

Research Mentorship

A Developmental
and Transformational
Tool in Shaping and
Sustaining African
Women's Career
Progression in
Academia

Refilwe Nancy Phaswana-Mafuya





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Other titles by Refilwe Nancy Phaswana-Mafuya:

- *Vision Never Dies: From village girl to award-winning fighter of pandemics - Learning curves from my non-linear career journey*
- *Navigating Academia: Women's Success and Struggle - A Call to Action*

Foreword

*If my mind can conceive it, and my heart can believe it –
then I can achieve it.
— Muhammad Ali*

This book epitomizes the understanding that to excel, you have to believe in yourself and your ability to achieve, and that part of this process is enabled by mentorship.

Looking at the history of women in science or academia, it is apparent that women have struggled long and hard to be recognised as legitimate scientists or academics and that women of colour are confronted with double jeopardy of both race and gender, not only in South Africa but at a global level. Gender equity in science or academia and racial diversity are moral and necessary imperatives. In academia, women are strongly represented in the early phases of their academic careers, yet there is an attrition in the number of women who are associate professors and full professors. This “leaky pipeline” not only wastes women’s education and potential, preventing much-needed diversity in academia but, more profoundly, restricts women’s goals and rights.

A lack of mentors, occasionally overt discrimination and the academy’s poor work-life balance are well-documented reasons for women’s lack of progression. This book, *Research Mentorship: A Developmental and Transformational Tool in Shaping and Sustaining African Women’s Career Progression in Academia*, examines and highlights African women’s experiences of mentorship and the importance of mentorship to address the inequity we see in science or academia. The lessons learnt are profound and point to the concept of “lifting as you rise” that Bongani Mayosi articulated as a necessary tool for building science in South Africa. This concept of ‘taking action’, ‘paying it forward’, mentoring people while you are where you are, and giving them the knowledge and wisdom you have, means we can all be mentors. The lessons

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drawn on in this book are clear: do not wait to reach some place or position in life where you feel like you are prepared to give back or pour into people; you are already prepared and positioned on some level!

Prof Glenda Gray

President and CEO of the
South African Medical Research Council

Introduction

All leaders are influenced by those they admire. Reading about them and studying their traits inevitably allows an inspiring leader to develop his own leadership traits.

— Rudy Giuliani *Legal mind*

The book, *Research Mentorship: A Developmental and Transformational Tool in Shaping and Sustaining African Women's Career Progression in Academia*, captures African women's experiences of research mentorship to guide mentors and mentees in advancing career pathways. Journeys of research mentorship among African women are hardly told. There are barely any research mentorship books despite many conversations on it within academia and the role it can potentially play in the development and retention of academics in the pipeline. Coupled with this are the lack of standardized mentorship methods, context-specific guidelines for effective mentorship, and best practices to enable scale-up. There is limited information on types of mentorship relationships, ways to navigate mentorship relationships, which can be complex, and qualities that research mentors and mentees should possess to sustain mentorship relationships. Academic institutions, including research institutes and teaching departments, appear not to have any solid mentorship frameworks that can be used to guide academics in the provision of robust research mentorship programmes. This may limit the building of the next generation of researchers needed to carry the academic enterprise forward.

In this book, the author used a range of sources to broaden, diversify and triangulate mentorship experiences – unconventional auxiliary information and anecdotes: First, she drew from anecdotes, her personal experiences, observations and insights on research mentorship. She drew from being both a volunteer research mentor and long-serving research director who mentored cohorts of research mentees for almost two decades as well as an appointed Department of Higher

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Education and Training Future Professors Programme (Phase II) Mentor. She works at a level where the research journeys of emerging and burgeoning researchers begin and where real impact happens, as well as a mentee who became a beneficiary of the generosity of research mentorship, which produced the remarkable scientist she has become. She demonstrates how a black woman in a predominately male-dominated and patriarchal society was able to reach the pinnacle of academia despite a severe shortage of African women who have ascended to leadership roles within academia. She also demonstrates how mentorship can contribute towards inclusivity and diversity in academia.

Second, the author used mentees' anecdotes, e.g., real-life experiences of and feedback from almost thirty African women mentees she mentored from diverse disciplines, who are currently pursuing research or academic careers across about fifteen universities, research institutes, science councils, non-governmental organizations and governmental departments to showcase the value of mentorship in developing leadership and support to the next generation of researchers and academics as well as deduce lessons learnt from research mentorship by mentees. Many of the earlier qualitative studies that were reviewed in the preparation of this book had less than twenty participants, and a limited number had been conducted on the African continent. The author compiled mentees' random expressions and feedback on their mentorship experiences during interactions with them on what their experience in research mentorship was like; the benefits derived from mentorship in terms of dealing with early career struggles as well as personal and professional development; the lessons learnt in terms of personal attributes of mentees and mentors; lessons learnt with respect to research project execution, research collaborations, research networks, grant writing, scientific productivity and postgraduate studies. The mentees were all women who: (1) were PhD holders pursuing their doctoral degrees or having a master's degree; (2) were deemed as emerging leaders with potential; (3) assumed a research role in an academic

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institution; and (4) work or worked with the author at some stage in their careers.

Third, the author incorporated the tweets that mentees had shared regarding the role of a mentor.

Fourth, the author drew from engagements with colleagues, discourses on research mentorship, research leadership, and women in science and higher education, such as meetings, webinars and workshops.

Fifth, quotable quotes that captured the essence of the message that needed to be brought forward were used throughout the book where applicable.

Sixth, the author conducted an extensive desktop review of grey and published literature on mentorship to parallel anecdotes from diverse sources with up-to-date scientific information, albeit context-specific information is limited.

From the above-mentioned sources, the author demonstrates how mentorship helped African women who often face many barriers in the advancement of their research careers to succeed. She highlights specific types of mentorship experiences that aided African women in reaching their career goals and aspirations. She also showcases how solid mentorship relationships enabled emerging African women researchers to navigate issues and challenges salient to the experiences of women in academia. She shows how research mentorship contributed to handling early career struggles, advancement of post-graduate studies, self-development, professional development, work-life challenges, the execution of research projects, the building of research networks and collaborations, securing grant funding, science communication and scientific productivity.

Furthermore, the author delineates factors contributing to commitment and persistence in research career paths for emerging researchers from underrepresented populations. The author further describes the ripple effects of mentorship that can transform the academic landscape to be more inclusive and diverse, eventually contributing to societal

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development. The book is concluded with a call to prioritize research mentorship for advancing the research careers of African women.

To the best of the author's knowledge, the documentation of research mentorship among African women using unconventional methods described above is the first of its nature in Africa and probably across the world. The author's experiences in navigating her development through mentorship and those of her mentees can contribute immensely to how potential mentors, mentees, leaders, researchers, academics and scientists across career development stages can develop and sustain mentorship relationships. It is hoped that the mentorship experiences shared in this book will contribute to the development of a highly-skilled, capable and innovative workforce of African women researchers, leaders, and scientists, as well as empower African women who struggle to develop in research and academia and those who wish to support them to succeed in their career journeys. The experiences shared have the potential to elevate the careers of other African women academics. Further, the experiences shared in this book will hopefully contribute towards attracting and retaining African women in the research and academic workforce or pipeline.

This book is a resource for all those who aspire to support African women in advancing their careers in academia for greater inclusivity and diversity. The insights shared in this book can serve as a guide for mentors to be properly directed and rightly trained in mentoring black women in academia. Through the information disseminated in this book, mentors and mentees can develop potential case studies, guidelines, programmes, models, core competencies, and strategies for effective mentorship that can dynamically shape the future of African women in academia across decades and oceans. They can also inform best practices, tools, techniques, and innovations for increasing inclusivity, diversity, sustainability, and greater impact. The book has been organized into sixteen

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chapters to bring out some of the salient aspects of research mentorship in a relatable manner.

The book presents very useful resources that will enhance research mentorship and leadership in academia especially among underrepresented groups like black women in science, higher education and leadership. It provides purposeful research leadership and mentorship resources to target audience comprising mentors, aspiring mentors and mentees in the higher education space, science and leadership in academia. This approach will in turn engender transformational changes that will lead to enhanced productivity, success rates and equal retention of women in science, higher education research and leadership. The depth of research demonstrated in the content is topnotch and the writing style is in line with best practices in publishing. The resources shared in the book are very comprehensible and captivating. The book is well researched and relevant literature within the scope of study was adequately consulted. Personal experiences, from mentors, mentees and other respondents consulted are well-structured and presented for greater impact on and outcome from those who will use this great book. - Anonymous Reviewer 1

The manuscript demonstrates originality and novel developments within specific disciplines, sub-disciplines and fields of study - women empowerment, embedding diversity, equity, inclusivity, belonging in STEM pipeline. Highly commendable! The target audience may not necessarily be experts or specialists in research mentorship, but will benefit from resources provided in this book in terms of personal experiences, mentee stories and other feedback mechanisms, to hone their skills to provide purposeful and beneficial support in building the next generation of great women leaders in academia, science and research among underrepresented groups like black women in science and leadership in the higher education ecosystem. The manuscript is well structured in a logical manner and has a well-defined methodology and measurable indicators. The citations within the text and in

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bibliography are all well done and consistent with the format presented in all the chapters. The book is well researched and relevant literature within the scope of study was adequately consulted. Personal experiences, from mentors, mentees and other respondents are presented in a structured manner for greater impact. The level of originality exhibited in manuscript preparation is top-notch. I highly recommend that this insightful book should be an academic manual in every University in Africa and beyond. It sufficiently addresses all the pertinent issues bordering on “why few women are in science, academia, research, leadership in higher education irrespective of gender, race, orientation and other variables”. Anonymous Reviewer 2

Names of mentees whose experiences of mentorship have been shared in this book

The mentorship experiences of about 30 mentees from diverse disciplines such as epidemiology, public health, medicine, medical technology, environmental health, social sciences, chemistry and data science have been shared. The mentees came from a range of institutions, including the South African Medical Research Council, the Human Sciences Research Council, the University of Johannesburg, the University of Cape Town, the University Stellenbosch, the North West University, the University of Mpumalanga, the University of Free State, the University of South Africa, the University of Witwatersrand, the Pan African University of Life and Earth Sciences, the Johns Hopkins Bloomberg School of Public Health, the South African National AIDS Council, the Eastern Cape AIDS Council, the Department of Employment and Labour and the National Youth Development Outreach.

- Ms Rita Afriyie, technical coordinator, Technical Support Unit, Ghana AIDS Commission
- Ms Cynthia Asante, strategic information advisor, Joint United Nations Programme on HIV/AIDS (UNAIDS)
- Ms Martha Mushamiri Chadyiwa, lecturer, Faculty of Health Sciences, Department of Environmental Health, UJ

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- Dr Buyisile Chibi, research project director, Human Sciences Research Council
- Dr Pelisa Dana, senior researcher, Eastern Cape AIDS Council
- Dr Vuyiseka Dubula, visiting fellow, University of Kwa-Zulu Natal
- Prof Lebo Gafane-Matemane, associate professor, Faculty of Health Sciences, North-West University
- Ms Boitshepo Gopane, occupational health and safety inspector, Department of Employment and Labour, North West Province
- Ms Katie Journeay, graduate student, Johns Hopkins Bloomberg School of Public Health; intern, SAMRC/UJ PACER
- Dr Nokuthula Khanyile, lecturer, School of Chemical and Physical Sciences, University of Mpumalanga
- Ms Zamakayise Kose, specialist researcher, North West University
- Dr Janell Le Roux, lecturer, Communications Department, University of Limpopo
- Ms Enirieta Makanza, former PhD/research assistant, SAMRC/UJ PACER
- Dr Gladys Male, associate professor and Future Professors Programme candidate, University of Free State
- Dr Motlatso Mlambo, director of institutional research, Department of Institutional Intelligence, University of South Africa (UNISA)
- Ms Amanda Mohlala, Executive Director: Laboratory Services, Strategic Evaluation, Advisory & Development (SEAD) Consulting
- Ms Lifutso Motsieloa, Technical Lead: Monitoring and Evaluation, South African National AIDS Council
- Ms Ncumisa Msolo, research coordinator, University of Cape Town
- Ms Nobuhle Ncube, former MSc student, Pan African University of Life and Earth Sciences, African Union
- Ms Lucia Olifante, PhD student/research assistant, SAMRC/UJ PACER

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- Dr Edith Phalane, project manager/specialist scientist, SAMRC/UJ Pan African Centre for Epidemics Research (PACER)
- Ms Kagisho Phaswana, former programme manager/social work supervisor, National Youth Development Outreach (NYDO); student fieldwork supervisor, PhD
- Dr Abo Qamata, a former master's student at University Stellenbosch
- Ms Lebogang Ramalepe, PhD student, Department of Psychology, UJ
- Ms Betty Sebati, PhD student/research assistant, SAMRC/UJ PACER
- Ms Mohlago Seloka, PhD student/research assistant, SAMRC/UJ PACER
- Dr Mpinane Senekane, lecturer, Department of Environmental Health, Faculty of Health Sciences, UJ
- Ms Haley Sisel, graduate student, Johns Hopkins Bloomberg School of Public Health; intern, SAMRC/UJ PACER
- Dr Claris Siyamayambo, postdoctoral fellow, SAMRC/UJ PACER
- Ms Zinhle Sokhela, research manager, University of the Witwatersrand
- Ms Odiwe Swana, operations coordinator, Wits Reproductive Health and HIV Institute
- Koketso Refilwe Rathumbu, public health practitioner, Director at LGBTI LDP, activist, She Conquers Committee; national youth ambassador
- Ms Sinethemba Thubeni, former research assistant, SAMRC/UJ PACER

Chapter 1:

Unpacking Key Mentorship Concepts

*A **mentor** or expert is a person who has achieved career success; s/he counsels and guides another for the purpose of helping him or her achieve similar success*
- Gottesman, 2008

A research mentor is an experienced, knowledgeable, resourceful person or expert who has the conviction and the willingness to voluntarily use his/her knowledge in his/her field of expertise, abilities, life experiences, lessons learnt and achievements generously towards nurturing others for their personal and professional growth as well as career advancement.

Mentors are people of stature, influence, and authority in their profession and are respected in their field. They have nurturing abilities and empathic attributes, such as being open, transparent, and honest, displaying enthusiasm about the growth of others. They are passionate about their research area, knowledgeable on the subject matter, approachable and accessible to mentees, and inspirational, and they serve as role models and support systems to mentees (Fleming et al., 2013). A research mentor shows that a research career is not a mere job carried out for survival, but it is about service to humanity and the betterment of society, thus making a difference.

A **mentee**, protégé, protégée or apprentice “is someone who has a specific personal or professional goal; needing guidance and support from a mentor to achieve that goal and is accountable to her/his mentor” (Seçkin, Elçi & Doğan, 2022). Thus, a research mentee is an emerging researcher, academic or scholar who needs valuable guidance and support from a mentor for research career development and personal growth (Badawy, Black, Meier, Myers, Pinkney, Hastings,

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Hilden, Zweidler-McKay, Stork, Johnson & Vaiselbuh, 2017). Mentorship is an interaction in which an experienced person (mentor) can help a less experienced person (mentee) through guidance, support, and feedback (Sarabipour, Hainer, Arslan, De Winde, Furlong, Bielczyk, Jadavji, Shah & Davla, 2022). Furthermore, “mentorship is an opportunity to connect meaningfully with individuals in service to their pursuit of personally-defined goals or aspirations” (Montgomery, 2021). Mentees benefit from the teaching, guidance, coaching, counselling, support and advice of mentors (University of California, 2022; University of Southampton, 2022).

Mentees may have multiple mentors to broaden access to career development opportunities (Curtin, Malley & Stewart, 2016; Commodore, Freeman, Gasman & Carter, 2016). Mentees may identify potential mentors through a range of platforms that can link them to potential role models, resourceful individuals and institutions. These include research networking memberships, outreach platforms (e.g., conferences, training workshops and webinars), internships, exchange visits, supervisions and research collaborations. Peers can also introduce their friends to potential mentors. The odds of failure in a research career become much smaller for a focused, ambitious and determined mentee who is willing to go out of their comfort zone to learn from those who walked the path before.

Once the mentee has identified a mentor, the process of developing a rapport begins, referred to as a mentorship relationship (Blackwood & Brown-Welty, 2011). “Mentor-mentee relationships provide support and guidance for a successful research career” (Vasylyeva et al., 2019; Kalbfleisch & Keyton, 2012).

The mentor and mentee may discuss the individual needs, career goals, strengths, talents, and expectations of the mentee as well as how the mentor can provide support (Pfund, Byars-Winston, Branchaw, Hurtado & Eagan, 2016). This encompasses the roles that the mentor would need to play to meet the support needs of the mentee. Further, they

discuss areas of mutual interest, shared vision, motivations and objectives, matching expectations, as well as shared learnings and experiences from their career histories (Spence, Buddenbaum, Bice, Welch & Carroll, 2018; Yang, 2022; George Washington University, 2022). They also discuss the scope of what the mentorship relationship will entail, *modus operandi*, ground rules, preferences, limits, as well as communications styles such as preferred methods.

A sustainable research mentorship relationship or rapport is built on a foundation of passion, courage, hard work, social justice, and a sense of purpose and responsibility. It is also built on respect, trust, openness, integrity, sincerity and values (Vasylyeva et al., 2019; University of California, 2022).

As in all relationships, the relationship between a mentor and a mentee is a two-way process: a mentor listens carefully, empathizes, validates, collaborates, challenges and finds ways to develop a mentee towards becoming an independent researcher (Deanna et al., 2022; Stetson University, 2022; Kalbfleisch & Keyton, 2012), and a mentee responds, appreciates, learns and grows from the teachings given to advance his or her career (Eller, Lev & Feurer, 2014; American Speech-Language-Hearing Association, 2023; University of Southampton, 2022). The relationship is about mentees obtaining support and guidance from more experienced individuals that have already walked the journey to becoming established researchers (Pfund, Byars-Winston, Branchaw, Hurtado & Eagan, 2016).

The rapport between a mentor and a mentee is vision-focused rather than problem-orientated; it focuses on where the mentee can be rather than where s/he is and whom the mentee can become rather than who s/he is. The mentor meets the mentee where s/he is. The mentor and mentee may review their relationship, goals and progress and take stock of competencies to be developed and growth areas to be pursued.

The mentor-mentee relationship can be negatively affected by time constraints, mismatch, communication barriers, unclear or unrealistic expectations or goals,

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resistance, resentment, lack of boundaries or limits, lack of planning, misconceptions, and a change in job assignments (Ngongalah et al., 2021; Fleming et al., 2013).

This may result in a relationship that is counter-productive and create feelings of frustration, resentment, rejection and feeling unwelcome:

I have learnt that in any situation, I am not the first, but there are others who have walked the way, learned lessons, developed wisdom, and gained skills that can be imparted or shared with others. This has helped me to have a positive attitude towards learning with confidence, challenging myself, competing with myself, being expectant, and intentionally respecting and desiring to learn more from my mentor without fear of making mistakes or being corrected. As a result, I do not take my relationship with my mentor casually, but I take it seriously with allegiance and honesty. I always want to observe, try, learn, discover, take assignments seriously, meet deadlines, and be guided or corrected. Most of the time, what I learn by discovery, I never forget, but I perfect it with time. I followed my mentor on Facebook and LinkedIn, checking her profiles and mirroring myself and my desires with her. I was convinced that with her, I would go far. I was inquisitive to know more about epidemiological research and how I can apply or learn to apply my statistical knowledge. I subsequently actively pursued the opportunity to work with and under her, putting my skills to good use and adding value to the team. I see my career dreams of being a professional and experienced researcher coming to pass without fail or delay. Every day, I learn new things and acquire new skills. — Dr Claris Siyamayambo, postdoctoral fellow, SAMRC/UJ PACER

I proactively approached a mentor that resonated with me. I was attracted by the success of my potential mentor, her enthusiasm, networks, involvement, shared vision, goals and interests, maturity, self-confidence, as well as her insights into the field. I needed to acquire the expertise, influence, and authority she had; to follow the career path she had already

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navigated. — Dr Edith Phalane, project manager/specialist scientist, SAMRC/UJ PACER,

A friend introduced a potential mentor, one of the days I'll never forget in my life! I met a driven, ambitious and hard-working mentor who stops at nothing. Being part of working with her and her team did not only teach me resilience but also proactiveness and I can-do-it attitude. — Ms Sinethemba Thubeni, former research assistant, SAMRC/UJ, PACER

I was fortunate to meet my mentor through my friend Cynthia Asante. I wished to also be supervised for my PhD and mentored by a phenomenal woman who broke barriers to become a global icon; having risen through the ranks from humble beginnings, I was attracted to women of her calibre and inspired to achieve such a pedestal in life. — Rita Afriyie, Technical Coordinator, Technical Support Unit, Ghana AIDS Commission

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Chapter 2: Research Mentorship and Women

One young black woman asked the author of this book a series of questions:

- Please, tell me, how did you navigate your career journey from early-career research struggles to research leadership?
- How did you finish your PhD at the relatively young age of 29?
- How did you transition all the way from being a research assistant to being a research director? An extraordinary research professor? Deputy Vice Chancellor for Research and Innovation? National science award winner? Sophisticated science networker? Socially-engaged scientist? Queen Mother of research?

The simple and probably unexpected answer given by the author was:

Alone, I could never have made it; it was through the support given by remarkable mentors of virtue, stature and influence that I made it. Research mentorship positioned me for research career success! It changed my career trajectory for good; it elevated me to bigger assignments, spaces, places and platforms. Having such a support system has been pivotal in not only guiding and directing my research career path but also in creating a sense of belonging, cohesion and solidarity that kept me in the research pipeline against all odds. It induced motivation to pursue a research career and ignited my passion for science. With the support of my mentors, I defied the odds, broke down multiple barriers, and became a game-changer and a force to be reckoned with in my respective spaces. Mentorship changed my fears into breakthroughs, stumbling blocks into stepping stones. It was not easy, but it was worth it. Mentorship

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strengthened my research career progression, independence, self and professional development, advancing my postgraduate studies and the realization of greater returns in terms of dealing with early career struggles, competing priorities, execution of multi-disciplinary large-scale research projects, building research networks and collaborations, securing grant funding and science communication. After learning the ropes, I passed on the baton to others to contribute to the sustenance of the knowledge enterprise. From humble beginnings without basic necessities and studying in appalling resource-constrained environments, I became publicly recognized as a titan against HIV, a science role model, a science superstar, a world-class scientist and a science ambassador in the sector. I was honored institutionally and nationally through work promotions, performance rewards, institutional and national awards, non-executive board directorships, fellowships, professional and expert panel memberships, advisory and governance roles and much more. Research mentorship shaped and sustained my career from humble beginnings to research independence
— Author

The gender gap persists in science (UNESCO, 2015); women still face gender bias (UNESCO, 2021; Hurtado, 2021). Women researchers remain a very scarce and much-needed resource for Africa's development. The future of science, and indeed the future of society, depends on the involvement of women:

In health development, as in many other areas, women are agents of change. They are the driving force that creates better lives for families, communities and, increasingly, the countries they have been elected to govern. Every time a woman excels in a high-profile position, her achievement lifts the social status of women everywhere. — Margaret Chan, Physician, Director-General of the World Health Organization (WHO) for the Chinese delegation, 2006–2017

Career advancement in research or academia remains a challenge for many women, especially African women, as they struggle to navigate academic spaces that have historically

been predominately male-dominated in a patriarchal society (Wright & Salinas, 2017; Davis & Maldonado, 2015; Gasser & Shaffer, 2014). Women face gender discrimination, insubordination, implicit biases, side-lining, isolation, conspiracies, lack of cooperation, socio-cultural issues and lower salaries (AAS, 2020; Babalola, 2019; Babalola, Du Plessis & Babalola, 2021; Sunday Independent, 2021). A range of initiatives are being put in place to address some of these challenges proactively. For example, Scibono (2021) organized a webinar on fighting stereotypes about girls in science where the author was one of the panelists.

There are limited opportunities for research leadership for African women partly because of inadequate influential mentors of similar race and gender in higher education (Beckwith, Carter & Peters, 2016; Blake-Beard, Bayne, Crosby & Muller, 2011; Miles, 2012). Women's career progression tends to spiral rather than follow a straight path (Helgesen & Johnson, 2010).

Long-standing gender, ethnic and racial disparities in science, research and academia persist, resulting in the underrepresentation of black women compared to white men, black men, and white women, limiting the building of the knowledge enterprise and societal development (Sorkness, Pfund, Ofili, Okuyemi & Vishwanatha, 2017). Women researchers work in constrained research environments characterized by unique vulnerabilities such as implicit biases, prejudices, stereotypes, patriarchal tendencies, as well as restricting social norms and beliefs, which lead to resistance to change, rejection, isolation, undue criticisms, and a lack of belief in women's abilities (Beckwith, Carter & Peters, 2016; Gardner, Barrett & Pearson, 2014). They also experience constrained research resources in terms of scholarships, internships, fellowships, memberships, affiliations, networks, collaborations, partnerships and alliances (Lim, Clarke, Ross & Wells, 2015). This may leave many women with feelings of insecurity and inadequacy, a lack of morale, crushed career aspirations, and, ultimately, exiting the pipeline. There are hardly any sustainable and effective interventions to disrupt

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implicit biases, prejudices, and patriarchal tendencies in the immediate and broader institutional (academic) contexts as well as in society at large, as intersections between race, gender and class are often overlooked. Under such circumstances, the likelihood of succeeding in a research career without mentorship support is very low, let alone pursuing a career in research. Without mentorship, many women may take an alternative course of action that may appear more realistic and attractive.

Mentorship is crucial to the retention, success, and well-being of women and underrepresented minority scientists in academia (Deanna et al., 2022). Mentors can create a welcoming and inclusive research environment, which enable mentees to have a sense of belonging. They may devise strategies for recognizing and addressing issues of equity and inclusion and how research mentors may inspire women in science that other women wish to be like. Further, they may serve as pillars of hope that it is possible to pursue a research career for many who might have ruled off that possibility in their own lives. This may ignite their passion for research and research careers.

Academics and researchers from under-represented groups have been found to receive less mentorship than their well-represented peers (Beech, Calles-Escandon, Hairston, Langdon, Latham-Sadler & Bell, 2013). The lack of mentors and mentees who share gender and race has been cited as one of the reasons for the underrepresentation of African women in higher education (Beckwith, Carter & Peters, 2016). This accentuates the importance of this book: Not only is the author of this book a black African woman but so too are the mentees whose opinions have been shared in this book.

Although the lack of mentorship is not unique to underrepresented groups (by either race/ethnicity or gender identity in academia), the impacts are disproportionately far-reaching for underrepresented groups (Sorkness, Pfund, Ofili, Okuyemi & Vishwanatha, 2017; Pfund, Byars-Winston, Branchaw, Hurtado & Eagan, 2016; Alinia, 2015; Grant & Ghee,

2015). The recruitment, retention and mentorship of diverse groups are critical to harnessing the complete human and intellectual capital of society. Mentorship has the potential to contribute significantly to efforts to enhance inclusivity and diversity in research and academia at large (Deanna et al., 2022; Sorkness, Pfund, Ofili, Okuyemi & Vishwanatha, 2017; Davis & Maldonado, 2015).

Research mentorship can help African women navigate their unpredictable research career paths to achieve success and excellence in unwelcoming work environments that often make them feel that they do not belong. They can be empowered through mentorship to stand firm against demeaning attitudes and insensitivities that may create a chilly climate in their work environments. Through research mentorship, African women have the potential to reach the pinnacle of academia despite constraining work environments. African women can realize their true potential, which Aristotle describes as the highest of all human goods.

Research mentorship can elevate African women to higher levels of academic service, pull off any barrier, enhance broader access, and spread their wings even further, expand their territories and avenues to continue building cohorts of future scientists necessary for Africa's future. Research mentorship can help African women defy the odds of failure in a research career. It can contribute to equitable science access and success for all, including African women scientists, equitable research promotions, access to research funds, co-authorships of research publications, platforms for disseminating research findings, as well as opportunities for obtaining research awards. It can mitigate persistent obstacles affecting African women's interests and capabilities to engage, advance and benefit from science at all levels: field or sector, community, institutional and societal.

Through mentorship, African women can view successful research journeys as being for them as they are for others. They may overcome the feeling of jumping ship for

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what may seem like “greener peaceful pastures” to escape the blazing fire that may consume them.

Mentors can help mentees survive and thrive in the academic jungle despite limitations and circumstances. Further, mentors can help mentees overcome challenges such as side-lining, undermining, harsh criticisms, malicious integrity attacks, discriminatory practices, harmful cultural norms, patriarchal tendencies, persistent stereotypical attitudes and implicit gender biases. They can help emerging African women researchers rise above science disparities, gender inequalities, as well as patriarchal tendencies.

However, mentorship hardly receives the attention it deserves despite its potential to improve work performance, productivity and retention; increase networking opportunities; enhance a sense of professional identity and development, especially among those with the least access, African women. Research mentorship should be adequately valued, embraced, and promoted, hence this book. Great giants in research have had great mentors at some point in their career journeys:

I have worked in non-diverse work environments characterized by gender-related vulnerabilities and subtleties, e.g., resistance to change, rejection and isolation. Through mentorship, I withstood off-putting social norms and beliefs about my abilities as a woman, implicit biases, prejudices, stereotypes and patriarchal tendencies. —Dr Motlatso Mlambo, Director of Institutional Research, Department of Institutional Intelligence, University of South Africa (UNISA)

Through mentorship, my potential exploded. I realized personal growth, career progression and success beyond my wildest imagination. This became a professionally fulfilling experience. —Dr Edith Phalane, project manager/specialist scientist, SAMRC/UJ Pan African Centre for Epidemics Research (PACER)

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Chapter 3:

Research Mentorship and Early Career Struggles

Research mentorship shaped my career trajectory. Over the years, I have come to know, understand, and appreciate early career struggles and their manifestations. Mentorship contributed immensely towards overcoming many of my early career struggles, spurred competitiveness, research performance, job satisfaction, job-related well-being, retained me in the pipeline, and set me on a path to career success. It became a panacea for my early career struggles and a solid foundation for my career success. I later received promotions, performance awards, sabbaticals, and nominations due to mentorship. I believe that my research trajectory would not have turned out to be successful if I had been on my own.

— Author

The beginning of a research journey can be very lonesome, daunting, and difficult to navigate without the support of those who have already navigated the path. Many emerging researchers, especially African women, go through vulnerabilities, uncertainties, and hard knocks early in their careers that tend to make them view a research career as being for others and not for them. Early career research struggles and frustrations are real for emerging researchers as newcomers in an ecosystem that tends to work better for established researchers than for the unknown emerging researcher. These may include the lack of skills to develop research networks; lack of a profile to attract external funding; not having research collaborators; disastrous presentations due to lack of skills; rejected papers that do not meet required standards; difficulty meeting set targets at work; among others. These struggles may serve as stumbling blocks towards research excellence, work performance, career progression

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and retention. They may seek to entangle and barricade many emerging researchers from pursuing research careers and thus cripple their career aspirations and goals. Without mentorship, an emerging researcher can easily jump ship and become a research career attrition statistic. The support of mentors is critical in safeguarding mentees in the research pipeline. Research mentorship can become a source of hope and inspiration for mentees to dream bigger and develop a success mindset that will eventually put them in prominent places, spaces and platforms.

Research mentorship has been recognized in many spheres as a great developmental tool that can be utilized to assist emerging researchers in navigating their burgeoning research journeys successfully (Sorkness, Pfund, Ofili, Okuyemi & Vishwanatha, 2017; Gandhi & Johnson, 2016; Kumwenda et al., 2017). Mentorship has been associated with mentee productivity, self-efficacy, career satisfaction and success (Shea et al., 2011; Feldman, Arian, Marshall, Lovett & O'Sullivan, 2010; Cho, Ramanan & Feldman, 2010). Mentorship can set mentees on a path to self-discovery and self-mastery; it can help define, shape and sustain their career progression from humble beginnings to research independence (Chen, Sandborg, Hudgins, Sanford & Bachrach, 2016). Research mentorship can serve as a panacea for early career struggles and a solid foundation for career success. Investment in research mentorship can enhance diversity, equity and inclusivity (Sorkness, Pfund, Ofili, Okuyemi & Vishwanatha, 2017; Johnson & Gandhi, 2015), thereby unlocking Africa's progress, development and competitiveness.

Mentorship is important in helping those with limited seniority and research experience to navigate through the deep and steep learning curves, drawing from their experiences (Semata, Gladding & John, 2017). Mentors are experienced and resourceful individuals who can provide induction, transitioning and retention support to emerging researchers (Stetson University, 2022).

Mentors can support mentees to hit the ground running; they may initiate mentees into the research career path and support them through early research career struggles. They may provide mentees with infinite possibilities that can help them rise above early career struggles and develop a research profile. They can meet mentees at their point of need; they may guide mentees to navigate, adjust and transition well into their careers, alleviate the fear of the unknown, perform better at work, understand job expectations clearer, and strengthen future work-related prospects. They can serve as a sounding board to get ideas that could make mentees thrive in their work. They can unleash creativity in mentees (Pfund, Byars-Winston, Branchaw, Hurtado & Eagan, 2016).

Mentors can help mentees to walk where they have walked and to reach where they have reached and beyond. Essentially a mentor empowers, equips, encourages, supports, and guides mentees to overcome early career struggles and succeed in their careers. Their support can ignite and sustain mentees' passion for research, science or academia for a very long time to come.

Thus, a mentor can be viewed as an academic parent who nurtures an emerging researcher through his/her early career struggles. S/he serves as a role model, teacher, advisor, advocate, friend, counsellor, enabler, supporter, motivational source, and inspirational figure. S/he unreservedly shares his/her wisdom, insights, perspectives, and vulnerabilities to inspire and motivate emerging researchers to overcome early career struggles and stay in the pipeline. An expression by Melinda Gates summarizes the above-mentioned succinctly: "If you are successful, it is because somewhere, sometime, someone gave you a life or an idea that started you in the right direction".

A mentor is committed to the development of emerging researchers; s/he inspires motivation, passion and interest in mentees to jump-start or shape their career trajectories. S/he plays a critical role in helping emerging researchers understand their research roles and responsibilities early in

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their careers. For many mentees, mentorship can become the beginning or transition point into research careers. Further, mentorship can set emerging scholars on a great research career path and empower them to remain in the pipeline until they eventually succeed in their career journeys.

A mentor recognizes and nurtures mentees' potential. Mentors can help emerging researchers discover and exploit their true potential and real talents early in their careers. They can recognize them and create platforms for them to be utilized. Nurturing young talent is a much-needed resource base for figuring out problems before they materialize and finding ways of preventing or solving them. This is critical for sustainable growth, diversity and development in science. It can result in strong research teams that can become research strongholds. Early recognition and nurturing of research potential can go a long way in channeling emerging scholars to research careers and eventually building the next generation of independent researchers.

Mentors can share their knowledge, skills and experience to strengthen the career progression of mentees (Kuzu, Kahraman & Odabasi, 2012). The support given through mentorship can help those who may have never thought that they could ever make it in the fierce research world. Black women who face unique challenges in navigating academia can obtain insights that would help them advance personally and professionally (Sorkness, Pfund, Ofili, Okuyemi & Vishwanatha, 2017). As Jackie Robinson said, "A life is not important except in the impact it has on other lives."

Mentees may feel anxious to approach mentors during their early careers as they may perceive them as honorable individuals. Mentors should display a sunny disposition that will attract potential mentees. They should be welcoming and people-oriented so that mentees view them as ordinary people like them and feel free to discuss whatever they wish to express.

Emerging researchers need to be embraced, supported and guided to traverse through early career struggles towards

becoming independent researchers and in their unpredictable career journeys.

I can write a whole chapter about the acts and deeds of my mentor. I honour her as the woman of valor, woman of purpose, who guard herself with strength, inner and outer beauty, selflessness, kindness, ubuntu, generosity and so much more. I continue to experience first-hand love from her. Thank you for being you. Y- YOUNG at heart, allowing us Young Ones a safe space to learn with you always O-One of a kind U-Unmatched.
—Dr Edith Phalane, project manager/specialist scientist, SAMRC/UJ PACER

My mentor is a seasoned researcher with an impeccable work ethic; gentle, helpful, and selfless. She has cheerfully welcomed and brought along others in her upward trajectory. She is broad-shouldered and she willingly gave of her time and created opportunities for others to realize their dreams.
—Dr Pelisa Dana, Senior Researcher, Eastern Cape AIDS Council

In the nine years we've worked together, she sought to mentor and groom whoever was in the project team to become the best researchers. She always left it to the individual whether they were open to learning or not. Her enormous belief in my capabilities gave me strength, courage, and a daring spirit to fight for my own development. — Ms Zamakayise Kose, senior specialist researcher, North West University

I learnt to assist and organize regularly scheduled update meetings with my collaborators at PACER – one quality that has further helped my career as a project coordinator.
—Ms Ncumisa Msolo, research coordinator, University of Cape Town

My mentor supported, guided and alerted me of research opportunities throughout my career towards becoming a director, being my sounding board, connecting me with

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resourceful persons and institutions. — Dr Motlatso Mlambo, Director of Institutional Research, Department of Institutional Intelligence, UNISA

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Chapter 4: Research Mentorship and Self-Development

My mentors supported me towards self-development. They looked beyond who I was but who I could be, focused on where I could be rather than where I was. Further, they ensured that I felt valued and not under-appreciated. Recognizing, appreciating and valuing my contributions and unquestionable talent, even if I was the youngest or least experienced member of the team and the demonstration of a sense of pride went a long way in building my self-confidence. My mentors conducted regular reviews and provided constructive feedback, as well as ensured that my excellent performance, hard work, and great results did not go unnoticed. They rewarded my efforts, e.g., gave credit individually and publicly for exceptional performance, with tangible awards. They demonstrated a sense of appreciation, celebrated every little accomplishment with me, and acknowledged my contributions. This enhanced higher levels of job satisfaction. The validation of my mentors made me less afraid, anxious, or stressed about my research journey. Research mentorship changed my self-doubt into self-confidence; it boosted my self-esteem. It led to self-discovery, self-mastery, and self-actualization. It strengthened my sense of purpose and built my resilience and resoluteness, as well as reinforced my undying vision of changing, transforming and impacting lives.
— Author

Mentees go through self-concept issues, including negativism, self-doubt, and despondency, early in their careers. They may be skeptical about their abilities, self-stigmatizing and self-oppressing, give less credit to themselves for efforts made, value their own work less than they should, and overlook the opportunity to share their work with confidence. Mentorship

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contributes to self-development, not just in terms of completing new courses, degrees or obtaining certificates but also in terms of personal-wellbeing, performance and development. According to Davis (2022): “Personal development is the key to success”. Babalola (2019) found that African women desire to grow and achieve self-actualisation; however, the challenges they face threaten this.

Academics with mentors were found to have higher self-efficacy (Feldman, Areean, Marshall, Lovett & O’Sullivan, 2010). Through mentorship, mentees can learn new things and develop new skills to increase their chances of success in realizing or achieving their own dreams (Lunenburg, 2011; Mojavezi & Tamiz, 2012).

When mentors and mentees have similar socio-demographic characteristics, this may be more evident (e.g., race and gender) (Gardner, Barrett & Pearson, 2014; Kutchner & Kleschick, 2016). According to Blake-Beard, Bayne, Crosby and Muller (2011): “Students who had a mentor of their own gender or race reported receiving more help, but matching by race or gender did not affect academic outcomes.”

Research mentorship can uncover the hidden reserves of courage, commitment, tenacity, persistence and consistency in mentees. Mentors can inject positivity and confidence into the abilities of their mentees. They may cheer, validate and surround their mentees at every turn, ensuring they remain on an upward trajectory. Mentors can create a sense of acknowledgement, belonging and relatedness, as well as utter positive expressions such as “You are a rising star”, “You are good enough”, and “You have what it takes” can go a long way in encouraging mentees. Mentors can improve mentees’ sense of self-awareness, autonomy and self-belief. Mentors can look beyond the weaknesses of their mentees and recognize their potential at a time when mentees do not even know that they have any. They can help mentees focus on the joys of their careers and how to overcome challenges they are faced with rather than focus on the gloomy and dark side of their career life. Eventually, mentees can develop the personal resources

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needed for a successful research career. In the end, they do not want the potential to be reduced to what could be scripted and supervised.

A mentor sees meaning and value in what the mentees do, as well as appreciates and celebrates mentees' modest successes in small memorable ways to give them courage, endurance, and sustenance. The successes may include being a co-author in a published paper, a scholarship acquired, a research project completed, a technical report finalized, and a scientific presentation made. The mentor may celebrate mentees' achievements by sending a congratulatory message via email and making announcements on social media, a website, or in a report. If the mentee works directly with the mentor, the latter may give the mentee some time away from work. Keeping the appreciation of every little success trend going may not only go a long way in striving to achieve greater milestones but may also sustain mentees in the pipeline:

My mentor celebrates each milestone we achieve together enormously and proudly, irrespective of how small or big it may seem to be. This made me feel, believe and realize that I can do more and better. It gave me a sense of achievement, fulfilment, motivation and encouragement. It also extended my research skills, talents and insights, which enhanced peak performance as well as personal and professional growth that prepared me for the next level. When I faltered, my mentor had my back; she lovingly pointed me to the right path. At times, I felt that she trusted me more than I actually trusted myself.
— Dr Edith Phalane, project manager/specialist scientist, SAMRC/UJ PACER

My mentor sees everyone as a great person in the making – she saw this in me too. This brought out the best in me. She encouraged me to do good, built my ego, appreciated my worth, and cheered me up all the time. — Ms Ncumisa Msolo, Research Coordinator, University of Cape Town

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My mentor sincerely and genuinely cares about me personally and professionally, supporting me in dealing with the issues at hand. — Ms Zinhle Sokhela, research manager, University of the Witwatersrand

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Chapter 5: Research Mentorship And Professional Development

Every day, I enjoy the privilege of being a support system to strengthen the capabilities of my mentees to take on more prominent roles, making them see that science is as much for them as it is for others. My mentor built an open, person-to-person communication with me, gave a listening ear and a warm hug when it felt too hard, and my career world seemed to be falling apart. They influenced my career and developed great personal resources to become the mentor that I am today. I give credit to them for my nurturing abilities and empathic attributes as a mentor. Through mentorship, I developed personal resources that sustained me at different stages in my career journey, in multiple ways and places, and over a period of time. They produced a strong work ethic, passion for work, the desire to immerse myself in a world of possibilities, tenacity, going beyond the call of duty, a display of total commitment, rising to the occasion and delivery of targeted activities within the timeframe and deadline. I got rid of my anxieties and uncertainties and acquired the bravery to execute work assignments I had never done before. These qualities made me a black woman in science and the research leader I am today.

— Author

Mentors play a critical role in career development. A research mentor understands the importance, depth, and impact of the subject matter; s/he uses this to empower his or her mentees. Mentors patiently guide mentees as they figure out their career path, find possible routes, and navigate through struggles and frustrations until they reach clarity of mind and purpose. They point mentees to potential problems before they materialize and support them in developing mechanisms to prevent or address them by giving them ideas and perspectives

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on creative ways that can be used to deal with some of the challenges along the way. They may share experiences and learning to enhance the development of the mentees. They may expose mentees to best practices, innovative approaches, and developmental resources that would enhance their careers. A research mentor inspires a positive attitude that validates, motivates, supports and encourages mentees to continuously forge ahead in advancing their careers. Mentors give mentees honest and constructive feedback about their performance as well as assurance when needed. They candidly point mentees to their growth areas to improve their work, knowledge and skills, as well as link them to appropriate capacity-building opportunities for their personal and professional growth. She serves as a coach to mentees:

Coach-like leaders don't create followers; they create aspiring and thriving leaders. — Suhair Fakhoury, Professional Certified Coach (PCC), International Coach Federation (ICF)

A mentor displays a passion for career development; she or he alerts mentees of unlimited career possibilities, new developments and exciting prospects that can strengthen their professional development and fill critical capacity development gaps. These may include scholarships, fellowships, training, workshops, internships, research assistantship and exchange programmes. Mentors can support the career pathing aspirations of mentees. They can assist mentees in pursuing formal growth opportunities; improve their academic qualifications; pursue scarce skills qualifications; keep mentees abreast of new developments and advances in the field; provide industry updates; and guide mentees through uncharted grounds. They can enable mentees to move from one exciting learning challenge to another, seizing various opportunities and possibilities. Through research mentorship, mentees can be provided with uninterrupted long-term focused career pathing that can help them to obtain the level of mastery needed to support robust independent research.

The lack of mentorship by mentees may limit career advancement. Mentees may not be aware of professional and career development resources. Mentorship is critical for professional growth, especially among women with similar characteristics, such as race and gender (Searby, Ballenger & Tripses, 2015). The lack of mentorship has been cited as a key reason for the lack of career advancement among black women (Beckwith, Carter & Peters, 2016; Bynum, 2015; Dunbar & Kinnersley, 2011). Through mentorship, mentees can have job satisfaction, attain promotions, become accepted by peers, get better salaries, obtain performance awards, a better work environment, a sense of belonging, and ultimately be retained in the pipeline (Johnson & Ridley, 2018).

Under the tutelage of a mentor, mentees can make new discoveries, gain new knowledge, develop new skills and competencies, as well as explore a range of options, possibilities, and career development initiatives that can be put to good use in the execution of research activities. This may involve developing mentees' analytical and critical thinking skills as well as consolidation, articulation, communication, writing and teamwork skills:

My mentor provided me with expert advice, induced motivation, and worked with me in pursuing my career interests and vision, identifying and setting up research career goals and explicit personal growth objectives. She advised me on the resources, knowledge, skills, abilities, networks and collaborations, among others, that would be needed to achieve my vision. My mentor takes her time to tell her mentees in person: "Well done", "Thank you", "You are a star, soon-to-be professor", and "You have grown so much since we started, and I am proud of you". These might be just words, but for me, all these positive affirmations are the engine that activates and propels me to go on and on each day to realize my dreams. My mentor is a natural nurturer, groomer and enabler whom I learn with, not from, and this has made our mentor-mentee relationship strong, fruitful and nurturing. I am privileged to have someone who supports me holistically towards research independence.

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— *Dr Gladys Male, associate professor and Future Professors Programme candidate, University of Free State*

My mentor challenges me to take on tasks that I feel are above me. I sometimes feel that she believes in me more than I believe in myself. She would say: “I know you can do this”, “You are a Star, so go for it”. She does not see things from a limitation point of view. This has brought about rapid growth in my research career development, although I must be quick to say I still have a longish way to go. Prior to being mentored, I struggled with understanding research methods and epidemiological designs. My mentor’s pattern of research was very relatable and made difficult concepts easy to grab. She was determined to enable me to develop as many skills as possible that would be helpful in my research career. My mentor is one among many people in my life whose place is truly esteemed. She is enthusiastic about the development of emerging researchers. My mentor inspires me, reassures me, exposes me to new perspectives, and supports me in achieving my goals; she builds my confidence and independence. — Dr Edith Phalane, project manager/specialist scientist, SAMRC/UJ PACER

If Frankness were a person, that would be my mentor. She raised concerns about the quality of my reviews. It became a long day at work that day. However, I later learned to be meticulous, put more effort in and deliver a good product when given a task. To this day, I live by this principle, and I have seen the results. — Ms Sinethemba Thubeni, former Research Assistant, SAMRC/UJ PACER

I am grateful for the research journey I have undertaken with my mentor, which culminated in the establishment of the first-ever SAMRC/UJ PACER Extramural Unit at UJ. I am humbled that my mentor refers to me as the co-founder of this prestigious unit in recognition of the assistance I gave to her while preparing the grant application for this. Work can be very daunting. I have enjoyed the light moments with my mentor after coming from intense work sessions. The light

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moments brought a lot of fun, for example, crazily posing for photos, going out for lunch, then coming back to the office and continuing with the work. — Ms Enirieta Makanza, former PhD/ Research Assistant, SAMRC/UJ PACER

My mentor supported me by acknowledging my accomplishments and challenging me to develop skills that advance my career. —Ms Kagisho Phaswana, former programme manager/social work supervisor, National Youth Development Outreach (NYDO); student fieldwork supervisor, PhD

Whenever I call on my mentor, whether about a work-related matter or a personal one, she gives me an ear and provides sound advice. She goes all out to ensure that a person who needs her assistance gets it, as well as instils these traits in people around her. —Dr Pelisa Dana, senior researcher, Eastern Cape AIDS Council

Our mentor invested time and resources in research career development opportunities to prepare us for executing research activities effectively and efficiently. She ensured that we undergo research ethics, research project management; sensitivity, clinical and cultural competency training; training on qualitative and quantitative analysis techniques; as well as statistical packages. —Ms Betty Sebati, PhD student/research assistant, SAMRC/UJ PACER

My mentor is a groomer; the passion and drive for developing the next generation of scientists, by my mentor, can simply be described as the epitome of true leadership. Working with her has given me exposure and tremendous growth over a nine-year period. I thank her for being an inspiration to me and, I believe, to many other young women. — Ms Zamakayise Kose, senior specialist researcher, North-West University

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My mentor is a great role model mentor – the most humble, courageous, selfless and gracious person I have known in my lifetime. I admire her work ethic and perseverance. Her drive and dedication to her work and hunger for the empowerment of women keep me going. She shows us how it's done. She inspires me. — Ms Martha Mushamiri Chadyiwa, lecturer, Faculty of Health Sciences, Department of Environmental Health, UJ

I must say my mentor never doubted my abilities; she had confidence that I would excel in various opportunities presented to me as I had the right foundation through following in her footsteps. — Dr Motlatso Mlambo, director of institutional research, Department of Institutional Intelligence, UNISA

My mentor supported me in realizing enormous awards and recognitions, which boosted my self-confidence a great deal. — Ms Boitshepo Gopane, occupational health and safety inspector, Department of Employment and Labour, North West Province

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Chapter 6: Research Mentorship and Work–Life

The commencement of my management role coincided with raising my own family. I went through challenges of balancing work and family life; I wore many hats, juggling multiple work–family life, child–bearing and child–rearing responsibilities as a mother and caregiver, as well as household chores as a daughter and wife, doing my best to ensure that none of these responsibilities was compromised. I had to navigate myself through multiple roles, parallel activities, and competing priorities for continued personal and professional growth, working early hours of the morning, throughout the day and late hours in the night, even on public holidays. Although this experience made my work prosper and produced personal resources such as discipline, maturity, being considerate, responsible, accountable and a faithful steward of my time, there were times when I became overwhelmed and wished to call it quits, but thankfully I did not through the support of my mentors. These experiences have made me more considerate towards other younger mothers and supportive towards them when they feel burdened by work–life balance issues. I did not want other women to go through the same hassles I went through without support, as I knew that support was everything. I was faced with an untenable higher workload both qualitatively and quantitatively. Further, I had to fulfil the demands of scientific research, which required a lot of time and energy each day and week. There were days when I could barely achieve anything as the pressures of my responsibilities pulled me in different directions. It was through mentorship support that I was able to combine complex work schedules, long working hours and huge workloads with family responsibilities which could not be left in a vacuum.
— Author

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One of the emerging scholars said:

I often ask myself; how did you navigate yourself through multiple responsibilities as a young mother and wife, Prof? When I come home after a long day of work, I feel physically, mentally and emotionally drained, as if the weight of the world is on my shoulders. I find that I must finish all my work in the office because as soon as I get home and sit down, my four-year-old boy comes rushing to play with me. Then I must do household chores as well as make time for my husband. Consequently, I am never able to do much work at home.
— Dr Nokuthula Khanyile, Lecturer, School of Chemical and Physical Sciences, Chemistry Department, University of Mpumalanga

Babalola (2019) wrote: “Successful leadership in STEM is about a balance of career with family life”. She cited family demands as one of the enormous challenges women leaders in STEM face. Many women leaders, scientists, academics or researchers go through the quadruple trouble of simultaneously working, studying, rearing children, and developing their careers to make ends meet. They sacrifice a lot of time and energy to keep going, pursuing what could be deemed impossible, given their circumstances. They have to work out how their children would be looked after during their work travels; arrange alternative transport, pick-ups and drop-offs; adjust work schedules to support them during exam times; arrange au pair services; avoid unplanned social interactions; carefully select helpers to employ them longer for consistency and much more. Although their forward planning, distribution of tasks, team approach, and establishment of great relationships with helpers may potentially go a long way in helping them handle competing priorities, these efforts may not be enough to sustain them. The support of mentors complements such efforts very well. Jointly with mentors, mentees can work out a schedule that enables them to stay in the pipeline amidst a demanding work life when all else is not sufficient. Mentors can create a conducive work environment, e.g., review workload models, systems and processes, as well

as create incentives and rewards for their contributions. They can also support sabbatical leave to give mentees more time to pursue their career goals. While the family can be an effective support system for the management of the home, the mentors can be an equal support system in the management of work. The support of mentors can be instrumental in transitioning mentees through various stages of development in a research career, ensuring their retention in the research pipeline, and offering them career advancement opportunities that can enhance their abilities to become research leaders.

Transitioning into work-life can be daunting. Mentees undergo work-related challenges of a qualitative and quantitative nature related to stress. Qualitative stress is often experienced because of a lack of knowledge, skills, and experience. Quantitative stress happens due to high work volume or workload that is difficult to handle within a given period. This may be worsened by a lack of work management and time-management skills.

Working mothers are always confronted with difficult and forced choices, as real gender mainstreaming is lacking in many workplaces. It is a challenge for many women to figure out how to survive a 24-hour day without compromising both their work and family responsibilities. Some of them may do unthinkable things that cannot be sustained, such as working around the clock. This may overwhelm them; they may experience quantitative stress due to multiple roles and qualitative stress as they are still in a learning process to the point of contemplating resigning from the academic jobs they are passionate about. In some cases, they face the threat of forfeiting their research leadership role.

Mentorship can help women researchers who may be inundated with work-life responsibilities (Deanna et al., 2022; Voytko et al., 2018; Babalola, 2019). Mentors may use their position of authority and influence to create a work environment conducive to excellent performance. Mentors can advocate for mentees to work from home and work flexible hours, as well as ensure that meetings and deadlines are

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scheduled in a manner that takes mentees' unique contexts into account.

Through mentorship, a family-friendly environment characterized by proactive planning, working flexible hours, working from home whenever they needed to, and creating flexible work plans and realistic expectations. They can engage in proactive planning on how to juggle work and family responsibilities. They ensured sensible scheduling of meetings and deadlines that took into account the unique contexts of women. Mentors can support mentees in figuring out how to survive in their careers without compromising their family responsibilities.

I approached my mentor about my interest in pursuing PhD studies under her supervision at the University of Johannesburg. It would have been close to impossible to secure enrolment without her support. I was even contemplating pursuing PhD studies in Canada. However, my mentor made access to study for my PhD at UJ feasible. Additionally, she adopted a flexible approach to facilitate engagements given the multiple responsibilities I have as a mother, employee and student.
— Ms Cynthia Asante, strategic information advisor, Joint United Nations Programme on HIV/AIDS (UNAIDS)

My mentor has also been my big sister at times when I would go to her, and she would offer wisdom on juggling work-life issues. I am grateful for the enormous support received from my mentor in handling competing work-life priorities.
— Ms Zamakayise Kose, senior specialist researcher, North West University

My mentor and I talk about work, life, social issues, goals, expectations, challenges, behaviors and parameters.
— Zinhle Sokhela, research manager, University of the Witwatersrand

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Chapter 7:

Research Mentorship and Execution of Research Projects

I assigned clear-cut roles on the research projects with regular check-ins embedded to provide the opportunity to put theoretical knowledge into practice, explore specific areas, and learn research techniques to strengthen research skills, built research experience, and research track record needed to transition to a successful career as a researcher. The delegation and distribution of work responsibilities as well as the provision of support in executing them kept the team motivated and developed a sense of shared responsibility and mutual accountability.
— Author

It is important to expose mentees to the execution of research projects (Weston & Laursen, 2015). A mentor and mentee may work side-by-side on a given research project for the mentee to observe research techniques (Pfund, Byars-Winston, Branchaw, Hurtado & Eagan, 2016). Mentees can develop research skills through mentorship, including proposal writing skills, research methods, data collection, analysis, report writing and dissemination (Ngongalah et al., 2021).

Mentors can help mentees build local research experience and the track record needed to transition into successful independent researchers. They can maximize research learning by helping mentees to bridge the gap between theoretical and practical knowledge. Mentors can create opportunities that can enable the development of scientific evidence, innovations and technologies needed to solve unprecedented challenges that society faces today. It can help them to retain goal-directedness; strengthen their intrinsic motivation; keep them focused; give them a sense of fulfilment, pride, achievement, and mental health. Further,

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through mentorship, their progress towards goals can be monitored, counting successes while keeping in mind how these can evolve in the future in favour of their big dreams.

Mentors can demonstrate, through experiential learning, how the proposed research projects could be aligned with national, regional and global goals to make them attractive to funders. They also can expose mentees to inter, multi and transdisciplinary knowledge that can give them a balanced view on various aspects of their research projects. This involves an exchange of ideas, knowledge, information, innovations, views, best practices, and experiences on recent advances in the field.

The placement of local and international mentees involved in masters, doctoral and postdoctoral training on research projects exposed them to novel research methodologies, the latest approaches, and technologies. They were involved in globally competitive, locally responsive, and contextually relevant large-scale, high-quality, innovative epidemiological and public health research. This provided experiential training opportunities that contributed to the development of research skill sets and set mentees on research careers, progression and success. These included population-based surveys, integrated biological-behavioral surveys, mapping population size estimations (PSE), key population implementation science studies, methods of prevention packages programme (MP3) studies or combination prevention studies in more than ten African countries.

A mentor puts words into action: Mentors should not be just full of words of encouragement, but they should also put things into action. A mentor embraces the independent views of the mentee, which enhances performance, productivity, and morale in research projects. A mentor is a good listener: Always willing to listen to what mentees say and what they do not say and to provide his/her honest feedback. A non-response from a mentor does not mean uninterested, but it means s/he is preoccupied:

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I have come to realize that it is possible to achieve great things through mentorship and despite being young both in age and in research. I am now working side by side with my mentor, being trained to become her successor, as she often says. Every day, I feel like a director-designate. — Dr Edith Phalane, project manager/specialist scientist, SAMRC/UJ PACER

We were assigned tasks on research projects. This helped us manage time effectively, ensure the delivery of projects per protocol, schedule and budget, as well as enrich the research experience. The research projects helped hone the skills needed. — Dr Motlatso Mlambo, director of institutional research, Department of Institutional Intelligence, UNISA)

From working with my mentor as a research assistant, research coordinator, and completing my master's degree, I am now a research manager. Having her as a mentor was amazing as she did not only advise on how I can grow myself but provided me with multiple opportunities to ensure that I was able to grow. — Ms Zinhle Sokhela, research manager, University of the Witwatersrand

I have served as a research assistant, research coordinator, research manager, site manager, and co-investigator in eight large-scale, policy-relevant, funded, applied public health and epidemiological studies while being a master's and later doctoral intern. Through these, I have developed research skills in planning, designing, implementing, writing up and disseminating findings. — Ms Zamakayise Kose, senior specialist researcher, North West University

During our internship experience, we received research mentorship. We were welcomed into the group and given extensive opportunities to get involved with the research being done by the PACER team. Additionally, our mentor entrusted us with responsibilities which allowed us to lead the development of research outputs. This trust enabled us to build confidence in our work, and she consistently provided space for discussion

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and guidance to ensure we felt comfortable. Contributing to several innovative, timely projects simultaneously allowed us to improve our time management and organizational skills. Under the guidance of our mentor, we not only learned about HIV research but were empowered. This experience has built a connection and relationship with PACER, which will last throughout our careers – something we are truly grateful for. — Ms Haley Sisel and Ms Katie Journeay, graduate students, Johns Hopkins Bloomberg School of Public Health; interns, SAMRC/UJ PACER

The internship opportunity provided me with initial experience in real-world research with a direct impact on the community; through supervision, internship and mentorship, I developed skills in conceptualizing, executing and disseminating results as per protocol; adherence to ethical requirements, regulations and a strong work ethic. — Dr Buyisile Chibi, project manager, Human Sciences Research Council

My mentor is my number one fan in terms of her belief in black women's excellence. She is my role model; she injects positivity in me. Working with her on research projects early in my career set me up for an academic career. It has helped me to think critically, improve my work ethic, technical skills, communication and time management, which I could apply in my PhD studies. — Ms Lebogang Ramalepe, lecturer/PhD student, UJ

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Chapter 8: Research Mentorship and Networks

As a young researcher, I did not have research networks, and I did not know where and how to begin to establish these. I found myself surrounded by walls of isolation, not being nominated for plenary talks, not serving on any scientific panels, selection committees, scientific advisory boards, science governance structures, et cetera. I felt as though I was not part of the inner circle. This made me feel excluded, isolated, voiceless and muted. Mentorship enhanced my ability to become a sophisticated networker. Science networks have been a conduit for my career success. However, these did not simply mushroom overnight. They were developed over the years through a range of support from my mentors and my own conscientious efforts.

— Author

Research networks are critical mechanisms for strengthening research capacities (Akuffo, 2014). However, mentees lack research networking skills which are critical in connecting them to networking opportunities, profiling their work, credentials and accomplishments, and fostering an exchange of ideas or knowledge sharing. Research networks are important as they may develop mentees' abilities and enthusiasm to engage as leaders and dynamic team players. Mentees need research networks, partnerships and alliances to produce desired outcomes for the enhancement of their professional development and research experience. The lack of networks results in opportunity losses, e.g., "career missteps, feelings of isolation, missing out on career opportunities, and being unable to tackle avoidable knowledge gaps". Research networks have the potential to create a sense of acknowledgement, a sense of belonging, sense of relatedness. They can afford mentees opportunities for knowledge sharing/

exchange of ideas; build their scientific reputation and trust relationships; help them maintain external contacts; stay abreast of new developments; and improve access to a range of stakeholders.

Mentorship can help mentees build professional networks (Bennett, Paina, Ssenooba, Waswa & M’Imunya, 2013). It is important that mentors introduce mentees to potential networks in a personalized manner. They can empower mentees with interpersonal skills to engage with networks that can, among others, expand their work, visibility, collaborators and opportunities (Hernandez et al., 2020; Estrada, Hernandez & Schultz, 2018; Zubair, 2023). Mentors can nominate their mentees for memberships, scientific ratings, awards, boards, panels and committees to expand their territories, create awareness, showcase their work, and put their work out there for scientific scrutiny by peers as a buffer for their career protection:

Institutions should act as tools of social justice by acknowledging women and underrepresented minorities in leadership positions where they were historically ignored; honoring them with awards and nominations; and promoting and compensating them when serving as role models and mentors (Deanna et al., 2022).

Mentors may also connect mentees to diverse, resourceful persons and peers, as well as local, regional, and international research networks, inter-disciplinary scientific spaces, platforms for high-level multi-stakeholder engagements, scientific dialogues, high-level meetings, science networks, collaborations, partnerships, memberships, platforms and alliances (Womack et al., 2020). They may facilitate mentees’ engagement in science outreach, awareness, and literacy networking activities. These may include conferences, summer institutes, panels, webinars, public lectures, exhibitions, seminars, National Science Week, National Women’s Month, International Day of Women in Science and exchange visits. These networking opportunities can enhance professional development and serve as platforms for sharing learnings,

experiences, and resources (Estrada, Hernandez & Schultz, 2018). Networks create a sense of identity and belonging; increase exposure and awareness; keep mentees abreast of new advances in their field; enhance the visibility and impact of their work; as well as decorate mentees' careers with unforgettable memories (Deanna et al., 2022). The provision of assistance to mentees in becoming scientifically engaged, helping them to build stronger and lasting trust relationships that takes diversity into consideration where mentees feel represented by those who are role models, has the potential to go a long way in retaining them in the career pipeline (Hernandez et al., 2020).

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Chapter 9: Research Mentorship and Grant Funding

I initially struggled to generate external research income as an unknown newcomer in the space. I had no profile or track record to attract resources. I also did not have grant writing skills, grant funding partnerships, alliances, and collaborations to secure highly competitive grants. My grant application submissions were not adequately aligned with the funders' goals. I could barely demonstrate how the proposed work will address national, regional and global priorities. The complex grant application process had many rules and criteria that I did not clearly understand. I fought the impulse of wanting to give up. These factors, individually and collectively, posed a serious threat to the sustainability of the research endeavors. It was through mentorship that I learned how to write winning proposals. My mentors engaged in grant writing with me from the beginning to the end. They also exposed me to opportunities for training in grant writing, e.g., webinars, workshops, seminars and related platforms. Further, they ensured that I attended some of the funders' meetings where expectations on how to prepare the grant applications were shared. We jointly secured several grants that built my track record and grant writing skills. With this firm foundation, I developed the ability to secure my own and a collaborative grant as the lead researcher. After going through many learning curves and strings of failures, I eventually secured multi-year and multi-million funding for my research studies from diverse funders nationally and internationally. One of the greatest lessons I learnt regarding grant funding applications is that you win some, you lose some, and that from each failure, there are great lessons to be learnt, which prepares you for the next grant application. I am greatly indebted to the enduring attention and focused support of my mentors.

— Author

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Raising research funding is challenging, especially in Africa (Ngongalah et al., 2018; Ngongalah et al., 2019; Kumwenda et al., 2017). The odds of mentees securing external funding in a fierce funding landscape characterized by limited funding opportunities, increasing austerity measures, growing demands, urgent pressing needs, and competing priorities are very low, as many of them have similar difficulties described above. Yet securing grant funding is a forced choice as no single institution has sufficient resources to meet all research and innovation needs of its scholars. This results in many scholars being faced with intense financial pressure to bring in external income. The difficulty in securing grant funding has been associated with increased academic attrition (Spence, Buddenbaum, Bice, Welch & Carroll, 2018). There are gender gaps in securing grant funding, with men attracting more funding than women (Oliveira, Ma, Woodruff & Uzzi, 2019), implying that the lack of grant funding is a contributory factor to higher female attrition rates.

Mentorship can provide support in applying for and implementing research grants (Bennett, Paina, Ssengooba, Waswa & M'Imunya, 2013). Mentees get opportunities to discuss grant funding opportunities with their mentors (Feldman, Arean, Marshall, Lovett & O'Sullivan, 2010). Inadequate mentorship has been cited as one of the factors that serves as a barrier to securing grant funding (Spence, Buddenbaum, Bice, Welch & Carroll, 2018; Ginther et al., 2011). Mentors can play a pivotal role in initiating emerging researchers into grant applications. Mentors can help mentees understand different types of funding sources, e.g., requests for proposals, responses to invitations, sub-contracts, corporative agreements, training fellowships, charities, foundations, government departments and science councils. They can support mentees in the development of competitive research grants and fellowship schemes that are comprehensive, complete, coherent and concise. Mentors can provide mentees with opportunities to prepare joint grant applications with bold, innovative, ambitious, game-changing and impactful ideas. This will help them develop a

profile or track record that would give funders confidence in them. Mentors may review mentees' grant application drafts and give a written review to increase grant application success (Vasylyeva et al., 2019). Mentors can also support mentees in attending focused grant writing capacity-building activities to develop a deeper understanding of the respective funders' requirements, programmatic priorities, strategic objectives and evolving contexts.

Further, mentors can support mentees in packaging their research niche in a manner that is not only locally relevant but also globally competitive, demonstrating the importance of the work being proposed, how it will contribute to solving pressing problems and how the proposed work fits into the international landscape to sell it convincingly to funders. They can also demonstrate how the proposed work is development and policy focused as well as aligned to national, regional and global priorities. Further, they may expose mentees to coherent and scientifically rigorous studies that have the potential to attract funding and demonstrate value for money or impact for the proposed work. They may also expose mentees to different funding mechanisms and demonstrate the importance of diversification of funding sources. They can give tips on how to avoid piecemeal, unstable, uncertain and unsustainable funding.

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Chapter 10: Research Mentorship and Science Communication

As an emerging researcher, I lacked presentation skills. My initial presentations were disastrous. There were times I could not deliver the whole presentation due to the inability to time myself to finish within the allocated time. At times, my presentations were too detailed, overlapping with the time for discussion. Sometimes, they were too abstract, making it difficult for my audience to get the key message; I could observe that the audience lost attention. I, therefore, dragged my feet to do any presentation. Through mentorship and real-life experiences, I went through a steep learning curve towards the development of my presentation skills to various audiences. My mentors offered opportunities for dry runs and mock presentations to help me get well-prepared for my presentations. They created platforms to present internally through meetings, workshops, seminars, et cetera, and gave honest feedback that helped me to improve. They also nominated me to speak at conferences, panels and webinars, constructively guiding me before any engagement. Gradually, I developed the level of proficiency needed for science communication. To date, I have presented more than 200 presentations in high-profile meetings, conferences, workshops, seminars, community radio interviews, podcasts, schools, TV and webinars across different parts of the world as a keynote, satellite, guest or invited speaker. Research mentorship provided me with unique opportunities to continuously, consistently and courageously learn how to share my scientific work.

— Author

Emerging researchers face presentation challenges, including “too much detail leaving no time for probing questions, too many opaque visuals, too many slides, limited preparation

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time ...” (Rubenson, 2021). Acquiring scientific presentation skills is necessary to communicate science effectively to various audiences (Burroughs Wellcome Fund, 2012; Bik & Goldstein, 2013; Olson, 2012). The ability to present scientific results can serve as a powerful tool to attract interest from potential collaborators, networks and resources (Stuart, 2013; Nisbet, 2010; Nisbet & Scheufele, 2009.). This requires constant training and practice through real-life experience and guidance. Mentors can expose mentees to opportunities for making presentations to funders and speak on panels, webinars, government departments and communities regarding updates on one’s work, lessons learned, and recommendations. Further, mentors can develop:

A dynamic presentation culture, in which every presentation is understood by different audiences, has a coherent argument that can be followed, organized in [a] thematic matter, fairly critiqued, and useful for its audience (Rubenson, 2021).

Mentors can also help mentees “develop techniques for keeping the attention of an audience, for speaking with confidence, for controlling nervousness, speaking to a lay audience, taking charge of the question-and-answer session” (Stuart, 2013). These can go a long way in bridging the gap between evidence generation and knowledge translation.

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Chapter 11:

Research Mentorship and Postgraduate Studies

Initially, when I went to university, I had no intentions whatsoever to pursue postgraduate studies. All I wanted was to have a professional degree, secure a job, help my parents, and escape poverty and appalling rural conditions. I was uneasy as there were fewer women pursuing postgraduate studies, and most of them experienced delays in attaining postgraduate qualifications, especially a PhD. The prevailing prejudice about the academic abilities and intellectual authority of women added to my skepticism. I was also discouraged by the slow career progression of women despite their qualifications. However, when I finished my junior degree, my mentors persuaded me to do a master's and, subsequently, a doctoral degree. They also supported me during my postgraduate studies through the facilitation of a manageable workload which enabled me to complete both my master's and doctoral studies in record time at the age of 29 years. They gave me the courage to work harder as I strive towards achieving my long-term goals; enhanced my job satisfaction and productivity levels. Consequently, I published seven papers in peer-reviewed journals from my doctoral study. I have, in return, hosted, supervised and co-supervised masters, doctoral and post-doctoral students from national and international universities to advance in their studies. I also serve/d as an external examiner, internal reviewer, research supervisor as well as postgraduate student lecturer. — Author

Graduate completion and throughput rates are a challenge globally (Moghaddam, Esmailzadeh & Azadbakht, 2019). Mentorship can contribute towards an equitable black African scholarship through increased postgraduate learning opportunities; completion/improvement of honours,

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master's and doctoral studies/qualification; and postdoctoral fellowships (Pfund, Byars-Winston, Branchaw, Hurtado & Eagan, 2016). It can also contribute towards improving “research knowledge and skill”, “research projects and research methods”, and developing “personal and professional relationships”, and promoting “interpersonal communication, thesis quality, as well as quantity and quality of papers from postgraduate students’ theses” (Moghaddam, Esmailzadeh & Azadbakht, 2019).

Further, mentorship can contribute towards postgraduate student enrolment and completion rates (Burgess & Chataway, 2021). Mentors can support postgraduate students towards full proficiency in their research career journeys (Luke, Baumann, Carothers, Landsverk & Proctor, 2016). They may create opportunities for postgraduate students to serve as research assistants, junior researchers, and or researchers in their projects to provide them with transferable skills towards their postgraduate studies. Further, mentors can create awareness of industry priorities and the need for postgraduate student mentees (Pfund, Byars-Winston, Branchaw, Hurtado & Eagan, 2016). They may also introduce postgraduates to under-researched and under-served areas of research towards the development of their research niche areas. Mentors may also provide opportunities for postgraduate students to co-supervise lower-level postgraduate students with them to contribute towards the capacity building of their peers and also acquire pertinent skills. Further, mentors can help postgraduate students to plan for publications from their theses in advance in format for the envisaged journal. This may include protocol papers, systematic review papers, and original papers:

I have been exposed to the co-supervision of twenty MPH and eight PhD public health students with her in preparation for me to become the primary supervisor soon. This experience has helped me to diversify my skill set outside of my own postgraduate studies, fill in the gaps in my technical knowledge,

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and improve my soft skills. — Dr Edith Phalane, project manager/specialist scientist, SAMRC/UJ PACER

My mentor's personal and professional journeys have helped to raise a research giant in me. Given the opportunity to learn and understudy my mentor by working with her on various projects, including reviewing postgraduate students' work, has helped me to see myself differently every day. This has given me extra energy and enthusiasm I had lost because of life experiences. It is never a dull day for me as I look forward to new things and exciting moments. — Dr Claris Siyamayambo, postdoctoral fellow, SAMRC/UJ PACER

My mentor kept checking and encouraging me as I was pursuing my PhD studies. Although I had been working hard towards the completion of my studies amidst competing priorities, I experienced challenges along the way. One of them was the difficulty in reaching the required sample size, given the hidden nature of the population I was targeting. My mentor came through for me. She connected me to individuals who could assist me with the recruitment of participants when she realized that I was stuck — Ms Lebogang Ramalepe, lecturer/ PhD student, UJ

My mentor encouraged me to enroll for my PhD under her supervision after completing my MPH Degree. She navigated me through the enrolment process supported by her office. I felt grateful as I know how difficult it can be to secure registration for a PhD, let alone to find a supervisor. Having a mentor made this seem like a seamless process. Through her support, I am progressing well with my studies. — Ms Lifutso Motsieloa, Technical Lead: Monitoring and Evaluation Manager, South African National AIDS Council

As I pursued my master's degree at Stellenbosch University, a few years after completing my Bachelor of Medicine and Surgery (MBChB) degree, I discovered the invaluable impact of mentorship beyond the scope of the official Supervisor. During

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the challenging period of writing my dissertation, Prof Refilwe Phaswana-Mafuya was one of the black woman academics who offered the support and guidance that helped me persevere and successfully complete my degree. — Dr Abongile Qamata, a former master's student, University Stellenbosch

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Chapter 12: Research Mentorship and Collaborations

Initially, it was not easy to establish research collaborations. I recall googling and developing a list of hundred potential collaborators to whom I sent emails – only one responded. But today, I have collaborations across institutions, countries, regions, and continents. Mentorship initiated me into long-term research collaborations that connected me to those already working in my field to set me on a great path to success in my research career. My mentor invited me on a trip to the US, where we visited sixteen universities, research institutes and funders. I subsequently conducted follow-up visits with institutions that had areas of mutual interest. From these, I established long-term collaborations that expanded the scope and impact of my work, magnified my efforts, enhanced personal growth, brought new perspectives, fostered cross-fertilization of innovative ideas, the exchange of information and experiences and accentuated research performance. Collaborations broadened my horizon on recent advances in the HIV field; brought complementary skills and synergies, as well as accessibility to new tools.

— Author

Research collaboration involves working with others to produce research results (Ngongalah et al., 2019). Research collaboration is one of the methods used to strengthen individual and institutional research capacities (Akuffo, 2014; Chu, Jayaraman, Kyamanywa & Ntakiyiruta, 2015). Research collaboration guided by a common goal, mutual trust, responsibility sharing, and transparency is critical for impactful studies and the achievement of greater results (Marjanovic et al., 2017). It can foster the utilization of multi-disciplinary approaches; exploration of novel methods and

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new areas; exchange of knowledge as well as the buy-in of research results (Marjanovic et al., 2017). Further, it provides international training opportunities, meaningful research experience, successful research careers, and research productivity (Burgess & Chataway, 2021; Luke, Baumann, Carothers, Landsverk & Proctor, 2016).

Building sustainable research collaborations is not easy for emerging researchers, not only because they do not have the skills to establish them but also because they do not have attractive scientific track records, insights and experience to attract potential collaborators (Kumwenda et al., 2017; Ngongalah et al., 2019). Thus, emerging researchers need to be supported to actively seek opportunities for collaborative research. Mentors can initiate mentees in collaborations by involving them in collaborative studies as research assistants, research coordinators, managers, project directors, and co-investigators. They can draw from the knowledge, experience, scientific expertise, and visionary research leadership of senior investigators. This will enable them to later lead large-scale studies. Further, mentors may introduce and connect mentees to like-minded individuals, role models and organizations, as well as create opportunities for strategic engagements that could lead to the initiation of collaborations. As mentees get exposed to the art of establishing research collaborations, how collaborations work, and how to sustain them from their mentors, they may acquire skills in building future collaborations. Once they are introduced to potential collaborators, mentors can encourage mentees to assume stewardship of the collaborations by taking it upon themselves to follow up, exchanging further information on areas of common interest; and demonstrating their potential contribution to the envisaged research partnership. For example:

Through the collaborations that my mentor had established, I was exposed to working with international collaborators on integrated biobehavioral surveys, mapping population size estimation, and respondent-driven sampling methods.

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— Ms Zamakayise Kose, senior specialist researcher, North West University

I have learnt through my mentor that it is important to establish collaborations with collaborators that have mutual interests, common priority research areas, good organizational profiles, having complementary capacities, capabilities, competencies, and skills that can facilitate transdisciplinary impactful studies. I have had the privilege of working collaboratively with multi-disciplinary teams on epidemiological studies to acquire different perspectives; ensure methodological rigor, innovativeness, and creativity in my studies. — Dr Buyisile Chibi, project manager, Human Sciences Research Council

I observed my mentor taking stewardship of research collaborations with researchers that shared a common vision to make a difference in the world; she followed up and followed through collaborative activities to ensure success and sustenance. This built commitment, trust and friendships. — Ms Zinhle Sokhela, research manager, University of the Witwatersrand

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Chapter 13: Research Mentorship and Scientific Productivity

As a young researcher, I was immediately confronted with the requirement to “publish or perish”. I wrote my initial paper from my first master’s degree, and it was outrightly rejected. I recall that I cut the physical copy into pieces and threw it in the bin, never to be remembered, when I realized that I was never going to be able to deal with the reviewers’ comments on my own. I felt that the comments were extremely brutal, and I had no hope that I could ever make it. Little did I understand the manuscript review process. It was quite a long shot, coupled with skepticism, given the gender and racial disparities in scientific publications. However, through mentorship, my fears were allayed, and a firm foundation for a productive scientific career was built. I successfully co-authored my initial and subsequent papers with my mentors until I had developed scientific writing skills. My mentors also linked me to opportunities for sponsored training in scientific writing which became an incredible experience. The more I got exposed to writing papers, the better I became at it. From a very difficult start, I have become a prolific scientific writer with more than 200 peer-reviewed articles, scholarly and inspirational books, client/technical reports, abstracts, and conference papers. I became editor in chief, executive editor and custodian of an internationally accredited journal, which became an active voice of African scientists in the HIV space. In addition, I became a reviewer and editorial board member of various national and international journals. In 2017, I was recognized for my significant contribution to science through research and its outputs fifteen years after the completion of my PhD.

— Author

Research Mentorship

Building the capacity to produce scientific publications is critical for the knowledge generation needed to solve existing and emerging societal challenges (Ngongalah et al., 2019), yet it is challenging (Lages, Pfajfar & Shoham, 2015). There is no doubt that emerging scholars go through difficulties in writing scientific publications. They lack writing expertise and thus struggle to showcase the results of their great research work. Further, they may not have insights on how to choose appropriate journals to showcase their work, what to do and what to look for; thus, they may make improper journal selections and misunderstand some of the requirements without mentorship. Some may have a wrong idea of what the review process for publication entails and thus become discouraged when they receive critical input to improve their manuscripts.

Further, emerging scholars may envy outputs when they see them but have a limited perspective of really what happens behind the scenes. Mentorship plays a significant role in research productivity. Emerging researchers need a mentor to help them succeed in the production of scientific publications (Spence, Buddenbaum, Bice, Welch & Carroll, 2018; DeCastro, Sambucco, Ubel, Stewart & Jagsi, 2013; Pfund, Byars-Winston, Branchaw, Hurtado & Eagan, 2016). Mentors can co-author papers with mentees, demonstrating to them that the publication of research outputs is a lengthy endeavor that involves multiple iterations, reviews, self-critiques and critiques by others, as well as focus, determination, persistence and hard work until a high-quality product is produced and validated by peers. Mentors can link mentees to capacity development opportunities to develop their competencies and intellectual capacities. Mentors can familiarize mentees with the review process; help them explore relevant journals for the work they wish to publish; carefully study areas of interest for the journal, find the best fit for the research, and read previously published articles so that they can determine if the proposed work is suitable for consideration.

Gender disparities in scientific publications productivity, citations and recognitions persist (Huang, Gates, Sinatra

& Barabási, 2020; Holman, Stuart-Fox & Hauser, 2018; Zippel, 2017; Mobed, 2017; Lariviere, Ni, Gingras, Cronin & Sugimoto, 2013; Shen, 2013; Lincoln, Pincus, Koster & Leboy, 2012; Fox, Whittington & Linkova, 2017). Women have higher scientific dropout rates, lower publishing career length, and fewer citations of papers they author, and women that have comparable publications receive fewer citations, scientific presentation opportunities, prizes, and awards (Budrikis, 2020; Huang, Gates, Sinatra & Barabási, 2020; Salinas, Riley, Camacho & Floyd, 2020; Astegiano, Sebastián-González & Castanho, 2020; Broderick & Casadevall, 2019).

The gender gap was found to be most pronounced among “the highly productive authors –those who train the new generations of scientists and serve as role models for them” (Huang, Gates, Sinatra & Barabási, 2020). Efforts to nurture women researchers in scientific productivity at every stage of their careers can assist in narrowing gender inequalities. Through mentorship, women can be nominated to serve on editorial boards to evaluate others’ work and support them. Mentors can create opportunities for mentees to co-author articles for special issues. They can give emerging researchers, especially women, opportunities to become co-creators of scientific knowledge through co-authorships. Through co-authorships, mentees will gain knowledge, technical skills, and experience in academic writing, critical thinking, consolidation of ideas, articulation, communication and review. The development of the latter, especially among women, can contribute towards increased capacity for more scientific contributions and research productivity in academia, research or science, which can be used to bring about evidence-based solutions. For example:

During our short time as interns, we were mentored to participate and make substantial progress in several research outputs, including three to six manuscripts to be submitted to peer-reviewed journals, two abstract submissions for a national conference, and a presentation that can be utilized for research dissemination and stakeholder engagement.

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These opportunities grew our confidence and skills in writing for a scientific audience and working in collaborative, multi-disciplinary teams. — Ms Haley Sisel and Ms Katie Journeay, Johns Hopkins Bloomberg School of Public Health graduate students; interns, SAMRC/UJ PACER

My mentor guided me to have a holistic view of research, i.e., understand the approach, methods, data, results, expectations and outcomes of respective papers. I have come to realize that whenever you submit an article, you should expect critical feedback; be thorough in making revisions, demonstrate that the concerns are addressed as far as possible in the rebuttal letter, and that the guidelines for authors are adhered to. — Dr Edith Phalane, project manager/specialist scientist, SAMRC/UJ PACER

My mentor linked me to multiple opportunities to develop my scientific writing skills. These included paper writing skills-building workshops, paper writing retreats, technical writing training, and co-authorships in multi-institutional transdisciplinary writing teams with complementary expertise. — Dr Claris Siyamayambo, postdoctoral fellow, SAMRC/UJ PACER

I approached a black female I could identify with to serve as my mentor. I saw myself having the opportunity to grow under her wings as an emerging academic. She embraced me and involved me in her research as well as in the co-authoring of papers. I am honored to receive such exposure and support from and through her. — Dr Vuyiseka Dubula, visiting fellow, University of Kwa-Zulu Natal

I have learned through my mentor that it is the norm to receive critical reviews on papers. I now see this as an opportunity to produce the best paper ever rather than a personal attack on the work I have done. — Ms Mohlago Seloka, PhD student/research assistant, SAMRC/UJ PACER

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I was thrilled when my mentor offered me the opportunity to co-author a groundbreaking article with her and international collaborators because I knew I would learn a lot. My mentor guided me in love and in constructive ways that motivated me throughout the preparation of the manuscript. The article was published in a top medical journal and attracted a lot of media attention. I remain indebted to my supervisor for creating opportunities to strengthen my scientific productivity.
— Ms Martha Chadyiwa, lecturer, Department of Environmental Health, Faculty of Health Sciences, UJ

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Chapter 14: Research Mentorship Has Ripple Effects

*I am a beneficiary of the generosity of research mentorship. Once I had learnt the robes from the support I had received from my mentors, I felt compelled to do the same for others. The experiences that I went through and the support received from forerunners in my journey to research leadership chastened and conditioned me to develop the will to empower others and take young people under my wings at the beginning of their careers. Knowing the benefits of mentorship, I have endeavored to mentor other women so that they, too, can advance in their careers. I have nurtured and motivated different cohorts of dedicated and committed mentees towards becoming independent researchers. I shared experiences, perspectives, and coping strategies and provided much-needed support to meet their intersectional needs. I have featured thirteen of my mentees in my recent book, *Vision never dies #I: learning curves from my non-linear career journey*. My mentees have also been following in my footsteps. They also received multiple recognitions, awards, nominations, profilings, memberships and exposures. They use these to inspire, support and empower their peers and those who look up to them.*

— Author

Well-designed mentorship programs can have a lasting impact on building research capacities:

One of the beautiful things about mentoring is the change that occurs far beyond the mentoring match itself. Mentoring creates a powerful ripple effect that impacts entire communities (Condon, 2021).

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The shift we make from climbing the ladder to helping others build their own ladder is one of the most rewarding a leader can make, but it's impossible without first making the climb.
— John C. Maxwell, coach and trainer

The hallmark of mentorship is generational change, where an investment in one person leads to an investment in others (Petro, 2023). Mentees may want to consider paying it forward by becoming a mentor him/herself because mentorship breeds mentorship: it has ripple effects (Team Mentorpall, 2023). Mentorship can lead to more likelihood of mentoring others; they can spread their wings to become mentors to others (Burgess & Chataway, 2021; Luke, Baumann, Carothers, Landsverk & Proctor, 2016; Team Mentorpall, 2023). Mentees can become catalysts for change, facilitating opportunities for other women to become co-creators of scientific knowledge needed for innovative solutions to societal problems (Luke, Baumann, Carothers, Landsverk & Proctor, 2016). They may also engage in peer mentorship. Mentors benefit from mentorship, as do mentees. For example, a productive mentee contributes to the productivity of the mentor too. A mentor benefits from a mentee through “knowledge and skill sharing, sharpening of leadership skills, and increased awareness” (Laursen, Hunter, Seymour, Thiry & Melton, 2010). Therefore, mentorship has the potential to change individuals and the world.

Mentorship fulfils the African proverb: If you want to walk fast, walk alone – but if you want to walk far, walk together:

Being mentored by one of the best mentors I have ever had, I am now involved in peer mentorship, supporting peers in their research projects and papers. I am also co-supervising and mentoring several MPH as well as PhD students. Further, I mentor young scientists at Eskom Expo. I serve on committees of South African black women in science and South African postdoctoral fellows. — Dr Edith Phalane, project manager/specialist scientist, SAMRC/UJ PACER

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Our mentor gave us the opportunity to be both teachers and students, thereby empowering young scientists to share their knowledge and humbly accept opportunities for further growth. One component of our engagement during our internship was the development of a training video on data typologies. Our mentor was steadfast in advocating that her team, including us as interns, receive this learning opportunity. Under her guidance, we liaised with Dr Kate Rucinski, Dr Amrita Rao, and Kalai Willis of the Key Populations Programme at Johns Hopkins University to develop this training. This training will serve as a resource for current and future Pacer staff and trainees to better understand common public health data types, their strengths and limitations, and considerations when requesting data from various stakeholders. Personally, we learned so much from this training and will carry this knowledge to future career and research opportunities. — Ms Haley Sisel and Ms Katie Journeay, Johns Hopkins Bloomberg School of Public Health graduate students; interns, SAMRC/UJ PACER

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Chapter 15:

Mentors' Attributes For Effective Mentorship Relationships

I experienced total commitment from my mentors on my path to research success. They threw me in the deep end; they challenged, critiqued, nominated, and delegated me. I prevailed on the shoulders of these giants at every turn and every stage of my research career towards self-actualization.

— Author

To add value to others, one must first value others.

— John C. Maxwell, coach and trainer

Mentors should possess a range of values or attributes, including being approachable, having a commitment to the development of others, caring, openness, honesty, integrity, good listening skills, flexible, being focused, being a role model, hardworking, accountability, dependable and hardworking (Babalola, 2019; Team Mentorpal, 2023; Ngongalah et al., 2021; 2019) as paraphrased below.

Approachable

Mentees may feel nervous about engaging with mentors as they view them as people of authority. Mentors should display a welcoming attitude that would encourage mentees to feel at ease to approach them.

My mentor has proven time and again to be very approachable. One quality among the many that I admire in her is that she is always reachable. Through engagement with her, I accessed much more opportunities, and I also gained access to her mentorship, which has been a journey and walk of many

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blessings. — Ms Boitshepo Gopane, Occupational Health and Safety Inspector, Department of Employment and Labour, North West Province

During my first interaction with Prof Refilwe Phaswana-Mafuya, I knew I wanted her to be my mentor. She came to my office, introduced herself and asked me to tell her about me. Her humble demeanor as a respected professor caught my attention. I felt at ease. From that day, she became my mentor.

— Ms Martha Chadyiwa, lecturer, Department of Environmental Health, Faculty of Health Sciences, UJ

Accessible

Mentors should be willing to avail themselves of mentees. They can be reached through multiple platforms within reason, such as WhatsApp, WhatsApp groups, telephone calls, text messages and email:

My mentor made access to her as a professor very easy. I used to dread approaching professors out of honour and respect, but she made me realize that professors are ordinary human beings like me. She was quite welcoming and approachable. She was willing to listen as well as support my goals and dreams. This makes her stand out. —Dr Edith Phalane, project manager/specialist scientist, SAMRC/UJ PACER

My mentor made direct interaction with her possible through social media platforms such as WhatsApp, WhatsApp group, calling or texting her on her mobile phone, emailing her directly, et cetera. For example, she established a Women in Science WhatsApp support group and a postgraduate student motivation support group. Throughout my engagements with her, I found her approachable; after interacting with her, I never looked back. —Ms Boitshepo Gopane, Occupational Health and Safety Inspector, Department of Employment and Labour, North West Province

Displaying a passion for career development

Lack of exposure may limit career advancement. Mentees may not be aware of professional and career development resources:

We called her Prof ... A woman who gave me a chance in a world of research ... And trusted me with the life of others ... Being in and out of research studies, she groomed me to what I have become. I am now proud to stand tall, knowing that I have been touched by those hands. — Janell Le Roux, lecturer, Communications Department, University of Limpopo

Being inspirational

A mentor should inspire motivation in mentees. S/he must have an interest in the development of others:

My mentor is an awesome inspiration to me, others and the country as a whole. She shares her insights in such a jovial and loving spirit. Her interest in others' development and scholarly growth is amazing and inspires me greatly. —Dr Motlatso Mlambo, Director of Institutional Research, Department of Institutional Intelligence, UNISA

Mentors inspire mentees through their work ethic. They pour their full strength into whatever they do, and their mentees follow suit as they never want to let them down; thus, mentees eventually develop this attribute as well. —Ms Martha Chadyiwa, lecturer, Department of Environmental Health, Faculty of Health Sciences, UJ

My mentor is outstanding, and I am proud to have met such a revolutionary woman – yourself, a leader, pioneer, mover, and shaker in the science space for women. You continue to inspire and make us proud every day as women and young professionals in the space of health. —Koketso Refilwe Rathumbu, public health practitioner, Director at LGBTI LDP, activist, She Conquers Committee, national youth ambassador

Recognition and nurturing of mentees' potential

A mentor recognizes and nurtures mentees' potential. Mentors can help emerging researchers discover their true potential and real talents, recognize them and create platforms for them to be utilized. Nurturing young talent is a much-needed resource base for figuring out problems before they materialize and finding ways of preventing or solving them. This is critical for sustainable growth, diversity and development in science. Early recognition and nurturing of research potential can go a long way in channeling emerging scholars to research careers and eventually building the next generation of independent researchers:

My mentor sees everyone as a great person in the making – she saw this in me too! Her aim remains to help me achieve these potentials. – Ms Nobuhle Ncube, former MSc Student, Pan African University of Life and Earth Sciences, African Union

I was overwhelmed by the unconditional belief in me and my abilities; I could see it like a blazing fire in her eyes and from her positive affirmative words. I rose to the occasion with everything and discovered the depth of my potential. —Dr Edith Phalane, project manager/specialist scientist, SAMRC/UJ PACER

Being open-minded

A mentor embraces the independent views of the mentee, which enhances performance, productivity, and morale:

My mentor exhibits very contagious simplicity. She is open-minded, and this stems from her simplicity. —Dr Claris Siyamahambo, postdoctoral fellow, SAMRC/UJ PACER

Being a good listener

A mentor is always willing to listen to what mentees say and what they do not say and to provide his/her honest feedback:

Chapter 15: Mentors' Attributes

My mentor actively listens to opinions and learns from experiences while interacting with me and others. —Ms Betty Sebati, PhD student/research assistant, SAMRC/UJ PACER

Putting words into action

Mentors are not just full of words of encouragement, but they also put things into action:

The uniqueness about my mentor is that she teaches you in action by how she works and tackles challenges and the work she gives to you to action. You see that she is preparing you for your next opportunity. —Ms Lucia Olifante, PhD student/research assistant, SAMRC/UJ PACER

Paying attention to detail

Mentors pay attention to detail and listen closely:

My mentor listens to what you say – and to what you are also not saying! Hence, she is able to analyze situations and solve problems effectively while paying keen attention to details. Prof has since taught me how to be detailed as a mentee. Of course, this has been helpful to me as a researcher to date. —Ms Mohlago Seloka, PhD student and research assistant, SAMRC/UJ PACER

Serve as mentees' support system

The mentor sees meaning and value in what the mentees do, as well as appreciates and celebrates mentees' modest successes in small memorable ways to give them courage, endurance, and sustenance. The successes may include being a co-author in a published paper, giving prizes, bonuses and fee waivers, acquiring a scholarship, completing a research project, finalizing a technical report, and making a scientific presentation. The mentor may celebrate mentees' achievements by sending a congratulatory message via email;

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and making announcements on social media, website or in a report. If the mentee works directly with the mentor, the latter may give the mentee some time away from work. Keeping an appreciation of every little success trend going may not only go a long way in striving to achieve greater milestones but may also sustain them in the pipeline. The mentor also supports the mentee regarding personal issues.

Creates safe environment

A mentor is a haven for rainy days where mentees run whenever necessary. S/he creates a safe space in which mentees feel free to express themselves openly, venting frustrations about issues that may have the potential to affect mindset and work performance without being afraid of being looked down upon, judged or condemned. S/he offers wise counsel to mentees, giving them ideas, options and perspectives on effectively dealing with issues that confront them. Further, a research mentor serves as a confidant for the mentee, respecting the mentee's privacy and confidentiality about any sensitive information shared. This allows mentees to express themselves freely without fear of being victimized, labelled or belittled. A mentor supports mentees personally, socially, professionally and unconditionally, shares his/her personal experiences, shows concern, and shows up when needed.

Mentors can lend a helping hand to mentees when they experience failures and give them the needed courage to rise again. They can associate themselves with mentees during their highest moments and in their darkest hours. They are there throughout the seasons of the career life of their mentees. Overall, mentors provide unwavering support and play a selfless role to their mentees. The validation and support of mentors can become the underlying strength beneath mentees' success in overcoming anything that could distract them.

My mentor was there for me at a time I needed her the most following the untimely passing of my spouse due to a

dreadful disease. I contemplated deferring my studies as I felt that I would not cope. However, through her support and encouragement, I continued my studies which I successfully completed with distinction under her supervision. —Ms Amanda Mohlala, Executive Director: Laboratory Services, Strategic Evaluation, Advisory & Development (SEAD) Consulting

Ignite mentees' passion for research

Mentors ignite mentees' research passion and interests to jump-start or shape their career trajectories. They can play a critical role in helping emerging researchers understand their research roles, responsibilities, expectations and outcomes in research. Mentorship can become the beginning or transition point for many mentees into research careers. Further, they can set emerging scholars on a great research career path and empower them to remain in the pipeline until they eventually succeed in their research journeys.

Support mentees' career pathing aspirations

Mentors can assist mentees in pursuing formal growth opportunities. They can help mentees improve their academic qualifications through internships and pursuing scarce skills qualifications. Mentees can be enabled to move from one exciting learning challenge to another, seizing various opportunities and possibilities. Mentors can keep mentees abreast of new developments and advances in the field, provide industry updates and guide mentees through uncharted grounds:

When I was doing an application for a professorship, I knew I needed to get a recommendation from an iconic women leader whom I knew would support my growth. Without hesitation, she agreed to do so. When my promotion came through, she was among the first to congratulate me. I am grateful to her for such support in my career. —Prof Lebogang Gafane-Matemané,

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associate professor, Faculty of Health Sciences, North-West University

After completing my PhD, I knew I needed someone I would be comfortable with to support me in gaining greater heights in academia. I, therefore, approached Prof Refilwe, who never hesitated to serve as my mentor. Together we agreed on the goals and timeframes that we would work towards. —Dr Mpinane Senekane, lecturer, Department of Environmental Health, Faculty of Health Sciences, UJ

Recognizing mentees' contributions

Mentors acknowledge the contributions of their mentees irrespective of how insignificant or small they may seem. I have witnessed many phone calls and emails of my contributions being acknowledged and magnified on various platforms; what a humbling experience it has been. This just fuels me to work even harder. I was, and I still am, deeply touched and amazed. I bless God for my mentor, my destiny helper. —Dr Edith Phalane, project manager/specialist scientist, SAMRC/UJ PACER

If you do well, my mentor lets you know just as much as if you don't; she will openly let you know. When you get close to her, you will also discover a soft side to her. She will check in if all is well with you personally from time to time. —Ms Zamakayise Kose, senior specialist researcher, North West University

Giving mentees constructive feedback


Research mentors have honest and open relationships with their mentees, enabling the mentees to voice their ideas, perspectives, and challenges. Mentors give frank and candid feedback on areas of development as well as discuss the plan of action to address them. This will provide a sense of clarity.

Tweets that mentees wrote about their mentor

The Organisation for Women in Science for the Developing World (OWSD) asked young scientists participating in the “I Admire Challenge” to write about their experiences of mentorship, and the mentees included in this book tweeted as follows:

INTERNATIONAL DAY OF
WOMEN AND GIRLS IN SCIENCE

11 FEBRUARY




#IAdmire

Join the OWSD social media campaign for the International Day of Women and Girls in Science by telling us about a woman scientist you admire.

It can be an iconic scientist like Marie Curie, a leader in your field, a personal role model, a colleague or friend, a student – anyone who inspires you.

Use hashtag #IAdmire on any social media platform through 11 February to participate.



← **OWSD Secretariat**
537 Tweets

Tweets Tweets & replies Media Likes

OWSD Secretariat Retweeted

 **Boitshepo** @Boitshepogopane · 3d

#IAdmire Prof Refilwe Phaswana-Mafuya. She became my mentor & mother figure in a blink of an eye. Just to see her at the 1st NWU Biennial Research and Innovation Conference my life changed completely. It is mainly because of her the chance I got today.

#Boso 🙌
[@OwsdSecretariat](#)



🗨️ 1 ❤️ 11 🔗

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Kagiso Phaswana
@KagisoPhaswana

...

#IAdmire prof Phaswana-Mafuya. She is my my sister, my inspiration, my mentor. After mentoring our other sister who also obtained her PHD, I had no choice but to follow in her footsteps. I am currently finalizing my Masters degree and I hope to keep following through her mentoring.

7:40 PM · Feb 8, 2019 · Twitter for iPhone





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Chapter 16:

Mentees' Attributes for Effective Mentorship Relationships

Based on the mentees' experiences and literature, a range of attributes for effective mentorship relationships have been described below. Like mentors, mentees should be tenacious, goal-directed, choose associations carefully, be proactive, have a teachable spirit, be organized, respectful, considerate, trustworthy, realistic, learn from mistakes, responsible, hardworking and dependable, as paraphrased below from literature and mentees' experiences (Hill, 2020; Hamden, 2019; Reeves, 2018; Stetson University, 2022; Dixita, 2021; Mamaril, 2023).

Tenacity

Mentees should push themselves beyond the pre-set margins and expectations to realize their BIG DREAMS. They should draw from their innate abilities to the fullest without leaving anything lying dormant to achieve the success and change they want to see. Further, they should be willing to invest time and energy in pursuing unfamiliar, bigger, more difficult tasks, assignments, and additional responsibilities:

I had to develop the consistency to work hard, become dependable, and willingness to try my level best and not entertain negative thoughts. —Dr Claris Siyamayambo, postdoctoral fellow, SAMRC/UJ PACER

I have no doubt that If I had confined myself to simpler, safer, popular and quicker fixes in my career journey, I would not be where I am today. —Dr Motlatso Mlambo, Director

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of Institutional Research, Department of Institutional Intelligence, UNISA

Goal-orientedness

Mentees should be committed to their own personal and professional development. They should be ambitious and aim to reach for the stars. Mentees know what they want and how to set immediate and long-term plans as well as concrete steps to achieve those plans, monitor progress and make themselves accountable. Further, they are self-motivated and develop the habits that will help them succeed in their endeavors. They also have the flexibility to work on assigned tasks whenever duty calls to ensure that the work at hand is completed:

I focused on my career ideals and secured mentorship support to achieve them. Since then, I have not lived with any regrets. The more I focused on my goals, the more I saw success come through. —Dr Motlatso Mlambo, Director of Institutional Research, Department of Institutional Intelligence, UNISA

I had to change my perspective before negativism ran and ruined not only my career but my entire life. I held my head high and challenged myself to be the change I wanted to see rather than expecting others to change. I let go of negative perceptions about my abilities and capabilities, lest I find myself in the den of hopelessness, resentment, and powerlessness. I devoted my attention to possibilities and opportunities before me to perform my day-to-day responsibilities rather than spending my precious time entertaining and nourishing my fears. —Ms Kagisho Phaswana, former programme manager/social work supervisor, National Youth Development Outreach (NYDO)

Choose associations carefully

Mentees adopt a positive mental attitude and never allow people with negative attitudes to dictate terms to them.

They have an “I can do it” positive mindset. Mentees should surround themselves and cling tenaciously to resourceful individuals of virtue and influence who inject the positivity and optimism that is necessary for their growth and fulfilment. This can contribute to improved uptake, visibility, credibility and impact of their work. They should avoid being in the wrong company, which can destroy their self-concept and career prospects.

Proactive

Mentees do not wait for things to happen. They take the initiative by being the first ones to contact the mentor, arranging meetings and conducting follow-ups. They also take the initiative in accessing available resources. Mentees ensure forward planning by envisioning problems, anticipating needs and attending to them proactively:

I have learnt to be proactive, taking responsibility for my actions and omissions, respecting my mentor's time and making the most of it. I had to help my mentor help me.
—Ms Ennie Makanza, former PhD student and research assistant, SAMRC/UJ PACER

Teachable spirit

Mentees have the desire to learn from the skills and experiences of potential mentors. They are open to learning, hungry for knowledge, respect the authorities in their field, and avoid a “know-all” attitude. They should be self-driven, passionate, and willing to put themselves to the test, articulate their dreams and wishes to the mentor, and steer their own ship in the direction they want it to go with the support of the mentor. They must go out of their way to advance their learning by checking articles, videos, websites and information pamphlets. Mentees should not become overly dependent on their mentor. Over-dependence may include messaging for every question they have, taking up time beyond the agreed session or time commitment:

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As a mentee, I had to be open to new ideas, have a teachable spirit, respect the guidance of mentors as authorities and do my honest part. — Zinhle Sokhela, research manager, University of the Witwatersrand

Responsible

Mentees should learn from their failures, aim to do things better next time rather than repeat the same avoidable mistakes, admit mistakes upfront, as well as take responsibility for addressing and overcoming them. They should accept that some things may not work out the way they were originally intended, knowing that, as John F Kennedy said, “Those who dare to fail miserably can achieve greatly”:

As I step into new adventures of my career development, I grab opportunities to learn and grow my skills from my mentor, who already walked the path. — Ms Betty Sebati, PhD student/research assistant SAMRC/UJ PACER

Being willing to listen, learn from my mistakes and take guidance from my mentor has offered me the opportunity to grow. I know that the sky's the limit! — Ms Lucia Olifante, PhD student/research assistant, SAMRC/UJ PACER

I maximized the bright spots, sunny experiences and pleasant pages of my career life and celebrated them. I also acknowledged difficult times as part of my grooming that gave me the depth of meaning of life and renewed understanding necessary for my growth instead of being bitter about them. — Ms Kagisho Phaswana, former programme manager/social work supervisor, National Youth Development Outreach (NYDO)

Aptitude

Mentees should never push themselves to become someone else. All they must do is challenge the status quo and

themselves to the limit to become their own best version. Mentees can tap into their mentor's great wisdom and insights for their personal, professional and career advancement to broaden their horizons, as well as for success and impact. They should stretch their knowledge, skills, abilities and capabilities to the fullest, unleash their hidden assets and reservoirs of giftedness and talent, and explore and exploit potential and resources at their disposal to the limit, pursuing them rigorously to attain the results they wish to see:

My mentor made me realize the potential I did not even know that I had. — Dr Edith Phalane, project manager/specialist scientist, South African Centre for Epidemics, Pacer Unit, UJ

Dare to excel

Mentees should seek to excel in whatever they do; they should aim higher and guard against mediocrity or settling for less. They should elevate the standards set for them by pessimistic individuals and raise their bar higher by setting goals that are beyond their roles and responsibilities. They should never operate by scripts, metrics and rules. They should never settle for less. They should ensure that their work performance stands out; consistently exceed expectations in terms of their key performance areas and indicators as well as short, medium, and long-term objectives. They should use their abilities as their standard; they should not compare themselves with others as this could lower their standards at times:

I went beyond the call of duty; I continuously developed myself, establishing the right habits and challenging myself to practice these consistently. — Dr Edith Phalane, project manager/specialist scientist, South African Centre for Epidemics, Pacer Unit, UJ

Being truthful to self

Mentees never have to push themselves to become someone they are not. All they have to do is challenge themselves by pushing their entire being to the limit to become their own best version.

Disciplined

Mentees should have the discipline and self-control to finish whatever they have started, maintain consistent and constant follow-up, align with sources of support, as well as make use of available options and opportunities. They must hold themselves responsible and accountable by being among the first to complete good quality work within the deadline. They should embrace challenging endeavors without reservations, e.g., openness to the utilization of novel methodologies to generate robust scientific evidence to solve contemporary societal problems.

Time management

Mentees should use their prime time effectively and avoid unnecessary distractions that would remove their focus from valuable work. They should set their priorities, have a plan to achieve these, have timeframes within which they will achieve set tasks, set up reminders and execute tasks promptly, and solicit support when needed. Mentees should avoid making excuses, taking on unnecessary tasks, and not having focus:

I maintained composure and never fouled any single moment. Whenever I inadvertently lost time, I found ways of making up for the lost time. — Ms Odiwe Swana, operations coordinator, Wits Reproductive Health and HIV Institute

Appreciative

Mentees should value the role that a mentor plays as there is no formal obligation on the part of the mentor; it is a voluntary choice that a mentor exercises for the betterment of emerging

researchers. Mentees can express their appreciation verbally (e.g., saying thank you); in writing (e.g., texting or emailing a small note of appreciation); by giving their mentor a treat, and through actions (e.g., completing an assigned task). Mentees can also show appreciation by responding substantively to any requests for contributions, completing their reports promptly, making inputs on processes and documents, welcoming constructive criticism and putting feedback into action:

I endeavored to leave good impressions in whatever I did; I availed myself, did my best whenever my mentor needed as well as proposed solutions to problems to show accountability. — Ms Kagisho Phaswana, former programme manager/social work supervisor, National Youth Development Outreach (NYDO), student fieldwork supervisor, UJ

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Conclusion:

A Call to Prioritize Research Mentorship for Advancing the Careers of African Women

It is clear from the foregoing that mentorship is a valuable and sustainable means of advancing the academic careers of African women. African women experienced mentorship positively as it strengthened their research knowledge, skills, networks, collaborations, grant writing and scientific productivity. Similarly, the majority of mentees in a qualitative exploratory study conducted in three African countries rated their mentorship experience as good as it improved their research skills and exposed them to experienced mentors and safe spaces to express themselves openly (Ngongalah et al., 2021).

Although no conclusion can be drawn given how this book was compiled, there are salient points or recurring themes that can be deduced regarding the critical nature of research mentorship for African women, and these have been described below.

Promote the value of and access to mentorship

There is a need to increase access to mentorship across career stages to develop the next generation of research leaders as well as to enhance the achievement of the transformation agenda by developing a pool of researchers from diverse socio-economic backgrounds (Sorkness, Pfund, Ofili, Okuyemi & Vishwanatha, 2017). Research mentorship is a rewarding endeavor across many levels and in many respects for all those involved. This is especially true for women who generally lack mentorship, empowerment or social support, which prevents them from advancing in their careers, suffering historic social injustices and experiencing entrenched discriminatory gender

norms and patriarchal systems. Research mentorship can contribute towards greater odds of research career success and gender transformative change in research.

Inculcate a culture of research mentorship in academic institutions

Mentorship is viewed as a predictor of success in a research career (Laursen, Hunter, Seymour, Thiry & Melton, 2010). Research or academic institutions can benefit from institutionalizing contextually relevant research mentorship programmes adaptable to the needs of the respective mentees. Mentorship programmes can be embedded in existing leadership development initiatives specifically for black women (Gardner, Barrett & Pearson, 2014; Lim, Clarke, Ross & Wells, 2015; Teague & Kim Bobby, 2014). An institution-based research mentorship programme can result in significant contributions towards the strengthening of academic or research institutions. It can enhance staff development, morale, teamwork, communication, loyalty, motivation, change management, succession planning, organizational productivity, ability to attract talent, employee performance and retention, networking, and ultimately, long-term survival (Spence, Buddenbaum, Bice, Welch & Carroll, 2018). It may also serve as an assurance of the commitment of the organization to continuous learning and development of others, transfer of knowledge, good reputation and institutional memory (Chen, Sandborg, Hudgins, Sanford & Bachrach, 2016; Badawy, 2017).

Researchers should be equipped with research mentorship skills

Aspiring mentors do not automatically possess research mentorship skills. Academic institutions should endeavor to empower those involved in research with mentorship skills so that they can transfer their knowledge by putting their knowledge, skills and experience to good use (Voytko, 2018). This would enable deeper reflections on the subject matter; build mentors' influence and reputation as leaders who groom

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talent; keep researchers' skills up to date; enhance researchers' creativity; and give researchers a sense of purpose, personal satisfaction, accomplishment, and fulfilment in seeing juniors progress towards meeting their career aspirations (Badawy, 2017), a mentor certification can be implemented (Sorkness, Pfund, Ofili, Okuyemi & Vishwanatha, 2017). Working with mentees from different backgrounds and generations can provide researchers and mentors with opportunities for networking, exchange of different perspectives, alternative approaches, experiences and new ideas, as well as insights into the latest trends or best practices. It can also enable the sharing of contacts, technologies and programmes. Thus, research mentorship can make the researcher's or mentor's research journey as enriching, edifying and fulfilling as that of the mentees.

Diversity in research careers should be increased

Women, especially black women, are still grossly underrepresented in academia (Davis & Maldonado, 2015). Research mentorship that emphasizes mentoring strategies to increase diversity, equity and inclusivity has the potential to change women's careers in academia for good by increasing recruitment and retention (Deanna et al., 2022). Effective mentorship cannot take place if the cultural and societal backgrounds of the individuals in the relationships are overlooked (Malone & Record, 2021). "Having diverse role models and mentors can be transformative and enhance academic performance, especially for women and underrepresented minority mentees" (Deanna et al., 2022). Unfortunately, underrepresented groups often receive less mentorship compared to their counterparts (Beech, Calles-Escandon, Hairston, Langdon, Latham-Sadler & Bell, 2013; Ginther et al., 2011). At an individual level, mentors should ensure that the stereotypes and biases that discourage women from pursuing research careers are recognized and addressed (Spence, Buddenbaum, Bice, Welch & Carroll, 2018). At an institutional level, there should be mentorship programmes that consider intersectional needs to enhance

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their self-development, professional development, scientific productivity, linkage with scientific networks, long-term research collaborations, ability to secure grant funding, completion of postgraduate studies, ability to handle competing priorities, great work performance and a successful career overall (Deanna et al., 2022; Kozlowska, Lariviere, Sugimoto & Monroe-White, 2022). Such programs require institution-wide policies and practices that challenge systemic inequalities (Dennissen, Benschop & Den Brink, 2019). Sensitivity training should be provided in circumstances where cross-cultural mentorship relationships are executed (Kent, Kochan & Green, 2013). Through research mentorship, women can become recognized nationally and internationally as leaders in their fields by their peers, experts, networks, relevant structures, and society at large (Huang, Gates, Sinatra & Barabási, 2020). The initial support that women receive can serve as a strong foundation for greater research success later and may contribute towards the reduction of the attrition rate of talented emerging scientists (Kashiwagi, Varkey & Cook, 2013; Nowell, Norris, Mrklas & White, 2017).

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About the Author

Professor Refilwe Nancy Phaswana-Mafuya (PhD, PGD (Epi), MSc (Epi)) is a qualified epidemiologist and public health scientist. She studied at the London School of Hygiene and Tropical Medicine and the University of Limpopo. She is the director of the first and newly established South African Medical Research Council/University of Johannesburg Pan African Centre for Epidemics Research (PACER) Extramural Unit and a professor of epidemiology and public health, Faculty of Health Sciences, University of Johannesburg. She is also the MSc reproductive biology and reproductive health lecturer (epidemiology) at the Pan African University of Life and Earth Sciences Institute, African Union.

Furthermore, she serves as a mentor for South Africa's Department of Higher Education and Training Future Professors Programme, Phase II. Professor Phaswana-Mafuya was coronated as the Queen Mother of Research and Development by the A beadze Traditional Council of the A beadze State, Ghana, in August 2022 in recognition of her significant contribution to research and development that impacted communities.

Preceding this, Professor Phaswana-Mafuya was the deputy vice-chancellor of Research and Innovation at the North West University (2017-2020), acting executive director, research director and chief research manager at the HIV/AIDS/STI/TB Research Programme of the Human Sciences Research Council (HSRC) for nearly 13 years (2005-2017), as well as editor-in-chief and executive editor of the *SAHARA Journal* (2009-2018).

Prof Phaswana-Mafuya has worked to better understand the epidemiology of HIV in South Africa and Sub-Saharan Africa for over 20 years. In the last ten years, she has paid particular attention to marginalized populations at higher risk for HIV acquisition and transmission. When Covid-19 hit, she played a leading role in conducting ground-breaking Covid-19

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studies together with her collaborators. She chaired the 9th SA AIDS Conference in 2019, the second-largest medical meeting in the world. She is also a member of the Dira Sengwe AIDS Conferences; the Higher Health Board; the Academy of Science of South Africa (ASSAF) Council, the National Research Foundation (NRF) Board as well as a Scientific Advisory Committee member of the African Health Research Institute; and member of the World Congress of Epidemiology 2024 Local Organizing Committee, among others. She previously served as an expert panelist at the International Expert Panel on Infectiology of the German Research Foundation and grant application reviewer of the African-German Research Networks for Health Innovations in SSA.

Prof Phaswana-Mafuya is an NRF-rated scientist. She is a fellow of the Academy of Science in South Africa (ASSAF), the African Academy of Sciences (AAS), and the Organisation for Women in Science for the Developing World (OWSD). She recently authored an inspirational empowerment book on her career journey, titled *Vision Never Dies #1: learning curves from my non-linear career journey from village girl to award-winning fighter of Pandemics*. In 2017, she was awarded the NSTF TW Nkambule Award in recognition of her outstanding contribution to science, technology and engineering 15 years after completing her PhD. She was featured as one of the world-class women scientists in* *FairLady* (March/April 2022), ***Dialogue* (August 2022), *Holding the Knife Edge: Journeys of Black Female Scientists* (2020) and *Public Sector* (2013). She was also profiled on SAFM. Professor Phaswana-Mafuya has disseminated her work widely through community radio, national television, newspaper articles, webinars and social media.

In summary, Prof Phaswana-Mafuya is an epidemiologist, a woman in research leadership, a woman in science, a public health scientist, a science ambassador, a science mentor, a science role model, a science activist, and an inspirational figure who has been recognized as a titan against HIV, and as having brought a new view to health. She is a much admired and celebrated award-winning scientist who obtained

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research excellence awards, recognitions, credentials and profiling institutionally, nationally and internationally. Her cumulative achievements and recognition over the years have made her one of the most remarkable scientists of her time.

As this book was launched as part of Prof Phaswana-Mafuya's 50th birthday, the following tributes were made about her role in research mentorship:

“Prof Refilwe Phaswana-Mafuya and I have come a long way both serving in governance structures of the national science and innovation system in our capacities as deputy vice-chancellors leveraging each other’s insights and supports on personal and professional levels. In recognition of her expertise, the UJ Faculty of Health Sciences, recruited her to serve as a scarce-skills professor of epidemiology and public health. Finding a mentor in her, over 30 postgraduate students, postdoctoral research fellows, professionals, and collaborators work with her in the pursuit of the global public health research agenda. Many of her “followers” are women – she is a role model for all. I look forward to years of continued friendship and collegiality as we build the next generation of knowledge producers.” Prof Saurabh Sinha, deputy vice chancellor: research and internationalization, University of Johannesburg

“Prof Refilwe Phaswana-Mafuya is an inspiring academic who exerts effort and time to share her wisdom with young adults in order to inspire them and ignite a passion for science. She mentors young people in their personal lives, in pursuit of their studies and careers as well as empower them to handle challenges they are confronted with. In turn, this develops the tenacity to remain in the academic pipeline for many young people and the determination to succeed against all odds.” Prof Sehaam Khan, deputy vice chancellor: academic, University of Johannesburg

“Prof Refilwe Phaswana-Mafuya gives the country, the region and the continent hope. She is very incredible in the way she inspires and captivates everyone around her, filled with positive

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energies. Her humility is amazing for a great achiever, and a fighter of pandemics, that she is. Clearly vision never dies, and she is a true testament to that! I have no doubt that she will continue to build the next generation of future leaders in her field.” Prof Fulufhelo Nelwamondo, CEO, National Research Foundation

“The mentorship work that Queen Mother Obahemaa Kyeredeh, publicly known as Prof Refilwe Phaswana–Mafuya does through the Obahemaa Kyeredeh (OK) Foundation that was recently launched is remarkable. She founded the OK Foundation which is aimed at building the next generation of leaders, scientists and scholars to change the world through knowledge sharing and transfer, capacity building, career pathing, exposure to opportunities, and networking among diverse population groups in the African Continent. Through this foundation, Queen Mother Obahemaa is creating a treasure of knowledge that can change the standing of Africa as a leader in science and scholarship” Daasebre Kwebu Ewusi VII , overlord of the A beadze State, Central Region of Ghana, West Africa

“Prof Refilwe Phaswana–Mafuya has made exceptional contributions to science, technology and mathematics for which she received numerous accolades and recognitions. Beyond her professional accomplishments, Prof Refilwe’s dedication, passion, and unwavering commitment to nurturing the next generation of scientists, promote scientific excellence, advance knowledge exchange, build south–south collaborations and improve the lives of countless individuals, especially young female scientists in Africa and beyond, is not only truly inspiring but is also a testament to her remarkable character and will leave an indelible mark in global health field. In light of her outstanding contributions, it is no surprise that she was recently coronated as the Queen Mother of Research by Daasebre Kwebu Ewusi VII, the overlord of the A beadze Traditional Council in Ghana. This is a fitting tribute given the immense impact of her work. Prof Phaswana–Mafuya’s legacy will continue to

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inspire generations to come.” Dr Kyeremeh Atuahene, Director General, Ghana AIDS Commission

“Prof Refilwe Phaswana-Mafuya is an incredible woman who has made an immeasurable impact on the lives of many. Her dedication to academia and relentless pursuit of knowledge inspire all those around her. She is an incredible mentor, guiding countless students towards excellence and shaping their academic journeys. Her passion for mentorship will leave a lasting impact on the scientific community. Over and above her academic, she embodies strength, intelligence, compassion, warm and nurturing presence that fosters growth and empowers her students to reach their fullest potential. Prof Phaswana-Mafuya is an exceptional role model inspiring us all to dream big.” Dr Thomas Agyarko-Poku, medical director, Suntreso Hospital, Kumasi, Ghana

“Prof Refilwe Phaswana-Mafuya’s invaluable contributions to understanding the impacts of mentorship has a significant impact on the lives of countless individuals. Moreover, her commitment to promoting women in science is commendable. She is an inspiration and a role model for aspiring scientists, breaking barriers and paving the way for future generations” Ms Refilwe Buthelezi, President, Engineering Council of South Africa

“My colleague, Prof Refilwe Phaswana-Mafuya is a dear sister, mentor, professor and queen. She is everything to everyone but to God, she is His daughter who is blessing His other children with knowledge, skills and capacity; building a legacy for His Kingdom not for the earth.” Prof Annie Temane, Executive Dean, Faculty of Health Sciences, University of Johannesburg

“My mentor of all times, Prof Phaswana-Mafuya is mentorship personified. She embodies love and care for mentees, empathy, ability to inspire and empower others, creates space and opportunities for others, shares her knowledge and expertise to reproduce the next generation of leaders. She prides herself

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in leaving a legacy of mentees that will carry the torch of knowledge and success from one generation to the next. I wish others can mentor like, empower like, create like, capacitate like HER. We need more of Prof Refilwe's!" Dr Edith Phalane, Research Manager/ Specialist Scientist, SAMRC/UJ PACER

"Many people, including myself, have benefitted from Prof Refilwe Phaswana-Mafuya's wealth of knowledge and experience as well as from the resources and opportunities she selflessly gave. Her humble spirit, tireless work, compassionate involvement in science capacity building programmes for young people is nothing but exceptional. This has been a guiding light, a beacon of hope and a source of inspiration to many. I feel blessed to be her younger sister." Dr Motlatso Mlambo, director of institutional research, Department of Institutional Intelligence, University of South Africa

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