successful supervision is a long journey that requires the correct attitude, as well as enough knowledge, skills, experience, and exposure, most of which require time to develop, nurture, and sharpen. In this chapter, I draw from my lived experience of PG supervision at both master's and doctoral levels, discourse and literature review to discuss how to enhance successful supervision. The chapter covers supervision frameworks, stages, requirements, challenges, and opportunities. In conclusion, emphasis is put on investment in PG supervision. This investment includes policy, supervision capacity building, facilities, sustainability, and awareness. Such investment serves to maximise the quality of student success, the completion rate of PG qualifications, and the employability of graduates, as discussed in recent South African studies (Mouton 2017; CHE 2018; CHE 2022; Ocholla 2024). This chapter is expected to improve PG supervision at university level in South Africa or similar academic environments beyond this context.

Frameworks

Frameworks, in this context, refers to guidelines, policies, models and theories that shape postgraduate research supervision. The frameworks are based on research (e.g. Ngulube 2021; Boehe 2016; Mouton 2017; Mouton *et al.* 2015; Cloete, Mouton & Shepard 2015; Garfield 2005), as well as international, national[1], and institutional policies and guidelines. While some of these frameworks can be widely applied, they are normally contextualised with sensitivity to local variations such as institutional policy, type of qualification (master's or doctorate, course work or thesis based), discipline, and stages or phases of research. At the national and institutional levels, frameworks are reflected in policies and legislations. Most universities have postgraduate supervision policies, where the role and responsibilities of both the supervisor and student are articulated. At the national level, legislation on PG supervision is often not articulated but hidden within legislative clauses. However, policies that address the activity of postgraduate supervision do exist, as cited by Cloete, Mouton and Sheppard (2015:101 - 123). Two examples include the Council on Higher Education (CHE 2018) referring to the qualification standard for doctoral degrees, and the Department of Education (DoE) referring to the national qualification framework (DoE 2007).

[1] https://www.che.ac.za/about-us/legislative-and-policy-mandate

Supervision models or styles also matter (Ngulube 2021; Boehe 2016, Lee 2014; Van Biblion & De Villers 2013; De Lange *et al.* 2011; Diezel *et al.* 2006; Mouton 2001). Boehe (2017: 400) defines supervisory style as 'the principles that govern the relationship between supervisor and supervisee in research, be they intended or unintended, explicit or implicit'. In his typology of supervision styles (Boehe 2017: 402) and reflecting on related studies by Grover and Malhotra; Garfield and Wright *et al.*, as well as Murphy and Mainford, these styles can be clustered under dependent and independent, controlled and free, and high versus low support. These categories resonate with popular management styles such as authoritarian, participative, and laissez-faire. For example, the Garfield (2005) structure (low/high support and vice versa) is characterised by styles like laissez-faire (low structure and low support), directional (high structure and low support), contractual (high structure and high support), and pastoral (low structure and high support). Garfield recognises that supervision styles change as supervision progresses. He notes that the contractual supervision style (whereby direction, good management skills and interpersonal relationships are exercised by the supervisor) is predominant.

Most of the cited studies recognise two supervision models: the individualistic or traditional style (often called the British system), and the team or networked style (often named the American system). The *individualistic style* (one-on-one) involves one supervisor, while the *team or pluralistic style* is where a student is supervised by two or more supervisors. While both models have merits and demerits, the individualistic supervision style is still predominant in South Africa and other parts of the world (Mouton *et al.* 2015; Ngulube 2021). Factors that promote this style include policy (which often favours the individualistic model), as well incentives or reward systems where a single supervisor gets more credits, such as funding and recognition, than multiple supervisors. Also control (supervisors often feel 'territorial'), and convenience play a role. Thus, some supervisors are protective of their research domain or niche and feel more in-control supervising alone. Also, the reward system for PG supervision in South Africa, for example, is still in favour of the traditional or individualistic model (Mouton *et al.* 2015; Ngulube 2021). Ngulube (2021: 257), citing multiple authors, refers to eight conditions which require students to have multiple/ collaborative/ team supervision. These include knowledge sharing from multiple areas of expertise, monitoring and accountability, and multiple levels of support (practical and intellectual). He adds bridging the knowledge gap, enabling communication and oversight, apprenticeship, and

providing a 'safety net' to ensure a student does not go without supervision.

Besides the two main supervisory styles, i.e. individual and team supervision, Lee (2012) suggests a further five styles, namely: functional, enculture, emancipatory, relational development, and critical thinking. Mouton et al. (2015: 15), referring to Garfield (2005), describes them as directional, contractual, laissez-faire, and pastoral, as noted earlier.

Garfield (2005), Dietzel *et al.* (2006) and Lessing (2011) view the roles of a supervisor to be advisor, pastor (i.e. counsellor or mentor), quality controller, expert guider, coach broker, apprenticeship, and overseer of their students' work. A recent study by Ngulube (2021), found the prevalence of the traditional master – apprenticeship epistemology, characterised by solo supervision, at the expense of co-supervision, to be common at his workplace. He strongly recommends team or collaborative supervision because of its merits. My experience with team supervision is that its merits are more evident when its intentions, which focus on sharing of expertise and the benefits of collaboration or partnership for a common good, are at the core of the academic relationship between the parties involved. Such collaboration can be done for the wrong reasons. This may result in opportunism or an unhealthy dependence on a particular supervisor, so creating a general environment of pessimism as opposed to a more optimistic academic experience where there is an emphasis on mutual benefit. Sullivan and Skelcher (2002) discuss this concern in greater detail.

Experiences

My supervision journey is linked with my academic career and, therefore, important in this discourse. My career as a university academic started at a public university in Kenya in 1988, after having graduated with a PhD in Library and Information Science from the former Soviet Union in 1988. I started by supervising final year undergraduate research reports and mini-dissertations (as we did not have postgraduates then), and supervision of PG students for a master's degree began in 1992, both at Moi University (1992-1995) and the University of Botswana (part of 1995-1996). The supervision of master's work continued when I joined the University of Zululand in September 1996 as Professor and Head of the Department of Library and Information Science. Later that decade, we admitted PhD students to the department, and I graduated my first PhD in 2002. As of today, I have graduated (some co-supervised with colleagues) several master's and 33 PhD students, most of whom occupy senior academic positions in public and private universities in 12 African countries,

predominantly South Africa, Nigeria and Kenya. During this time, I examined 67 master's and 130 PhDs for 10 Universities in Africa, largely based in South Africa. My university management positions (Head of Department, Dean, and Deputy Dean) exposed me to teaching and research management, and policy decision-making environments, which enriched my knowledge in the sector. I have also been actively involved in research in my own capacity as a university academic. There are unique experiences that have accumulated from all this exposure. My emphasis and examples in this paper will focus on doctoral research supervision

There are many stages in PG supervision. I identify five stages in the research supervision process. *First*, is the admission of a suitable candidate. Admission of students to a university is often not the supervisor's responsibility. However, at PG level, a suitable supervisor must be identified (guided by academic expertise in the field/domain) by the relevant academic unit, and the supervisor must then agree to accept the responsibility. Proper orientation of the newly admitted student is critical at my own university, the University of Zululand, as reflected in an 'enhancing postgraduate environment'[2] focusing on orientation on the university website for both supervisors and students. This has proven valuable for both parties. The document focuses on orientation and supervision allocation, starting a PG journey, research proposal development, research, writing and scholarship development, examination and assessment, dissemination and publication and career development. Some of the listed areas are covered in this chapter.

The *second* stage of the research supervision process is research planning or research proposal development, which is essential. This is one of the most important parts of PG research supervision because poor planning leads to a disaster in the execution and success of the research project.

Third is the execution or implementation of the proposed project, which involves data collection, normally achieved through desk, laboratory, or field research. A rigorous research methodology, which would be part of a research proposal, is pivotal for data collection and a quality thesis.

The *fourth* stage is the write-up. While writing a thesis is assumed to occur after the approval of the proposal, it takes place much earlier, at the proposal development stage, and continues until the final thesis is written. Writing a thesis is a daunting task for most students. Sound academic writing skills are essential, and the guidance of the supervisor, with a wide and deep know-

[2] https://postgradenvironments.com

ledge of academic writing, is critical. Workshops on academic writing, which occur at most universities, are valuable in honing these necessary skills in PG students and, in some cases, produce remarkable results. Also, PG students who engage in academic writing and publish academic papers during the thesis development, often sharpen their academic writing skills, thus improving their graduate and thesis quality. Experience shows that co-publication with supervisors (Ocholla 2022) becomes essential to achieving better writing skills.

Fifth, is assessment. This activity is important for quality control and determining the graduate readiness of a PG student (DoE 2007; Mouton 2017; Beardry & Mouton 2018; CHE 2018 2022; Burton *et al.* 2022). Thus, the qualification achieved its objectives by producing the graduate we want (Burton *et al.* 2022) in terms of knowledge, skills, and attitude desirable for the job market and human resource needs of the country. Supervisors are not normally involved in the direct assessment or examination of theses written by their students. The customary practice is that universities appoint thesis examiners, who could be both internal and external or only external (not university staff. The examiners are expected to be dependable, competent, qualified, and knowledgeable in the relevant research domain. The assessment can be based on the examination of the written thesis only or involve both written (thesis) and oral (*viva voce*) examination, particularly for a doctoral thesis. In the world of growing predatory scholarship (Mouton & Valentine 2017), where a thesis can be written by ghost writers or by use of AI, *viva voce* increasingly helps to determine and affirm the candidate's knowledge of the thesis content. *Viva voce* is even more critical in a distance learning academic environment where the quality of a doctoral thesis can easily be compromised due to limited direct contact with students.

The last stage of the postgraduate supervisory relationship is the publication of the thesis. Institutional repositories have become popular platforms for publication of theses and dissertations in many universities. During the assessment of a thesis, examiners are often asked if the thesis is publishable, assumedly, as a thesis quality assessment criterion. Increasingly, universities in Africa encourage, or even demand (e.g., in cases of PhD), that a publication is produced from the thesis before graduation. The student can write the publication singly or co-author with the supervisor and, in such cases, the student is the first author. This trend is becoming popular (Ocholla 2022) for many reasons, including research quality, and increasing the research publication output of a university, which attracts research output subsidies or funding, as in the case of South Africa (DHET 2015). Experience has shown that opti-

mistic or mutually beneficial co-publications involving students and supervisors produce more academic advantages than disadvantages for both parties, as they enjoy the benefits of research collaboration. The requirements for PG supervision are important in this narrative.

Requirements for PG Supervision

The requirements for PG supervision are numerous. I identify four of these requirements as follows.

First, is policy and awareness of the institutional and national research landscape. Research policies have become a norm at universities globally and quite often there are multiple policies – both broad (e.g., university research policy) and narrow or specific (e.g., research ethics policy) in scope. There are also national research policies to consider (e.g., DHET 2015). It is mandatory for PG research supervisors to know research policies to guide the students and manage compliance. Policy awareness can also help with the amendment or revision of policies for sustainability and suitability. For example, with reference to the requirement that master's and PhD students submit (for publication) or publish their research before graduation, such a policy, though essential, may be difficult to implement because it could inconvenience and delay the graduation of the students, so affecting the university throughput rate, which is vital to the success of university education. Unfortunately, lack of knowledge of the university research policies by both the supervisor and the student is not acceptable because of the negative consequences and inconveniences caused.

The *second* requirement includes what I refer to as knowledge, skills, attitude, exposure, and experience (KSAEE). Knowledge refers to academic, professional and subject expertise in the research field (e.g. library and information science, information systems, computer science, quantum physics, etc.). Academic qualifications at PhD level play a key role in achieving the kind of knowledge required for master's and doctorate supervision, as it also equips the supervisor with empathy and the ability to handle tasks based on own experiences. Additional qualifications in PG research supervision, as explained by Lessing (2011), have proven to be valuable for the task as well. There are several universities offering a qualification in PG supervision in South Africa, including the University of KwaZulu Natal, and some of our academics and faculty at the University of Zululand have acquired such qualifications. Some universities have included a PG supervision qualification in its staff promotion requirements. I do believe that such a qualification can also be informally ob-

tained through (obligatory) staff re-skilling workshops.

Skills are linked to knowledge, with an emphasis on practical competency or the ability to perform a task. The common skills required for PG research supervision, are communication skills, computer literacy skills, analytical skills, problem solving skills, emotional intelligence, innovation and creativity skills, research skills, research management skills, strategic thinking skills, scholarly communication skills and self-learning. Most of the skills, particularly those driven by modern technology (e.g. computer literacy, social media, internet, AI, remote communication, mobile technologies), change rapidly. Thus, most recent skills required for supervision are technology driven (e.g. for remote communication, which became popular, even critical, during the COVID-19 pandemic, cf. Ocholla 2021). I also find research and publishing skills critical for PG research.

Equally important is the attitude of the supervisor in relation to the PG research supervision and the student involved. Here we refer to, for example, interest, commitment, reliability, sensitivity, helpfulness, understanding, enthusiasm, involvement, objectivity, and ethics. A positive and supportive attitude to the project and the student is important.

Exposure and experience are inter-connected. Exposure refers to the frequency of interaction with a system, in this context, the frequency of PG supervision, which builds experience. Among the benefits of team or core supervision is apprenticeships, where the experienced supervisor co-supervises with a less experienced supervisor and enables the latter to gain essential supervision knowledge and skills. Co-supervision of this type is often included in the policy on PG supervision by universities. This approach to PG supervision is also expected to develop the next generation of researchers (Beaudry & Mouton 2018) particularly if all parties are on board and share equal responsibility (Grossman & Crowther 2015).

The *third* requirement for PG supervision concerns the library and information services or where and how to get information. To my knowledge, accreditation of universities requires that they have a suitable library to support teaching, learning and research. As a result, university libraries get special attention from university administrators and tend to be well-resourced and managed. They tend to be the best libraries in most countries in Africa, and perhaps elsewhere in the world, particularly where other types of libraries, such as public libraries, are underdeveloped. While there are other competing information sources and services in the world (through the internet and social media platforms), university libraries provide access to multiple information

sources, both in-contact and remote, for staff and students (its members) without additional cost and this increases their popularity. Both students and supervisors can access and use the relatively excellent information resources anytime, anywhere with minimal obstacles. However, maximum access requires information literacy (IL) skills, which most libraries provide through their user education and IL activities and programmes (Ocholla & Ocholla 2020). PG research supervisors should be able to navigate their way easily through the information and knowledge infosphere by being knowledgeable of the information service capacities of their university (e.g. Internet, IT services) and library, and so take the students with them. For example, it is important to know the information services offered, who offers them (e.g. research librarian) and how and when they are offered. Increasingly, libraries offer information services remotely, in digital and open access format, anytime, anywhere, and provide regular information literacy (IL) and library orientation for easy access and success in using their services. It is important for PG students to be registered as library users, access the university library website where they can find suitable links for their information needs, and attend library orientation and IL programmes and activities to boost their information access and user knowledge, all of which are essential for successful thesis writing.

The *fourth* requirement for effective PG supervision is research ethics, which focuses on good or bad behaviour in relation to self (e.g. dishonesty), to others (e.g. plagiarism), and to the environment (e.g. pollution). The three taboos related to unethical research behaviour are plagiarism, falsification, and fabrication, which simply means cheating or stealing. More recently, the three taboos escalated to predatory research, predatory publishing, predatory journals (Mouton & Valentine 2017) books and many more. Ghost writing, including the use of artificial intelligence (AI), is increasing and creating challenges as well. Research ethics is a central concern of knowledge creation and dissemination. Governments, universities, research institutions and other knowledge centres have developed and formulated research ethics policies to protect ethical research and knowledge dissemination. Beyond the universities, research within government and private institutions also requires ethical clearance to protect these institutions from unethical research. Consent to conduct research safeguards institutions, people, animals, and the environment. Postgraduate supervisors must be knowledgeable of research ethics and enforce compliance. They are also required to ensure research quality control (e.g. content, writing, editing, citations) where the three taboos often prevail. PG students' awareness of research ethics requires research supervisor involvement

(Lessing 2011), which includes guidance, oversight, understanding, providing role models, attendance of regular workshops, and familiarising the student with visible websites where ethics related information is provided by the institution.

Lastly, an effective supervisor must be aware of the examination requirements (Mutula & Majinge 2017; Ocholla 2024). Universities have postgraduate assessment policies and guidelines, some of which outline the examination requirements in detail through assessment forms. In some cases, such forms look like a marking scheme covering all aspects of thesis examination (e.g. introduction, problem statement and research purpose, methodology, theoretical framework and literature review, research findings, discussions, conclusions and recommendations, formatting, including size of thesis, readability/ editing etc.). Although the supervisor is better placed to access the assessment guidelines, increasingly the guidelines are posted on open spaces, such as university research websites, for easy access to all parties involved. Knowledge of the assessment guidelines enables both the supervisor and the PG student to be familiar with the expectations for a good thesis and so improve the quality thereof.

Challenges and Opportunities

Challenges and opportunities are two sides of the same coin and must be confronted as such.

Key Challenges

Among the challenges, I note research policy (e.g. scope and relevance), lack of supervision knowledge, skills, attitude, experience and exposure (KSAEE), requiring research supervision development and support, digital literacy and transformation (effective access and use of information digitally or remotely). Also, requisite research investment (e.g. resources and infrastructure), research capacity building (e.g. development of the next generation of supervisors), handling research ethics (e.g. policy), achieving the desired academic knowledge expressed in the outcomes for a qualification level, as well as master's and doctoral throughput, which is low in South Africa. In addition, sustainability and effective planning also matter. Some of these factors have been identified by Mouton *et al.* (2015) with reference to doctoral supervision, as well as the Council of Higher Education. For example, Mouton *et al.* (2015) identify the challenge of coping with student numbers, which can be

exacerbated when one supervisor is supervising both master's and doctoral students at the same time. They add, monitoring and accountability to institution and government, throughput and level of success, student quality (gaps in the screening process, particularly where the supervisor role is minimal), and the nature of supervision, i.e. in contact and remote (the latter being quite common in doctoral studies in South Africa), as well as the funding framework.

The Council for Higher Education (2009)[3] identified six major factors affecting completion of post graduate studies in South African universities. Among them were poor planning and management, methodological difficulties, writing-up, isolation, personal problems outside research, and inadequate or negligent supervision. These factors still affect postgraduate supervision, despite interventions by stakeholders, such as universities, to prevent them. For example, planning and management of PG research at institutional levels is supported by research administration structures, policy, and resources (e.g. library and internet connectivity). Access to relevant research information and knowledge (such us research methodology) through the library, internet access and knowledge platforms, such as seminars, webinars, workshops and conferences, are becoming the norm at universities where PG qualifications are being offered. Master's and doctoral research and write-up often occur in isolation. The experiences of COVID-19 (Ocholla 2021) referred to isolation and increased our understanding of its manifestation beyond a personal level. While the personal problems of the students play a critical role in PG research supervision, inadequate supervision, a heavy teaching load, limited supervision capacity, and the personal problems of supervisors (e.g. KSAEE) play a key role too. There has also been a concern whether South African doctoral qualifications are producing the thinkers the country needs in terms of the academic and intellectual depth required at that level (Mouton 2017; Burton *et al.* 2022).

Emerging Opportunities

While challenges like low throughput and supervision gaps persist (CHE 2009), opportunities such as digital libraries and the fourth industrial revolution (4IR) technologies offer pathways to mitigation. Opportunities exist alongside the challenges.

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3 https://www.che.ac.za/sites/default/files/publications/CHE_MonitorProjectV7.pdf

First, research guidelines and policies are being developed at both national and institutional levels to support and increase research. Besides new policies addressing specific research areas, existing policies tend to be revised to keep pace with time. While this is an opportunity, implementation of the policies is still a challenge. Also, quick response to technology driven research policy needs in the fourth industrial revolution(4IR), such as artificial intelligence (AI) and block chain computing, are still lacking in higher education institutions (HEIs).

Second, is research capacity building through both formal and informal education (e.g. conferences, seminars and workshops). Most research takes place at universities and research councils, which are constituted by government legislation to develop and disseminate research. Research capacity building through formal PG qualifications at master's and doctoral levels is the main driver towards this goal in most countries. Promotion of academic staff through 'publish or perish' has contributed to research capacity as well. Besides those two, in South Africa, the promotion of quality research output by policy (DoE 2015) has played a key role in supporting quality research dissemination. Also, the NRF rating[4] system, designed to produce and promote a 'globally competitive Science system in South Africa' through the evaluation of research quality and impact, has been a major enabler and supporter of research capacity building in the country. While there are specific initiatives towards research capacity building covered in this chapter, the highlighted areas are important.

Third, access to information and knowledge, e.g. digital library services, which enable access in-contact or remotely anytime and anywhere (Ocholla & Ocholla 2020), is important for PG research support. As noted already, academic libraries in most HEIs offer spaces for such support and therefore must be fully exploited by the PG students and their supervisors.

Fourth, is the fourth industrial revolution(4IR) mindset, which is emerging and growing and, thereby, increasing opportunity for engagement with new technologies for scientific communication. The open science move-ment (making scientific work openly available and accessible to everyone) is one of the gateways for improved access to knowledge. Other areas of concern in terms of knowledge access include sustainability, enabled by staff retention policies in institutions, and research publications enabling knowledge retention and development.

[4] https://www.nrf.ac.za/rating/

In a nutshell, government research support, such as by policy and legislation, career growth through quality academic publications, research output through a publication reward system and NRF rating system in South Africa, academic library services and increased access and use of technology for scholarly communication, all offer opportunities for PG supervision quality. They need attention and further development for better service to research in the country.

Conclusions

It is recognised that successful postgraduate (PG) supervision is complex and challenging for both students and supervisors (Burton *et al.* 2022). Increasingly, quality graduates and employability of a PG student determine quality education. Several observations can be made from this chapter.

1. *Experienced and quality supervisors take a long time to nurture and develop.* While their qualifications matter, sufficient exposure to PG research supervision for novice and potential supervisors must be created early in the academic career – it can begin with supervision at final year/honours level and escalated to master's and doctoral levels where possible. Experience gained from such interaction provides a foundation from which to build quality research supervision capacity. There is evidence that PG supervision capacity can also be achieved through both formal PG supervision qualifications as well as informal methods, such as through apprenticeship (e.g. co-supervision with established supervisors), seminars and workshops.

2. *Frameworks (see DoE 2007; CHE 2018) are important for guiding PG supervision, therefore they must be accessible and used for the supervision process.* Also, there are several successful PG supervision models (Boehe 2016; Garfield 2005) discussed in the literature. Supervisors often use them unwittingly, but they should be applied knowingly for effectiveness. While supervision models cannot be applied uniformly at different levels of qualification (e.g. doctorate and master's) or stages of supervision, or even by discipline, the supervision models that encourage independence, rather than dependence, of the supervisee are more rewarding in the long term. In addition, while team or co-supervision has many advantages if applied rationally, individualistic supervision seems to prevail in most cases (Ngulube 2011). This is due to many factors such as policy (more rewarding, incentives), and egoism

('territorial', expertise i.e. narrow field).

3. *Knowledge of the supervisor roles (Lessing 2011) are vital to increase success.* Such roles also depend on the level of PG qualification.

4. *There are several requirements for successful PG supervision.* Appropriate knowledge, skills, attitude, exposure and experience is important. However, they must be backed by the right academic qualification, suitable academic research environment, policy, and supervision capacity building. Further, knowledge of the PG academic landscape is critical for a supervisor, just as a good coach must know the game. Thus, the stages and requirements for supervision matter and should be applied effectively but rationally.

5. *Most of the cited studies reflect on the challenges of PG supervision rather than opportunities.* The common challenge is the quality of the supervisor and supervisee (Mouton 2017). Successful PG supervision needs to exploit the challenges and opportunities mentioned in the previous section with the aim of transforming challenges into opportunities, bearing in mind that the two often overlap. Just like challenges, opportunities for PG supervision exist and they are not uniform among higher education institutions / universities. All institutions have a minimum qualification for PG supervision, research policies, which focus on researchers' students, resources, capacity building, research investment, incentives, PG supervision, and research management structures (e.g. vice chancellor for research, research director, research committees for research coordination and quality control, and PG research capacity building). Attention given to quality research is encouraging in most cases.

6. *Research support, reasonable supervisor workload sustainability, and futurism (i.e., the 4IR mindset [Ocholla 2021) remain crucial.* There is evidence that supporting quality PG education and research in higher education is largely positive. The pressure of producing quality graduates, throughput, academic career growth, transformation, efficiency, and administrative and teaching burdens (Cloete *et al.* 2015) requires attention and management.

I recommend considering these conclusions as agenda for successful PG supervision, turning the challenges into opportunities and exploring more opportunities based on best practice in the sector, within and outside the country.

This chapter reflects on PG supervision discourse and the author's many years of PG supervision experience, which is likely to add value to the on-going debate and developments in the domain of supervision improvement. Both PG supervisors, PG students and PG administrators would benefit from the chapter. It can also benefit research, teaching and learning, as well as comparative studies The limitations of the chapter, particularly the bias attributed to this author's experiential knowledge, selection of the reviewed papers, and South African content, should be taken into consideration by the readers.

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