

KEY FACTORS CONTRIBUTING TO POSTGRADUATE STUDENTS' SUCCESS: MAKING A CASE FOR CORONAVIRUS-19 AND BEYOND

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ABSTRACT

Coronavirus-19 (COVID-19) pandemic caused major disruptions to the education sector, with detrimental effects on the supervision of postgraduate students and their success. Higher education institutions (HEIs) shut down to observe COVID-19 protocols and minimise the spread of the virus. University closures forced postgraduate-supervision processes to be conducted online, resulting in students experiencing many challenges, such as, loss of social networks and social interaction, lack of access to university computer laboratories and software, inability to collect face-to-face data, and wellness and mental problems. Whereas abundant research exists on COVID-19, little is known about factors that contributed to postgraduate students' success during the COVID-19 pandemic. This qualitative case study reports on the factors that promoted student success during the COVID-19 pandemic, from the perspective of 23 postgraduate students. Data were collected through an online questionnaire and analysed through colour-coding and thematic categorisation. Results revealed that both students and supervisors contributed to the success of postgraduate students. They also showed that some students possessed certain attributes that enhanced their success, as well as that some postgraduate supervisors employed novel approaches to students' supervision that promoted students' success. This article encourages HEIs to leverage these factors to promote postgraduate student success beyond the COVID-19 pandemic.

Keywords: Coronavirus-19, postgraduate supervision and success, social interaction, challenges

INTRODUCTION

By their very nature, postgraduate studies are stressful and challenging for students (Freya and Cutri 2023; Rolfe and Cole 2020; Brown 2013). Brown (2013, 405) describes PhD studies as follows: "... at its heart, a PhD is not an easy undertaking. No matter how much care and support is given to students, there comes a point when the student will have to get on with it himself or herself." Brown, McDowell, and Race (2013) and Ramchander (2022) highlight intellectual and social isolation and self-dependency prevalent among postgraduate students that can negatively affect them and lead to them dropping out of their studies. This point is reiterated by Freya and Cutri (2023), who define PhD studies as an arduous process fraught with isolation

that impacts students' well-being. Postgraduate students are also susceptible to stress, anxiety and depression (Yin et al. 2022; Wang, Wang, and Wang 2019; Shete and Garkal 2015) due to the academic rigour of postgraduate studies (Stillwell, Vermeesch, and Scott 2017), as well as due to the competing demands of work and family (Johnson, Batia, and Haun 2008).

The outbreak of the Coronavirus-19 (COVID-19) pandemic in 2020 and the subsequent closure of universities exacerbated challenges for postgraduate students. Yin et al. (2022) identified postgraduate students as the most vulnerable group during the COVID-19 pandemic, noting that they were at risk of immense stress, anxiety and depression. In support of this, Ramos (2021) and Thompson (2020) argue that the COVID-19 pandemic introduced additional barriers and novel challenges to postgraduate students and their supervisors, potentially damaging the students' success and well-being. Cutri and Lau (2023, 258) mention that "COVID-19 has caused massive research disruptions to PhD students, such as laboratory closures, financial issues, and limited face-to-face supervision". Filho et al. (2021) cite the lack of social interaction and communication among supervisors, students and peers as a challenge that led to feelings of isolation among graduate students, heightened by the closure of universities and replacement of face-to-face interactions with online teaching and learning. Echoing Stillwell et al. (2017), Allen et al. (2021) highlight stress and burnout among graduate students emanating from the rigour of academic studies and competing demands of work and home caused by the shift to online platforms, which blurred the lines between these two contexts (van Wyk et al. 2020).

Existing research has focused mainly on doctoral students' wellness and mental health (Lokhtina et al. 2022; Yin et al. 2022; Allen et al. 2021); social isolation (Pyhälto, Tikkanen, and Anttila 2022; Ramchander 2022; Filho et al. 2021), as well as how doctoral students' productivity declined during the COVID-19 pandemic (Lambrechts and Smith 2020; Lokhtina et al. 2022). There is a dearth of research on the extent to which the COVID-19 pandemic affected doctoral students' research productivity (Lokhtina et al. 2022) and success. However, during the height of the COVID-19 pandemic, there were pockets of postgraduate students' success in the Faculty of Education, where this study was conducted and elsewhere. The unique challenges that postgraduate students encountered during the COVID-19 pandemic underscore the importance of understanding key factors that contributed to their success. This study investigated key factors that helped doctoral students to achieve success during the COVID-19 pandemic. The research question was: "What key factors contributed to postgraduate students' success during the COVID-19 pandemic?"

This study uncovers the opportunities that the COVID-19 pandemic presented postgraduate supervisors with to rethink and redesign sustainable supervisory strategies that

can withstand future uncertainties in higher education. It also highlights novel ways of successfully supervising postgraduate students' research activities during the COVID-19 pandemic and beyond. Furthermore, it calls attention to the importance of adopting information communication technology (ICTs) as a force behind postgraduate students' success now and in the future if other pandemics break out. Moreover, it calls for supervision strategies that radically transform the policy and practice of postgraduate students' supervision to promote their success and advancement of research beyond the COVID-19 pandemic. This study also contributes to existing knowledge on postgraduate supervision, especially during challenging times and creates space for formulating innovative supervisory approaches which supervisors can leverage when faced with crises in education in the future while ensuring that rigour and integrity of research are maintained (Dawood and Van Wyk 2021). Additionally, it demonstrates that students can be agents of their success if given a chance.

CONTEXT OF THE STUDY

Participants were postgraduate students enrolled for a Doctor of Education (DEd) degree at the Faculty of Education at a South African university. Ordinarily, these students did not have face-to-face classes before the outbreak of COVID-19. However, their meetings with supervisors were conducted face-to-face. Their success rate is relatively moderate, as most of them study part-time. To improve postgraduate outputs and promote student success, this faculty offers mentoring and coaching workshops for novice supervisors and pairs them with established supervisors. Experts also facilitate monthly workshops for students. When COVID-19 broke out, face-to-face meetings and workshops switched to online via learning management systems (LMSs), such as Microsoft Teams and Zoom, Facetime and Skype, WhatsApp voice notes and text messages. The Higher Degrees Committee (HDC) digital resource for monitoring and evaluating students' progress and success based on HDC approvals was also used. Due to the university closures and digital divide, some students who relied on university resources lacked access to computer laboratories, Wi-Fi, Internet and data-analysis software. Despite the challenges they encountered, some postgraduate students achieved success. This study focused on this group because the D.Ed degree is a terminal degree.

LITERATURE REVIEW

The following sub-themes are presented as part of the literature review: (a) Why is postgraduate students' success vital in South Africa? (b) The impact of COVID-19 on postgraduate students' research activities and (c) Graduate attributes as measures of postgraduate students' success.

Why is postgraduate students' success vital in South Africa?

Despite the mammoth challenges brought about by COVID-19 globally, research projects did not pause, but they continued online (Lumeng et al. 2020). As research continued under the new normal, pressure continued to mount on supervisors in South African higher education institutions (HEIs) to produce graduates within stipulated timeframes so that (i) students could attain their qualifications in line with graduate attributes (GAs), (ii) HEIs could meet their master's and doctoral graduation targets and (iii) South Africa could meet its National Development Plan (NDP): Vision 2030 (National Planning Commission (NPC) 2012), which stipulates that "... by 2030, South African universities will produce more than 100 doctoral graduates per million of the population per year" (NPC 2012, 323). There was also pressure on HEIs, specifically postgraduate supervisors, to ensure that high-quality research outputs were produced (Van Wyk et al. 2020).

The reasons for this pressure are the monetary and international standing of HEIs. In South Africa, postgraduate students' success contributes immensely to the welfare and sustainability of universities. For example, for every master's and doctoral student who graduates, universities obtain subsidy funding from the Department of Higher Education and Training (DHET) if a student graduates within the minimum stipulated time, which varies from university to university. This is confirmed by the Council on Higher Education (CHE) (2022, 67), that "There is therefore some financial benefit for the institution to have doctoral students complete their theses and graduate within a reasonable time period." Similarly, suppose a master's or doctoral student publishes a paper in a peer-reviewed journal accredited by the DHET, which is usually in collaboration with supervisor(s). In that case, the university obtains a DHET research subsidy as well. These subsidy funds help universities to generate third-stream income that helps them to sustain themselves. Therefore, the higher the number of master's and doctoral graduates and their publications in DHET accredited journals, the higher the subsidy universities receive. Besides research subsidies, postgraduate students and staff publications contribute to international university rankings that measure the global standing of universities. These rankings boost the image and status of universities and give them a competitive edge, making them appeal to parents, potential students and staff. These facts justify the pressure on supervisors to ensure that their students succeeded and graduated on time during the challenging COVID-19 pandemic. Because postgraduate research contributes immensely to the economic sustainability and status of universities, it is vital to uncover the factors contributing to postgraduate students' success during the COVID-19 pandemic.

The impact of COVID-19 on postgraduate students' research activities

The COVID-19 pandemic affected postgraduate students and supervisors in several different ways. The physical distancing imposed on people to curb the spread of COVID-19 resulted in a lack of social interaction among supervisors, students and peers, leading to a feeling of isolation among graduate students (Filho et al. 2021). Pyhältö et al. (2022) aver that the social isolation led to the erosion of scholarly support networks, with potentially severe consequences for doctoral candidates and a profound loss of a sense of community they were accustomed to. Pyhältö et al. (2022) report on doctoral candidates' diminished access to data, reduced access to institutional resources, poor work-life balance and reduced well-being.

Ramos (2021) conducted a study on the impact of COVID-19 on academics, researchers and students. One of the findings was that because universities were closed to prevent the spread of the virus, some students could not access the laboratory equipment and software programmes they needed for their research. The other was that students were forced to change their data-collection strategies from in-person to remote sessions. Furthermore, some participants reported having to put their research on hold until the restrictions were removed. It appears that the research methodology was an area that was primarily impacted by the COVID-19 pandemic, more so for research that required face-to-face data collection than surveys and secondary data analysis. Some of these challenges could potentially delay and/or compromise the quality of research produced, as well as the success of students.

Some scholars have highlighted the effect of the COVID-19 pandemic on students' mental wellness (Balakrishnan et al. 2022; Yin et al. 2022; Oducado, Parreño-Lachica, and Rabacal 2021; Wasil et al. 2021). Balakrishnan et al. (2022) conducted a study to investigate how the COVID-19 pandemic had affected the mental health of 90 graduate students studying for a Doctor of Physical Therapy (DPT), Master of Occupational Therapy (MOT) and Doctorate of Occupation Therapy (OTD) degrees. Results revealed a high prevalence of stress, anxiety and depression among students during the COVID-19 pandemic. In another study, Oducado et al. (2021) investigated the role of personal resilience on Filipino graduate students' stress, anxiety and fear. Results showed that students with high resilience coped well with stress and anxiety, suggesting that resilience plays a significant role "in protecting against stress, anxiety, fear, and other negative thoughts, emotions, and behaviours" (Oducado et al. 2021, 438).

Similarly, Wasil et al. (2021) used open-ended assessments to investigate graduate students' most significant challenges and their most effective and common ways of handling them. Results revealed that participants encountered significant challenges related to productivity and physical and emotional health, with the most common one being distraction. Likewise, in a survey conducted by Rolfe and Cole (2020) to establish the wellbeing of

international postgraduate students during the COVID-19 pandemic, lack of confidence and feeling overloaded ranked the highest among the challenges they cited, making them feel stressed out, anxious and depressed.

These factors possibly adversely affected postgraduate students' success. They, therefore, justify this study, which seeks to uncover factors that contributed to students' success despite the adverse effects of the COVID-19 pandemic.

Graduate attributes as measures of postgraduate students' success

Globally, the success of graduate students is measured through GAs, which are defined as the skills, competencies and knowledge that graduate students should have acquired by the time they graduate (CHE 2022; Ramnund-Mansingh and Reddy 2021; Withering 2019; Mashiyi 2015; Greenbaum and Rycroft 2014). The CHE (2022) provides two forms of GAs: Knowledge Attributes and Skills Attributes. Bowden et al. (2000 in Barrie 2004, 262–263) espouses one of the most comprehensive definitions of GAs as follows:

“Graduate attributes are the qualities, skills and understandings a university community agrees its students should develop during their time with the institution. These attributes include, but go beyond, the disciplinary expertise or technical knowledge that has traditionally formed the core of most university courses. They are qualities that also prepare graduates as agents of social good in an unknown future.”

Although some of the GAs may be cross-cutting, they vary due to the diversity of universities and disciplines. Regardless of the types of GAs universities adopt, it is important that academics and students become aware of them and that they be embedded in the course offerings (Withering 2019; Mashiyi 2015). Furthermore, the CHE (2022) maintains that there should be a clear description of the system used to monitor and assess students' progression towards attaining GAs. This process should be ongoing throughout a graduate student's life at university. Therefore, GAs are key tools for measuring postgraduate students' success. In its Doctoral Programme Review, the CHE (2022) found that some HEIs assessed each GA as an entity, whereas others assessed them holistically as an integrated whole. Institutional philosophies determine the assessment and monitoring systems that universities employ.

THEORETICAL FRAMEWORK

Vygotsky's (1978) social constructivist theory underpinned this study. According to this theory, students are not passive recipients of knowledge, but they actively participate in constructing and co-constructing new knowledge and ideas. In a constructivist teaching and learning

environment, the teacher is a facilitator who guides, supports and scaffolds students' learning in the zone of proximal development (ZPD) so that they can move from potential to actual development. The facilitator, as the most knowledgeable other (MKO), can be a parent(s), sibling(s), peer(s) or anybody who can assist with the student's social and cognitive development.

Social interaction is integral in this theory because it is through communication and dialogue that the facilitator and learner can share knowledge and skills and co-construct new knowledge. When the learner has acquired the knowledge and skills to continue constructing knowledge on his/her own, the facilitator phases out to allow the learner to construct the knowledge independently without support. This theory is relevant to postgraduate supervision, as this process requires the supervisor to provide guidance and support without spoon-feeding students. This is important because it promotes students' active engagement in the co-construction of knowledge and, ultimately, to them producing knowledge independently and autonomously without support.

RESEARCH METHODOLOGY

The qualitative case study of 23 D.Ed students was selected, and the paradigm was interpretative phenomenological analysis (IPA) (Smith and Osborn 2008). IPA is a double hermeneutic (Smith and Osborn 2008) in which the researcher tries to uncover insider perspectives of how participants make sense of and interpret their lived experiences of the phenomenon under study. In this study, the researcher uncovered key factors that participants regarded as having contributed to their success in their postgraduate studies during the COVID-19 pandemic based on their own interpretations of this lived experience. Data were collected in October 2022 through online questionnaires sent to 23 DEd students in the Faculty of Education at a selected university in South Africa. In the questionnaire, it was stipulated that participants should define their success in terms of GAs. The sampling procedure was purposive, as the researcher assumed that doctoral students would provide rich data on these factors and that they would be familiar with the concept of GAs. Twenty-three responses were received. Data analysis involved data coding and categorization, followed by grouping coded data into themes, which formed sections of the results of this article.

Ethical considerations were made. The Ethics Committee of the Faculty of Education approved the ethics application for this research. Participants signed a consent form that was attached to the questionnaire. The voluntary nature of the study was explained in writing for participants to understand that they were not coerced to participate. Anonymity and confidentiality were explained in writing for participants to understand that pseudonyms would

be used in lieu of their real names and that the name of the institution would not be disclosed. It was further explained in writing that data would be stored in an external drive accessible only to the researcher and that they would be destroyed after the article has been published.

RESULTS

The following main themes emerged from data analysis: (a) Postgraduate students' conceptual definitions of success and (b) Factors contributing to postgraduate students' success. Four subthemes emerged from the second main theme, namely, Students' contributions to their success; Supervisors' Contributions; Technological contributions; and Contributions of the institution, Faculty of Education and other units.

POSTGRADUATE STUDENTS' CONCEPTUAL DEFINITIONS OF SUCCESS

Participants were asked to align their definitions of success with GAs. Only six participants were able to do this, while the rest ticked boxes by merely mentioning what they perceived as success. Responses of only the six participants are included in this section.

Thembisa defined her success as having successfully identified a researchable topic which was approved by the Faculty Research Committee (FRC), stating that, "That I identified a researchable topic successfully among so many others is a huge success for me. It is a skill I will use to identify more research topics to advance my research scholarship in the future."

On the other hand, Paul perceived the approval of his ethics application by the FRC as a success, explaining that, "I regard my ethics approval as a big success because it indicates that my study complies with ethical standards, which is one of the main principles one should be mindful of as researcher."

Norman defined success as having been able to select the appropriate methodology for his thesis, highlighting that seasoned researchers should have knowledge and skills to match a research topic with the methodology because, "... it is through the different aspects of the methodology that the creation of new knowledge becomes evident".

Sylvia perceived the completion of the Introduction, Methodology and Theoretical framework of her thesis as success, commenting that, "It is the greatest achievement for me that I managed to link my thesis title and Introduction with appropriate methodology and theoretical framework".

Other participants, such as Agnes, described her success as completing the first draft of her thesis, stating that, "This work, although still in draft form, reflects my original contribution to the research scholarship".

Jameson's description of success encapsulated passing his external D.Ed thesis

examination. His description of success, which corroborated Agnes', was that, "My doctoral thesis embodies a wealth of original, empirically investigated knowledge from which I have made conclusions that affect policy and practice of education".

Therefore, the concept of success had a diversity of participant interpretations, which encapsulated different knowledge, competencies and skills they had acquired on their doctoral journey.

FACTORS CONTRIBUTING TO STUDENTS' SUCCESS DURING THE COVID-19 PANDEMIC

As noted earlier, four sub-themes emerged from this theme, as presented in the next section.

Students' contributions to their success

Two forms of postgraduate students' contributions emerged from data analysis, namely, (a) Participants' active engagement in research activities and (b) Psychological factors that contributed to students' success, as presented below.

Participants' active engagement in research activities

Participants' active engagement manifested itself in how they self-directed their research activities (SDL), as described by Pam that,

"I put time aside for my thesis. As a full-time student with tight deadlines, I set my own goals and timelines and paced myself for when I would complete each section of my thesis. All these encompassed effective time management."

Janice mentioned keeping a diary in which she logged daily to monitor, reflect on her progress and decide on actions to take to improve (praxis) as what contributed to her success, explaining that,

"Keeping a diary of the thesis tasks I completed daily helped me to achieve my goals. Each day, I ticked boxes to see what and how much I had achieved and reflected on improvements I had to make."

Participants were not passively regurgitating knowledge from supervisors during the COVID-19 pandemic, but they were actively self-regulating, reflecting, and improving on their learning.

Psychological factors that contributed to students' success

The following factors seem to have contributed to participants' success in their postgraduate studies: self-motivation, human agency, psychological resilience and emotional intelligence.

Regarding motivation, Janet espoused that,

“I was not about to give in to COVID-19. So, I took advantage of all the resources at my disposal, including online postgraduate workshops. I attended them all without fail, which helped me immensely to succeed in my studies.”

Janet was driven by intrinsic motivation, which develops from within an individual, as opposed to extrinsic motivation, which is driven by external factors, such as praise or prize.

Human agency, or the willingness to act, appeared to have contributed to participants' success, as explained by Dalen,

“During the COVID-19 pandemic, I had to take it upon myself to make it happen. I literally forced myself to write at least two pages of my thesis every day. This didn't always happen but at least I achieved some success.”

For most of the participants, a combination of self-motivation, determination and human agency pushed them to be proactive in achieving success without being pushed by supervisors, as reflected in Abdul's statement,

“I felt that I had to be a driver of my thesis and not wait for my supervisor to push me. I kept her updated on my progress and she was very responsive, though at times I felt that I was pushing her to the limit. If she delayed feedback, I sent her an email as a reminder.”

For others, self-efficacy became a success factor, as articulated by Pamela, “I enrolled for the DEd degree based on my belief that I had the right tools and capacities to achieve my goals.” It appeared that a combination of self-efficacy and psychological resilience played a massive role in helping some participants to bounce back, as described by Martin that,

“When COVID-19 broke out, I was a bundle of nerves. To meet the COVID-19 challenges and keep up with the demands of my studies required me to develop positive thinking and remind myself of all the resources and capabilities I could tap into.”

Like Martin, Sanele acknowledged that anxiety and depression were threatening to destroy his academic career and to delay his progress. Emotional intelligence appears to have taken him out of this quagmire, as explained below:

“My emotions were all over the place and I was on a serious panic mode during COVID-19 pandemic. I realised I needed to use my head and not my heart in approaching my research activities and in dealing with feedback from my supervisor. This calmed me down and contributed to my success.”

Participants' statements demonstrate that different psychological factors were intertwined and helped them achieve success.

Supervisors' contributions

Two types of supervisors' contributions that influenced participants' success were uncovered, namely, "Virtual communities of practice (VCoPs)" and "The culture of care and support", as presented in the next section.

Virtual communities of practice (VCoPs)

Of the 23 participants, twelve reported to have found virtual communities of practice (VCoPs) that some supervisors developed, instrumental to their success. They explained two forms of VCoPs: online supervision of a cohort of students by one supervisor and online co-supervision of a cohort of students by two supervisors via MS Teams and Zoom. Janice mentioned that VCoP allowed them to share ideas in a non-threatening environment instead of working in silos, whereas Agnes expressed that in VCoP, the teaching-learning process was reciprocal: they learned from others as much as others learned from them.

Participants believed that collaborative learning honed their self-critical and self-reflective skills and that learning about the progress of others boosted their self-efficacy and motivation. Lincey added that VCoP exposed students and some supervisors to different methodologies and theoretical frameworks with which they were not familiar. Jolene expressed that co-supervision of a cohort of students exposed them to supervisors' diverse perspectives, making them think out of the box and enhancing their success. This fact was supported by Thembisa, who surmised that supervisors had different strengths that enhanced the quality of participants' research outputs. She also reported that feedback from one supervisor complemented that of another supervisor, thus heightening participants' success.

Pam mentioned that VCoP was non-threatening because participants' and supervisors' faces were hidden in Zoom meetings, while Norman expressed that receiving immediate feedback helped them to use it. At the same time, it was still fresh in their minds. On the other hand, Dalen found that VCoP promoted dialogue in a non-threatening environment.

Culture of care and support

Overall, participants' impressions were that most supervisors cared and supported them. Abdul reported that, "Although interaction with supervisors was limited, they emailed us detailed feedback and acted as sounding board for us to share ideas, seek clarification and ask

questions.”

Sylvia added that supervisors reached out to demotivated students and those who were not making good progress through follow-up phone calls, emails and surveys so that no student could be left behind.

Some participants highlighted supervisors' care and support when they experienced COVID-19-related deaths and illnesses in their families. One of them, Lynne, explained that,

“My supervisors were *VERY* supportive when I lost my loved one, as they realized I could not deliver work as planned. They kept in close contact by phone, WhatsApp and Skype, encouraging me to remain positive and providing me with regular feedback and affirmation.”

Other participants mentioned supervisors' prompt and constructive feedback, immediately followed by virtual meetings, as success factors. Sanele described this as follows: “In virtual meetings that followed immediately after I received written feedback, my supervisor clarified misconceptions I had after going through her written feedback. She allowed me to ask questions, even dumb ones, and was always so patient”.

Lincey explained that supervisors held weekly, fortnightly, and monthly online meetings. In contrast, Tania highlighted supervisors' openness to students' needs and how those meetings were instrumental to her growth, development as a researcher and success. Martin articulated the importance of adjunct professors and their roles in providing speedier feedback than their counterparts who were inundated with full-time work. He explained how his retired supervisor constantly updated him on upcoming workshops and prompted him to attend. It is evident from participants' statements that supervisors' care and support contributed to their success.

Technological contributions

Many participants found that online platforms saved them time that they would typically have spent on attending face-to-face meetings before the outbreak of the COVID-19 pandemic. For example, Marvin remarked that,

“Continuing with my postgrad studies remotely has been a lot easier to do than my previous courses. Previously, it used to be quite taxing to juggle work, family, and personal time and then attend mandatory face-to-face sessions. Working remotely has saved me on fuel, especially since I live in a small, remote town far from the university. If the system were to go back to how it was previously, I would not have been able to make it.”

Similarly, Chandre described how working online improved her chances to succeed better than if supervision was face-to-face. She explained that,

“Moving online allowed me to keep in constant contact with my supervisors. If in doubt, I would just drop an email and they’d immediately respond. No time wasted travelling to campus. I was able to focus on my proposal and within the first year, I successfully defended my proposal without feeling threatened.”

Janet was impressed by how Zoom and MS Teams meetings had helped bring life to research by promoting student engagement and involvement in research activities and giving students a voice to contribute to knowledge production. On the other hand, John highlighted how technology enabled him to explore alternative data-collection methods, such as using WhatsApp voice and video, Skype, and Google questionnaires, instead of waiting until the COVID-19 lockdown had passed.

Technology was boon to participants’ success and an opportunity for them to acquaint themselves with technology while simultaneously saving them time during the COVID-19 pandemic.

Contributions of the institution, faculty of education and other units

Participants highlighted the contributions of the university, Faculty of Education and other units that promoted their success during the COVID-19 pandemic. Tom mentioned the laptop and data router that he and other deserving postgraduate students received from the university. In contrast, others, like Pamela, reported finding online workshops provided by the Faculty of Education, Centre for Postgraduate Studies (CPGS) and other units beneficial to her high-quality work and success.

Macfarlane emphasised how Turnitin and article-writing workshops provided by CPGS turned his thesis plagiarism-free and how the latter enabled him to finish his journal article without which he would not be able to graduate. Lincey praised the online proposal, thesis and journal-article writing workshops provided by the Faculty of Education, which she believed accelerated her thesis completion. It can thus be seen that the institution and other units contributed immensely to the participants’ success.

DISCUSSION AND RECOMMENDATIONS

The results of this study have revealed that although the COVID-19 pandemic adversely affected research activities globally, there were pockets of success among postgraduate students. Participants’ definitions of success varied, which shows that there is no single definition of this concept. Notably, of the 23 participants, only six could link the concept of success with graduate attributes, which might point to their lack of understanding. This lack of

understanding may have underlying interpretations, with one pointing to the absence of a clear system of integration of GAs in the postgraduate curriculum that Mashiyi (2015) and Withering (2019) emphasise, and the other to an absence of ongoing monitoring and assessment of GAs that the CHE (2022) insists should be conducted. This article recommends that GAs be incorporated in all postgraduate course offerings to equip students with an understanding of this concept and how it relates to their studies. Moreover, institutions must ensure that postgraduate supervisors attend capacity development programmes to broaden their understanding of GAs and how to implement and monitor them.

Participants' active engagement in research activities is consistent with the constructivist theory. This engagement manifested itself in how they self-directed their learning by planning their research activities and identifying resources and strategies to use (Knowles 1975), and by reflecting on their learning (praxis) (Stuart 2020; Jasper 2003; Driscoll and Teh 2001) using a diary, for example. Stuart (2020) avers that a combination of reflection and action constitutes praxis. Driscoll and Teh (2001), Jasper (2003), and Stuart's (2020) models show how a person starts with experience, reflects on it and takes action to change or improve. It appears that different psychological factors alluded to earlier (intrinsic motivation (Deci and Ryan 2000), human agency or willingness to take action or initiative (Bandura 1994) and personal resilience (Jackson, Firtko, and Edenborough 2007; Oducado et al. 2021) propelled participants' active engagement. The contribution of resilience to students' success is consistent with Oducado et al's findings that students with high resilience coped well with negative experiences of the COVID-19 pandemic. Because of the positive contribution of these factors to the participants' success during the challenging COVID-19 pandemic, this article recommends that supervisors should leverage them and explore literature on other factors that might have enhanced the performance and success of postgraduate students in the face of adversity.

Rigg, Day, and Adler (2013) highlight how graduate students' active engagement and self-efficacy (can) help them cope with emotional exhaustion and burnout. In this study, participants attested to how self-efficacy – a person's belief in their ability/capacity to achieve a goal or perform a task successfully (Bandura 1994) – contributed to their success. According to Cherry (2023), people with a strong sense of self-efficacy develop a deep sense of interest and commitment to the activities in which they participate, can rise above challenges and regard negative experiences as opportunities to learn and grow. This article recommends that postgraduate student supervisors explore ways of boosting postgraduate students' self-efficacy by incorporating Bandura's (1994) sources of self-efficacy. For example, they can incorporate social persuasion and social modelling (Bandura 1994) by inviting influential speakers and former students who have completed their doctoral studies to motivate postgraduate students.

This article further recommends that supervisors must always ensure that they provide constructive feedback that is not damaging to the students' self-esteem.

As shown earlier, the COVID-19 pandemic exacerbated postgraduate students' challenges, which intensified the needed support for them to achieve success. During such a crisis, a constructivist environment in which students' learning was scaffolded (Vygotsky 1978) and in which adequate supervision (Abiddin, Ismail, and Ismail 2011) that included timely constructive feedback, proper guidance and support, as well as encouragement, was needed to increase students' opportunities to succeed. Yin et al. (2022) support this fact, noting that during the COVID-19 pandemic, high-level support alleviated postgraduate students' risks. Similarly, Wang and DeLaquil (2020) surmise that daily social interactions between PhD students and peers influenced students' development and career aspirations and helped them to receive immediate feedback and bounce off ideas. Participants highlighted that the support and guidance provided by supervisors, peers and various institutional centres contributed to their success. This article recommends that supervisors should interact in close proximity with their supervised students at all times, thereby closing the gaps that might exist in their knowledge and skills.

The role of technology in enhancing participants' success during the COVID-19 pandemic cannot be overstated. Participants underscored the flexibility afforded by technology for them and their supervisors, to the extent that some preferred remote online supervision to continue beyond the COVID-19 pandemic. Their statements support Mbodila, Mbodila, and Legg-Jack's (2023, 75) argument that "The use of Technology in ODL has overcome the physical distance between students and teachers as it enables the flexibility of learning at a distance, anywhere and anytime." This article recommends that supervisors must not ignore technology as an essential and powerful tool for postgraduate supervision during a crisis in education as well as during the post-COVID-19 era.

In the same vein, the role of VCoPs cannot be understated. Communities of practice (CoPs) are not new (Wenger 2004). VCoP is a virtual space in which members of a community interact (Penfold 2010) and exchange shared knowledge and experiences. The difference between CoP and VCoP is that the latter is virtual or online. Referring to CoPs, Wenger (2004, 2) explains that "Practitioners, the people who use knowledge in their activities, are in the best position to manage this knowledge". Based on this argument, the inclusion of participants and supervisors as members of VCoPs was key, as it allowed them to manage the process of knowledge production, share their common passion for producing knowledge together and establish social networks. The fact that in the VCoPs, both students and supervisors were exposed to new methodologies and theoretical frameworks suggests that as facilitators,

supervisors ceased to be “sage on the stage” but became co-learners. The rich interactions and exchanges of ideas in VCoPs might have highly enhanced participants' knowledge, skills, competences and success. This article recommends that postgraduate student supervisors must instil a sense of community among their students, as it is from these that the latter will experience the social modelling alluded to earlier.

LIMITATIONS OF THE STUDY

One of the limitations of this study is that it was conducted with a small sample of participants. It is the author's assumption that a larger sample would have yielded wider perspectives, thus enriching this study. Despite this, the fact that the results of the study are not generalisable to other contexts addresses this limitation. The other limitation is that data were collected through an online questionnaire instead of a face-to-face interview which would have allowed the researcher to probe participants' responses. The researcher addressed this limitation by sending an open-ended questionnaire to allow participants to elaborate on their responses.

CONCLUSION

The results reported in this article have revealed that even though the pandemic had devastating effects on research activities, many gains were made from this experience in terms of transforming postgraduate supervision and promoting students' success. Both supervisors and participants appear to have adapted well to the new ways of postgraduate students' supervision. The novel supervision approaches reported in this study will be beneficial if another pandemic breaks out and threatens the normal way of supervising postgraduate students. Results revealed the significance of technology in participants' success, highlighting the role that technology will play during post-COVID-19 postgraduate supervision. VCoPs are equally critical to leverage, as, based on participants' testimonies, they engendered many benefits. Similarly, supervisors must encourage participants to be active agents in their supervision, taking advantage of the personal and psychological factors reported in this article. These lessons will come in handy if another crisis threatens smooth postgraduate supervision.

Care, guidance and support provided by supervisors and institutional units cannot be overemphasised, as they apparently contributed immensely to participants' success. HEIs should leverage these factors and continue to design and rethink novel supervision ways that can promote students' success in times of crisis and are relevant to the 21st century. Postgraduate supervision will never be the same again, and technology will remain a central feature. This article recommends that postgraduate offices, supervisors and institutional support centres leverage and strengthen the success factors reported in this article.

This pandemic has provided an excellent opportunity for various stakeholders to rethink and redesign postgraduate supervision with an effective risk-management plan to increase postgraduate students' sustainable success now and during future uncertainties. This article challenges supervisors also to review and reconsider the centrality of GAs in postgraduate supervision. Future research should focus on supervisors' experiences of successfully supervising postgraduate students during the COVID-19 pandemic and implications thereof. To close the gap in the current study, further research should be conducted with a larger sample using face-to-face interviews.

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