

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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UJ Press

*Research Mentorship: A Developmental and Transformational Tool in Shaping
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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, 2021*
- *Navigating Academia: Women's Stories of Success and Struggle - A Call to Action, 2023*

Acronyms

AAS	African Academy of Sciences
AHRI	African Health Research Institute
ASSAF	Academy of Science of South Africa
DHET	Department of Higher Education and Training
FHS	Faculty of Health Sciences
FPP	Future Professors Programme
GAC	Ghana AIDS Commission
HAST	HIV/AIDS/STI/TB
HSRC	Human Sciences Research Council
ICAS	Independent Counseling and Advisory Services
JHSPH	Johns Hopkins Bloomberg School of Public Health
NGO	Non-Governmental Organisations
NRF	National Research Foundation
NSTF	National Science and Technology Forum
NW	North-West
NWU	North-West University
OK	Obahema Kyeredeh
OWSD	Organisation for Women in Science for the Developing World
PACER	Pan African Centre for Epidemics Research
PAULESI	Pan African University of Life and Earth Sciences Institute
SAMRC	South African Medical Research Council
SANAC	South African National AIDS Council
SEAD	Strategic Evaluation, Advisory & Development
SSA	Sub Saharan Africa

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STEM	Science, Technology, Engineering and Mathematics
SU	Stellenbosch University
UCT	University of Cape Town
UFS	University of Free State
UJ	University of Johannesburg
UKZN	University of KwaZulu Natal
UL	University of Limpopo
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNICEF	United Nations Children's Emergency Fund
UNISA	University of South Africa
WCE	World Congress of Epidemiology
Wits	University of the Witwatersrand

Foreword

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

This book epitomises 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 Chief Executive Officer 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*, articulates 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 the sector. As a mentee, the author became a beneficiary of the generosity of research mentorship that developed, transformed, shaped and sustained her to be the research leader she has become. Seeing how she greatly benefitted from mentorship, the author sought to pay it forward by working at a level where the research journeys of emerging researchers, especially African women, begin and where real impact happens. She mentored cohorts of mentees for almost two decades across Africa and other parts of the world. In this book, the author also captured her mentees' random expressions and feedback during interactions with them to: (1) broaden, diversify, and triangulate her mentorship experiences; (2) showcase the value of mentorship in developing leadership and in the provision of support to the next generation of researchers and academics; and (3) deduce lessons learnt from research mentorship by mentees, i.e. what their experience in research mentorship was like – the benefits and highlights as well as qualities that led to successful mentorship relationships. While there is a clear demonstrable need for mentorship within academia, focusing on developing the teaching and/or research capabilities of minorities, especially African women towards improving diversity and inclusivity, one would be hard pressed to find writing on the subject. Journeys of research mentorship

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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 standardised 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.

The author used a range of sources to write this book. First, the author drew from her personal experiences, observations, and insights on research mentorship both as a mentor and a mentee as highlighted above.

Second, the author used mentees' anecdotes, e.g., context specific real-life experiences of and feedback from thirty-three (33) African women mentees she mentored from diverse disciplines who are currently pursuing research or academic careers across various institutions including: universities, research institutes, science councils, non-governmental organisations (NGOs) and government departments. The mentees were all women who: (1) either had doctoral degrees or were pursuing master's or doctoral degrees; (2) were deemed as emerging leaders with potential; (3) assumed a research role in an academic institution; and (4) work or worked with the author, directly or indirectly, at some stage in their careers.

Third, the author incorporated auxiliary information, e.g. the tweets that mentees had shared regarding what mentorship meant to them.

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

Fifth, the author used inspirational quotes to motivate readers 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. 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. Therefore, this book adds to the limited literature on research mentorship.

From the above-mentioned sources, the author highlights how mentorship helped African women who often face many barriers in the advancement of their careers to succeed. The author introduces ways in which people wishing to enter a mentor-mentee relationship may navigate such an engagement. She showcases how solid mentorship helped black women to navigate stereotypes and prejudices; early career struggles; execution of research projects; research collaborations; research networks; grant writing; scientific productivity; science communication; postgraduate studies; as well as work-life challenges. Further, she highlights how research mentorship enhanced personal and professional development.

Furthermore, the author delineates the attributes of mentees and mentors as well as factors contributing to commitment and persistence in research career paths for emerging researchers from underrepresented populations. Additionally, the author describes the ripple effects of mentorship that can make academia more inclusive and diverse, eventually contributing to societal development. The book is concluded with a call to prioritise research mentorship for advancing the research careers of African women.

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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 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, this book will hopefully contribute towards attracting and retaining African women in the research and academic workforce or pipeline. This book has the potential to transform the academic landscape nationally, regionally, and globally. Through this book, the author brings Africa to the world and the world to Africa.

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. The lack of published material about mentorship in academic institutions, means that the book may have something to offer to the public. The author's and mentees' stories of navigating their development through mentorship can contribute immensely to how established academics as well as emerging academics may structure their relationship. 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

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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 organised into sixteen (16) 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 audiences 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 top-notch and the writing style is in line with best practices in publishing. The resources shared in the book are very comprehensible and captivating.

The manuscript demonstrates originality and novel developments within specific disciplines, sub-disciplines, and fields of study – women empowerment, embedding diversity, equity, inclusivity, belonging in science, technology, engineering and mathematics (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 bibliography are all well done and consistent with the format presented in all the chapters.

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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 and outcomes for those who will read this great book. 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 External Reviewer 1

This timely and relevant book presents the author’s original work on research mentorship which is an important addition to literature on the topic. The book directly addresses an area of concern in South Africa, other developing countries, and possibly other parts of the world where women and women minorities are not adequately guided and supported to enter, remain, achieve their full potential, and excel in their research careers. The target audience for the book includes researchers and students (at different levels, some as mentors and others as mentees), leaders of research institutions, and institutions of learning involved in training researchers and in undertaking the research processes – Anonymous External Reviewer 2

This book is based on Prof Refilwe Phaswana-Mafuya’s personal experiences as a mentor and a mentee as well as the experiences of her mentees. It sheds some light on the importance of mentorship in academia especially for minority groups, more especially black African women. The book is a culmination of years of experience. It is the first of its kind, not only for South Africa but for Africa as a continent. In Prof’s own words: through this book we bring Africa to the world and the world to Africa. – Sikhulile Ngcobo, lecturer, Faculty of Law, UJ

“I find the book to be a mentorship tool par excellence as I felt being mentored in the process. The book carries in it a range

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of positive aspects of leadership in general and at the same time arouses a sense of infinite motivation, encouragement for achievement as well as complementary empowerment to both mentors, emerging mentors, and mentees, not only for women but for all those who take a decision or aspire and commit themselves to follow the research career progression in academia. As one reads through the book, each chapter takes one through the process of motivational mentorship. The book has the potential to transform the career trajectory of mentees across and beyond the bounds of gender disparities. – Lazarus Lekgolo Ramalepe, former managing director, Ithusheng Community Association

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

The mentorship experiences of 33 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 UJ, the South African Medical Research Council (SAMRC), Human Sciences Research Council (HSRC), University of Cape Town (UCT), Stellenbosch University (SU), North-West University (NWU), University of Mpumalanga (UMP), University of South Africa (UNISA), University of Witwatersrand (Wits), University of Limpopo (UL), University of Kwa-Zulu Natal (UKZN), University of Free State (UFS), Pan African University of Life and Earth Sciences (PAULESI), Johns Hopkins Bloomberg School of Public Health (JHSPH), South African National AIDS Council (SANAC), Eastern Cape AIDS Council (ECAC), Gender-Based Violence and Femicide (GBVF) Response Fund, Ghana AIDS Commission (GAC), Joint United Nations Programme on HIV/AIDS (UNAIDS), Future Professors Programme (FPP), Department of Employment and Labour, and Independent Counseling and Advisory Services (ICAS), among others.

- Ms Rita Afriyie, technical coordinator, Technical Support Unit, GAC

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- Ms Cynthia Asante, strategic information advisor, UNAIDS
- Ms Martha Mushamiri Chadyiwa, lecturer, Faculty of Health Sciences (FHS), Department of Environmental Health, UJ
- Dr Buyisile Chibi, research project director, HSRC
- Dr Pelisa Dana, senior researcher, ECAC
- Dr Vuyiseka Dubula, visiting fellow, UKZN
- Prof Lebo Gafane-Matemane, associate professor, FHS, NWU
- Ms Boitshepo Gopane, occupational health and safety inspector, Department of Employment and Labour, North-West (NW) Province
- Ms Katie Journeay, graduate student, JHSPH
- Dr Nokuthula Khanyile, lecturer, School of Chemical and Physical Sciences, UMP
- Ms Zamakayise Kose, specialist researcher, NWU
- Dr Janell Le Roux, senior lecturer, Department of Communication, Media and Information Studies, UL
- Ms Enirieta Makanza, former PhD/research assistant, SAMRC/UJ PACER
- Dr Gladys Male, associate professor and FPP candidate, UFS
- Dr Motlatso Mlambo, director of institutional research, Department of Institutional Intelligence, UNISA
- Ms Amanda Mohlala, executive director: Laboratory Services, Strategic Evaluation, Advisory & Development (SEAD) Consulting
- Ms Lifutso Motsieloa, technical lead: monitoring and evaluation, SANAC
- Ms Ncumisa Msolo, research coordinator, UCT
- Ms Nobuhle Ncube, former MSc student, PAULESI, African Union
- Ms Lucia Olifant, PhD student/research assistant, SAMRC/UJ PACER
- Dr Edith Phalane, research manager/specialist scientist, SAMRC/UJ PACER
- Ms Kagisho Phaswana, managerial specialist, ICAS
- Dr Abo Qamata, former master's student, SU

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- 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, senior lecturer, Department of Environmental Health, FHS, UJ
- Ms Haley Sisel, graduate student, JHSPH
- Dr Claris Siyamayambo, postdoctoral fellow, SAMRC/UJ PACER
- Ms Zinhle Sokhela, research manager, Wits
- Ms Odiwe Swana, operations coordinator, Wits
- Koketso Refilwe Rathumbu, advocacy specialist, GBVF
- Ms Sinthemba Thubeni, former research assistant, SAMRC/UJ PACER

Chapter 1:

Unpacking Key Mentorship Concepts

Every day, I enjoy the privilege of being a mentor to strengthen the capabilities of my mentees to take on more prominent roles, making them see that academia is as much for them as it is for others.

- Author

*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

This chapter focuses on the key concepts of mentorship: what is a mentor? what is a mentee? what is a mentorship relationship? how to build a mentorship relationship? what are the benefits of a mentorship relationship?

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

Research mentors are people of stature, influence, and authority in their profession and are respected in their field (Seçkin, Elçi & Doğan, 2022). They have nurturing abilities and empathic attributes as outlined in chapter 15. For example, they are open, transparent, and honest, enthusiastic about the growth of others, passionate about their research area, knowledgeable on the subject matter, approachable, accessible, supportive, and inspirational to mentees (Fleming et al., 2013).

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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 et. al., 2017). The qualities of mentees have been elucidated in Chapter 16.

Mentees may identify potential mentors through a range of platforms that can link them to potential role models, resourceful individuals, and institutions. These include networking meetings, memberships, outreach platforms (e.g., conferences, training workshops and webinars), internships, exchange visits, supervisions, and 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 as demonstrated in this book.

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). A mentorship relationship involves an interaction between an experienced person (mentor) and a less experienced person (mentee) working together towards the personal and professional development of the latter (Sarabipour, Hainer, Arslan, De Winde, Furlong, Bielczyk, Jadavji, Shah & Davla, 2022).

There are mutual benefits in mentorship to both the mentor and mentee. Mentees benefit from the teaching, guidance, feedback, coaching, counselling, support, and advice they get from mentors towards meeting their individual needs, career goals, and aspirations (University of California, 2022; University of Southampton, 2022; Pfund, Byars-Winston,

Branchaw, Hurtado & Eagan, 2016). Mentors may support mentees in various scholarly areas as summarised below and described in more detail in subsequent chapters.

Figure 1: Potential support that mentors can provide to mentees

Smoothen	Smoothen mentees' path in non diverse work environments
Link	Link mentees to opportunities for personal and professional growth
Involve	Involve mentees in their research projects for experiential learning
Connect	Connect mentees to networks and collaborators
Aid	Aid mentees with work life balance issues
Cheer	Cheer mentees up to persevere when the road gets tough
Guide	Guide mentees on their growth areas
Initiate	Initiate mentees in grant applications
Introduce	Introduce mentees to scientific writing
Expose	Expose mentees to science communication

For mentors, mentorship enables a deeper reflection on the subject matter; affords knowledge and skill sharing; offers opportunity to connect meaningfully with mentees in pursuit of their career aspirations; builds their influence and reputation as leaders who groom talent; keeps their skills up to date; enhances their creativity and increased awareness; sharpens leadership skills and gives a sense of purpose, personal satisfaction, and fulfilment in seeing mentees progress towards meeting their career aspirations (Badawy et. al., 2017; Sorkness, Pfund, Ofili, Okuyemi & Vishwanatha, 2017; Laursen, Hunter, Seymour, Thiry, & Melton, 2010). Thus, research mentorship can make the mentor's research journey as enriching, edifying and fulfilling as that of the mentees. The rest of the benefits of research mentorship have been described across different chapters in this book.

Mentees may have multiple mentors to broaden access to career development opportunities (Curtin, Malley & Stewart, 2016; Commodore, Freeman, Gasman & Carter, 2016). Each mentor focuses on where the mentee can be rather than where s/he is and who the mentee can become

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rather than who s/he is. The mentor meets the mentee where s/he is. The respective mentors and mentees may discuss the scope of what the mentorship relationship will entail. This may include a discussion of the areas of mutual interest, matching expectations, shared vision, strengths, talents, as well as shared learnings and experiences from their career histories (Spence, Buddenbaum, Bice, Welch & Carroll, 2018; Yang, 2022; George Washington University, 2022; Pfund, Byars-Winston, Branchaw, Hurtado & Eagan, 2016). It may also involve a discussion on the modus operandi, ground rules, preferences, limits, as well as communication styles. The above-mentioned will go a long way in sustaining the mentor-mentee relationship. Further, 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 (Vasylyeva et al., 2019; University of California, 2022). 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, empathises, 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 mentor and mentee may review their relationship, goals, progress and take stock of competencies to be developed as well as growth areas to be pursued on an ongoing basis.

The mentor-mentee relationship can be negatively affected by time constraints, mismatch, communication barriers, unclear or unrealistic expectations or goals, resistance, resentment, lack of boundaries or limits, lack of commitment, lack of planning, misconceptions, and a change in job assignments (Ngongalah et al., 2021; Fleming

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et al., 2013). This may result in a relationship that is counter-productive and create feelings of frustration, resentment, rejection and unwelcomeness:

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 navigated. — Dr Edith Phalane, research 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-

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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, GAC

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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 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. Research mentorship changed my fears into breakthroughs, stumbling blocks into stepping stones. It strengthened my research career

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progression, independence, self and professional development. It aided me in advancing my postgraduate studies. Further, research mentorship helped me in dealing with early career struggles, competing priorities, execution of 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 necessities and studying in appalling resource-constrained environments, I became publicly recognised 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 honoured 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

This chapter demonstrates that there is a severe shortage of women, especially black women who have ascended to leadership roles within academia. It highlights the challenges faced by women, especially African women, in advancing their careers in academia. It demonstrates how research mentorship can be utilised to address these challenges to enhance women's productivity, success rates, retention in science, academia and leadership. The chapter shows how mentorship can eventually enhance inclusivity and diversity in academia.

The gender gap persists in science (United Nations Educational, Scientific and Cultural Organisation (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

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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 predominantly 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 (African Academy of Sciences (AAS), 2020; Babalola, 2019; Babalola, Du Plessis & Babalola, 2021; Sunday Independent, 2021).

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 characterised 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

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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 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 (Alinia, 2015). Under such circumstances, the likelihood of succeeding in a research career without mentorship support is very low, let alone in pursuing a career in research (Blake-Beard, Bayne, Crosby, & Muller, 2011). Without mentorship, many women may take an alternative course of action that may appear more realistic and attractive (Beckwith, Carter & Peters, 2016).

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 enables mentees to have a sense of belonging. They may devise strategies for recognising and addressing issues of equity and inclusion and how research mentors may inspire women in science that other women wish to be like (Sorkness, Pfund, Ofili, Okuyemi & Vishwanatha, 2017). 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 (Davis & Maldonado, 2015). 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 et. al., 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

almost all 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). The recruitment, retention and mentorship of diverse groups are critical to harnessing the complete human and intellectual capital of society (Alinia, 2015; Grant & Ghee, 2015). 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 (AAS, 2020). They can be empowered through mentorship to stand firm against demeaning attitudes and insensitivities that may create a chilly climate in their work environments as has been seen in other contexts (Sorkness, Pfund, Ofili, Okuyemi & Vishwanatha, 2017; Pfund, Byars-Winston, Branchaw, Hurtado & Eagan, 2016). Through research mentorship, African women have the potential to reach the pinnacle of academia despite constraining work environments (AAS, 2020; Scibono, 2021).

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 (AAS, 2020). It can help African women defy the odds of failure in a research career (Kumwenda et al., 2017). Further, it can contribute to equitable science access and success for all, including African women scientists, equitable research promotions, access to

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research funds, co-authorships of research publications, platforms for disseminating research findings, as well as opportunities for obtaining research awards. Research Mentorship 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 (AAS, 2020; Babalola, Du Plessis, & Babalola, 2021; Kuzu, Kahraman, & Odabasi, 2012).

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 what may seem like "greener peaceful pastures" to escape the blazing fire that may consume them (AAS, 2020; Kumwenda et. al, 2017; Kuzu, Kahraman, & Odabasi, 2012).

Mentors can help mentees survive and thrive in the academic jungle despite limitations and circumstances (Beech et. al, 2013). 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 (Gasser, & Shaffer, 2014; Kuzu, Kahraman, & Odabasi, 2012). They can help emerging African women researchers rise above science disparities, gender inequalities, as well as patriarchal tendencies (AAS, 2020; Kumwenda et. al, 2017).

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 (Kumwenda et. al, 2017, AAS, 2020; Kuzu, Kahraman, & Odabasi, 2012). 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 characterised by gender-related vulnerabilities and subtleties, e.g., resistance

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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, UNISA

Through mentorship, my potential exploded. I realised personal growth, career progression and success beyond my wildest imagination. This became a professionally fulfilling experience. — Dr Edith Phalane, research manager/specialist scientist, SAMRC/UJ 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

This chapter highlights the early career struggles that emerging researchers go through and showcases how research mentorship can assist in navigating through these.

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 (AAS, 2020; Babalola, 2019; Babalola, Du Plessis, & Babalola, 2021; Kumwenda et al., 2017). 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;

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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 and retention (Sorkness, Pfund, Ofili, Okuyemi & Vishwanatha, 2017; Gandhi & Johnson, 2016). 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 (Chen, Sandborg, Hudgins, Sanford & Bachrach, 2016). 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 (AAS, 2020).

Research mentorship has been recognised in many spheres as a great developmental tool that can be utilised 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 (AAS, 2020; Stetson University, 2022). 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 (Semata, Gladding & John, 2017). 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 (Semata, Gladding & John, 2017). Essentially a mentor empowers, equips, encourages, supports, and guides mentees to overcome early career struggles and succeed in their careers (Stetson University, 2022). 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 (Johnson & Gandhi, 2015; Stetson University, 2022). 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 summarises the above-mentioned succinctly: "If you are

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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 (Cho, Ramanan, & Feldman, 2011; Stetson University, 2022). S/he plays a critical role in helping emerging researchers understand their research roles and responsibilities early in 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 recognises and nurtures mentees' potential. Mentors can help emerging researchers discover and exploit their true potential and real talents early in their careers (Kuzu, Kahraman & Odabasi, 2012). They can recognise them and create platforms for them to be utilised. Nurturing young talent is a much-needed resource base for figuring out problems before they materialise 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 (Cho, Ramanan, & Feldman, 2011). Early recognition and nurturing of research potential can go a long way in channelling 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 (Feldman, Areal, Marshall, Lovett, & O'Sullivan, 2010). 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 honourable individuals (Feldman, Arean, Marshall, Lovett, & O’Sullivan, 2010). 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 themselves and feel free to discuss whatever they wish to express (Sorkness, Pfund, Ofili, Okuyemi & Vishwanatha, 2017).

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 valour, woman of purpose, who guards 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 a safe space to learn with you always; O-One of a kind and U-Unmatched.
—Dr Edith Phalane, research 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 her time and created opportunities for others to realise their dreams.
—Dr Pelisa Dana, senior researcher, ECAC

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

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capabilities gave me strength, courage, and a daring spirit to fight for my own development. — Ms Zamakayise Kose, senior specialist researcher, NWU

I learnt to assist and organise 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, UCT

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

This chapter focuses on self-concept issues that mentees go through and how mentorship can assist mentees in this regard.

Mentees go through self-concept issues, including negativism, self-doubt, and despondency, early in their careers (Blake-Beard, Bayne, Crosby & Muller, 2011; Kutchner & Kleschick, 2016). They may be sceptical about their abilities,

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self-stigmatising 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 (Lunenburg, 2011). Mentorship 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 (Mojavezi, & Tamiz, 2012). 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 levels of self-efficacy (Feldman, Arian, Marshall, Lovett & O’Sullivan, 2010). Through mentorship, mentees can learn new things and develop new skills to increase their chances of success in realising 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; Babalola, 2019). 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 (Davis, 2020). Mentors can look beyond the weaknesses of their mentees and recognise their potential at a time when mentees

do not even know that they have any (Stetson University, 2022). 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 needed for a successful research career (Feldman, Arian, Marshall, Lovett, and O'Sullivan, 2010). 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 (Feldman, Arian, Marshall, Lovett, and O'Sullivan, 2010). The successes may include being a co-author in a published paper, a scholarship acquired, a research project completed, a technical report finalised, and a scientific presentation made. The mentor may celebrate mentees' achievements by sending a congratulatory message via email and making announcements on social media, on 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 realise 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 trusted myself.
— Dr Edith Phalane, research manager/specialist scientist, SAMRC/UJ PACER

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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, UCT

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, Wits

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Chapter 5:

Research Mentorship And Professional Development

I experienced total commitment from my mentors on my path to research success. They threw me in the deep end; 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-actualisation. 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. 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. These qualities made me a black woman in science and the research leader I am today.
— Author

This chapter focuses on the critical nature of mentorship in career advancement. It demonstrates how mentors can link mentees to opportunities for professional and career development resources.

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 (University of California, 2022). 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 (Stetson University, 2022). They point mentees to potential problems before they materialise and support them in developing mechanisms to prevent or address them by giving them ideas and perspectives on creative ways that can be used

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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 (Yang, 2022). 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 (University of Southampton, 2022). They serve as a coach to mentees:

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

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 (Searby, Ballenger & Tripses, 2015). 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 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 & Kinnnersley, 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. I am privileged to have someone who supports me holistically towards research independence. — Dr Gladys Male, associate professor and FPP candidate, UFS

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

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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, research 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 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, managerial specialist, ICAS

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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, ECAC

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, NWU

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, FHS, 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

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My mentor supported me in realising 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, NW 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, UMP

This chapter focuses on how mentorship can play a pivotal role in helping mentees deal with work-life issues. The support of mentors on work-life issues can go a long way in sustaining women in academia.

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 (Babalola, 2019; AAS, 2020). They sacrifice a lot of time and energy to keep going, pursuing what could be deemed impossible, given their circumstances. They must 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 (Guarino & Borden, 2017; Mahasha, 2016). 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 (Guarino & Borden, 2017). 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 (Guarino & Borden, 2017). 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.,

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

Through mentorship, a family-friendly environment was created characterised by proactive planning, working flexible hours, working from home whenever they needed to, and creating flexible work plans and realistic expectations (AAS, 2020; Voytko et. al., 2018). They can engage in proactive planning on how to juggle work and family responsibilities. They ensured sensible scheduling of meetings and deadlines that considered 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 UJ. It would have been close to impossible to secure enrollment 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, NWU

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Chapter 7:

Research Mentorship & Execution of Research Projects

My mentors assigned me clear-cut roles on the research projects with regular check-ins embedded to provide the opportunity for me to put theoretical knowledge into practice, and learn research techniques to strengthen research skills. This built my 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 the tasks assigned to me kept me motivated. I developed a sense of shared responsibility and mutual accountability in the research teams I was part of.
— Author

This chapter highlights the importance of involving mentees in the execution of research projects under the leadership of their mentors for experiential learning which will contribute to the development of research skills.

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 (University of Southampton, 2022; Ngongalah et al., 2021). They can maximise research learning by helping mentees to bridge the gap between theoretical and practical knowledge. Mentors

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can create opportunities that can enable the development of scientific evidence, innovations and technologies needed to solve unprecedented challenges that society faces today (Yang, 2022). It can help them to retain goal-directedness; strengthen their intrinsic motivation; keep them focused; give them a sense of fulfilment, pride, and achievement (University of California, 2022). Further, 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 (Vokić, Obadić, & Ćorić, 2019).

The placement of local and international mentees involved in masters, doctoral and postdoctoral training on research projects exposes mentees to novel research methodologies, the latest approaches, and technologies (Handelsman, Pfund, Miller Lauffer & Pribbenow, 2014). Mentees can be involved in globally competitive, locally responsive, and contextually relevant large-scale, high-quality, innovative studies that may contribute to the development of research skill sets and set mentees on research careers, progression, and success (Khoujah, 2021).

A mentor puts words into action: mentors should not be just full of words of encouragement, but they should also put things into action (Stetson University, 2022; University of California, 2022). 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 (Yang, 2022;

University of Southampton. 2022). A non-response from a mentor does not mean s/he is uninterested, but it means s/he is preoccupied:

I have come to realise 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, research 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. I had the opportunity to execute interesting research designs including integrated biological-behavioural surveys and mapping population size estimations. — Ms Zinhle Sokhela, research manager, Wits

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. These included being involved in key population implementation science studies, methods of prevention packages programme studies or combination prevention studies in more than ten African countries. Through these, I have developed research skills in planning, designing,

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implementing, writing up and disseminating findings.
— Ms Zamakayise Kose, senior specialist researcher, NWU

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 and guidance to ensure we felt comfortable. Contributing to several innovative, timely projects simultaneously allowed us to improve our time management and organisational 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 Journey, graduate students, JHSPH

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 conceptualising, executing and disseminating results as per protocol; adherence to ethical requirements, regulations and a strong work ethic. — Dr Buyisile Chibi, research director, HSRC

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

This chapter provides an overview of the critical role that mentorship can play in connecting mentees to networking opportunities, showcasing them, and thus improving their professional visibility, and expanding their territories.

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, belonging, and relatability. 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 sustainable professional networks (Bennett, Paina, Ssengooba, Waswa & M’Imunya, 2013). It is important that mentors introduce mentees to potential networks in a personalised 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; honouring 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 would 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 my research endeavours. 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 individual grants and collaborative grants 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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This chapter focuses on the critical nature of mentorship in helping mentees to develop grant application skills and profile needed for success in a research career.

Raising research funding is critical but challenging, especially in developing countries including African countries where resources are limited (Ngongalah et al., 2018; Ngongalah et al., 2019; Kumwenda et al., 2017). The odds of mentees securing external funding in a fierce funding landscape characterised 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 research grant funding is a forced choice as no single institution has sufficient resources to meet all the research 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, Arian, 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, cooperative 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 diverse 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 abilities to share knowledge on advances in my field with diverse audiences. To date, I have shared my work in various workshops, seminars, community radio interviews, podcasts, schools, TV and webinars, magazines and print media across different parts of the world. My contribution on science communication is reflected at the end of this manuscript where links to various presentations have been provided. Research mentorship provided me with unique opportunities to continuously, consistently and courageously learn how to share my scientific work to diverse audiences.

— Author

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This chapter demonstrates the importance of research mentorship in developing science communication skills necessary to reach diverse audiences.

Emerging researchers face presentation challenges, including “*too much detail leaving no time for probing questions, too many opaque visuals, too many slides, limited preparation 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 speaking 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, organised 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 intention whatsoever to pursue postgraduate studies. All I wanted was to have a professional degree, secure a job, help my parents, 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 scepticism. 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 to have a junior lectureship position to earn a living while pursuing my studies as well as 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 strove towards achieving my long-term goals; enhanced my job satisfaction and productivity levels. 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 served as an external examiner, moderator, research supervisor as well as postgraduate student lecturer. — Author

This chapter focuses on how mentorship can serve as an enabler for a prosperous pursuit of postgraduate studies necessary for success.

Graduate completion and throughput rates are a challenge globally (Moghaddam, Esmailzadeh & Azadbakht,

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2019). Mentorship can contribute towards an equitable black African scholarship through increased postgraduate learning opportunities; completion/improvement of honours, 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”, 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. In addition, 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 acquire pertinent skills. Further, mentors can help postgraduate students to plan for publications from their theses in advance and 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 my mentor in preparation for me to become the primary supervisor soon.

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This experience has helped me to diversify my skill set outside of my own postgraduate studies, fill in the gaps in my technical knowledge, and improve my soft skills. — Dr Edith Phalane, research 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 realised that I was stuck — Ms Lebogang Ramalepe, lecturer/ PhD student, UJ

My mentor encouraged me to enrol for my PhD under her supervision after completing my MPH Degree. She navigated me through the enrollment 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, SANAC

As I pursued my master's degree at Stellenbosch University, a few years after completing my Bachelor of Medicine and Surgery degree, I discovered the invaluable impact of

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mentorship beyond the scope of the official Supervisor. During the challenging period of writing my dissertation, Prof Refilwe Phaswana-Mafuya was one of the black women academics who offered the support and guidance that helped me persevere and successfully complete my degree. — Dr Abongile Qamata, a former master's student, SU

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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 a 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 (16) 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-fertilisation 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

This chapter shows how research mentorship can help mentees build sustainable research collaborations for the exchange of knowledge, ideas, experiences, and best practices, that would lead to greater personal and professional growth as well as impact and visibility.

Research collaboration involves working with others to produce research results (Ngongalah et al., 2019). It is one of the methods used to strengthen individual and institutional research capacities (Akuffo, 2014; Chu, Jayaraman, Kyamanywa & Ntakiyiruta, 2015). Further, it

is 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). Research mentorship can foster the utilisation of multi-disciplinary approaches; exploration of novel methods and 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. Furthermore, mentors may introduce and connect mentees to like-minded individuals, role models and organisations, 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:

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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.
— Ms Zamakayise Kose, senior specialist researcher, NWU

I have learnt through my mentor that it is important to establish collaborations with collaborators that have mutual interests, common priority research areas, good organisational 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 rigour, innovativeness, and creativity in my studies. — Dr Buyisile Chibi, research project director, HSRC

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, Wits

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Chapter 13: Research Mentorship and Scientific Productivity

As a young researcher, I was immediately confronted with the pressure to “publish or perish”. I wrote the 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 realised 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 scepticism, 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 recognised for my significant contribution to science through research and its outputs fifteen years after the completion of my PhD.

— Author

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This chapter demonstrates the role of mentorship in enhancing scientific productivity, a critical scholarly activity in academia that remains a challenge to many academics especially African women and emerging researchers.

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 endeavour 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 familiarise 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 publication 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 STEM dropout rates, lower publishing career length, and fewer citations of papers they author, women that have comparable publications to those of their male counterparts 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:

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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 utilised for research dissemination and stakeholder engagement. 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 realise 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, research manager/specialist scientist, SAMRC/UJ PACER

My mentor linked me to multiple opportunities to develop my scientific writing skills. These included paper writing skill-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 honoured to receive such exposure and support from and through her. — Dr Vuyiseka Dubula, visiting fellow, UKZN

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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

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, FHS, 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 ropes 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 endeavoured 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 13 of my mentees in my previous book, *Vision never dies #I: learning curves from my non-linear career journey* and 33 mentees in this book. My mentees have also been following in my footsteps. They have also received multiple recognitions, awards, nominations, profiling, memberships and exposures. They use these to inspire, support and empower their peers and those who look up to them.*

— Author

This chapter describes the ripple effects of mentorship. It demonstrates how mentees may want to pay it forward and how this can strengthen diversity and inclusivity in academia.

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.

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Mentoring creates a powerful ripple effect that impacts entire communities (Condon, 2021).

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 (Team Mentorpal, 2023). Receiving mentorship can lead to a higher likelihood of mentoring others; they can spread their wings to become mentors to others, mentorship breeds mentorship (Burgess & Chataway, 2021; Luke, Baumann, Carothers, Landsverk & Proctor, 2016; Team Mentorpal, 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.

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, research manager/specialist scientist, SAMRC/UJ PACER

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.

Chapter 14: Research Mentorship Has Ripple Effects

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 Ms Kalai Willis of the Key Populations Program at JHSPH 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, JHSPH

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Chapter 15:

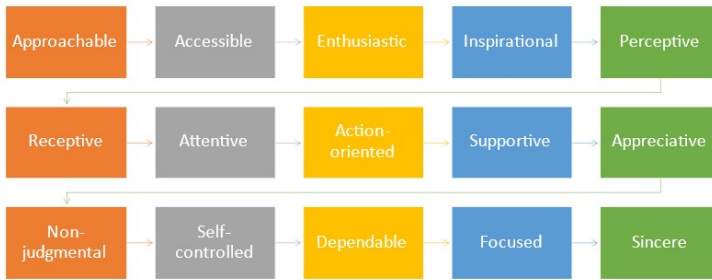
Mentors' Attributes For Effective Mentorship Relationships

My mentors 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. They built an open, person-to-person communication with me, gave a listening ear, and much more. – Author

*To add value to others, one must first value others.
— John C. Maxwell, coach and trainer*

Mentors should possess a range of values, attributes, or leadership qualities for a successful mentorship relationship. Without these, a mentorship relationship may be compromised. In this chapter, some of the attributes have been provided based on lived experiences and literature (e.g. Babalola, 2019; Team Mentorpal, 2023; Ngongalah et al., 2021; 2019). The rest of the literature consulted has been included under the list of references at the end of this chapter. It should be noted that the attributes described here are by no means exhaustive. The attributes have been summarised in Figure 2 below and subsequently described.

Figure 2: Attributes of a Mentor



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 blessings. — Ms Boitshepo Gopane, occupational health and safety inspector, Department of Employment and Labour, NW 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 demeanour 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, FHS, UJ

Accessible

Mentors should be willing to avail themselves of mentees. They can be reached through multiple platforms within reason, such as WhatsApp, 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 realise 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, research 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, NW Province

Enthusiastic

A mentor displays passion to develop others. Lack of exposure may limit career advancement. Mentees may not be aware of professional and career development resources and therefore need help in their career advancement:

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, senior lecturer, Communications, Media and Information Studies, UL

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Great mentors combine hard work with fun; they ensure the team is hard at work but also entertain the team with excursions (touring Vilakazi, Soweto), free lunches on bad days, as well as exposure to local and international collaborators. — Ms Sinethemba Thubeni, research assistant, SAMRC/UJ PACER

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. 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

My mentor is outstanding, and I am proud to have met such a revolutionary woman like her - a leader, pioneer, mover, and shaker in the science space for women. She continues to inspire and make us proud every day as women and young professionals in the space of health. —Koketso Refilwe Rathumbu, advocacy specialist, GBVF

My mentor made me realise the potential I did not even know that I had. —Dr Edith Phalane, research manager/specialist scientist, SAMRC/UJ PACER

Perceptive

A mentor should recognise and nurture mentees' potential. Mentors can help emerging researchers discover their true potential and real talents, recognise them and create platforms for them to be utilised. Nurturing young talent is a much-needed resource base for figuring out problems before they materialise and finding ways of preventing or solving them. It

is critical for sustainable growth, diversity and development in science. Early recognition and nurturing of research potential can go a long way in channelling 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, PAULESI, 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, research manager/specialist scientist, SAMRC/UJ PACER

Receptive

A mentor should be open-minded. S/he should embrace the independent views of the mentee. This 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

Attentive

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

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

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My mentor listens to what you say – and also to what you are not saying! Hence, she is able to analyse situations and solve problems effectively while paying keen attention to details.
—Ms Mohlago Seloka, PhD student and research assistant, SAMRC/UJ PACER

Action-oriented

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

My mentor teaches you in action. She works side by side with you to ensure that you succeed in your endeavours. This develops skills that can be used in one's entire research life.
—Ms Lucia Olifant, PhD student/research assistant, SAMRC/UJ PACER

Supportive

A mentor supports mentees personally, socially, professionally, and unconditionally. S/he shows concern, and shows up when needed. S/he offers wise counsel to mentees, giving them ideas, options, and perspectives on how to effectively deal with issues that confront them to guide the decisions they make. The validation and support of mentors can become the underlying strength beneath mentees' success in overcoming anything that could distract them.

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.

Appreciative

A mentor sees meaning and value in what the mentees do. S/he appreciates and celebrates mentees' modest successes to give them courage, endurance, and sustenance. The successes may include a mentee being a co-author in a published paper, acquiring a scholarship, completing a research project, finalising a technical report, or making a scientific presentation. The mentor may celebrate mentees' achievements by sending out a congratulatory message, public announcement, or giving the mentee some time away from work (if they work together). A celebration of small successes may not only go a long way in encouraging mentees to achieve greater milestones but may also sustain them in the career pipeline.

I have witnessed many phone calls and emails of my contributions being acknowledged 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, research manager/specialist scientist, SAMRC/UJ PACER

Non-judgmental

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 their ideas, perspectives, and challenges openly, venting frustrations about issues bothering them which may have the potential to affect their mindset and work performance without being afraid of being belittled, labelled, judged, victimised or condemned.

My mentor is my confidante who made our mentor-mentee relationship strong. It is a safe space to openly share my issues. —Dr Edith Phalane, research manager/specialist scientist, SAMRC/UJ PACER

Self-controlled

A mentor respects mentees' privacy and confidentiality. S/he keeps all sensitive information, both personal or professional, to herself or himself unless the mentee gives consent for him or her to share the information for particular purposes.

Dependable

A mentor associates him/herself with mentees throughout the seasons of their career. S/he embraces a mentee during his/her highest moments and in darkest hours. Further, a mentor can extend a helping hand to the mentee when s/he falters and give the mentee the courage to rise again.

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, SEAD Consulting

Focused

A mentor is committed to help a mentee in navigating his/her career aspirations, passions and interests to jump-start or shape his/her career trajectory. S/he can play a critical role in aiding emerging researchers to understand their research roles, responsibilities, expectations, and outcomes in research. Further, s/he can alert them of opportunities and possibilities, keep them abreast of new developments and advances in the field, provide industry updates and guide mentees through uncharted grounds. This can serve as the beginning or transition point towards research independence. Therefore, a mentor can set an emerging researcher on a great career path and empower a mentee to remain in it until s/he reaches research independence.

Chapter 15: Mentors' Attributes

When I was doing an application for a professorship, I knew I needed to get a recommendation from an iconic female 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-Matemane, associate professor, FHS, NWU

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, senior lecturer, Department of Environmental Health, FHS, UJ

Sincere

A mentor has an honest and open relationship with his/her mentee. S/he gives frank and candid feedback on areas of development as well as discusses the plan of action to address them. This provides mentees with a sense of clarity.

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, NWU

One of the most simple, humble, thoughtful, beautiful and affirming Prof I have known. Thank you for sharing yourself with us, Prof. God bless you more. — Ms Lifutso Motsieloa, technical lead: monitoring and evaluation manager, SANAC

Tweets that mentees wrote about their mentor

The Organisation for Women in Science for the Developing World (OWSD) asked young scientists participating in the

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“I Admire Challenge” to write about their experiences of mentorship, and the mentees included in this book tweeted as follows in appreciation of mentorship:

Figure 3: Tweets by Mentees (extracted from OWSD Tweets)



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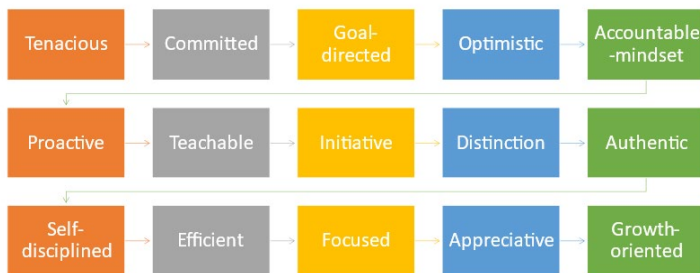
Chapter 16:

Mentees' Attributes for Effective Mentorship Relationships

As a mentee, I always kept in mind that mentorship was for my personal and career development. Therefore, I had to develop attributes that would help sustain my relationship with my mentors as I viewed them as individuals who voluntarily availed themselves to support me in reaching my career aspirations. — Author

This chapter focuses on qualities that mentees should have to enjoy an effective relationship with their mentors. Based on the mentees' experiences and literature, a range of attributes for effective mentorship relationships have been paraphrased below (e.g. Hill, 2020; Hamden, 2019; Reeves, 2018; Stetson University, 2022; Dixita, 2021; Mamaril, 2023). The rest of the literature consulted has been included under list of references at the end of this chapter. It should be noted that the mentee attributes described here are by no means exhaustive. The attributes have been summarized in Figure 3 and subsequently described. Without these attributes, a mentorship relationship may be difficult to sustain.

Figure 4: Attributes of a Mentee



Tenacious

Mentees should go beyond assigned tasks and responsibilities. They should be willing to invest time and energy in pursuing unfamiliar, bigger, more difficult tasks, assignments, and additional responsibilities. Further, 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

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 of institutional research, Department of Institutional Intelligence, UNISA

Committed

Mentees should be self-motivated committed to their own personal and professional development to succeed in their endeavours. They should also have the determination to work on assigned tasks, take up challenge to challenge, for their own development.

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,

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and powerlessness.—Ms Kagisho Phaswana, managerial specialist, ICAS

Goal-directed

Mentees should be ambitious and not settle for less. They should know what they want; set immediate, medium and long-term plans as well as concrete steps to achieve their goals, and monitor progress

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

Optimistic

Mentees should adopt a positive mental attitude. They should have an “I can do it” attitude. They should surround themselves with people who inject positivity and optimism, which is necessary for their growth and fulfilment. They should avoid being in the wrong company, which can destroy their self-concept and career prospects.

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, managerial specialist, ICAS

Accountable-mindset

Mentees should hold themselves accountable towards achievement of their own goals. For example, they can do so by developing a habit to respond substantively to any requests for contributions, completing their reports promptly, making

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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, managerial specialist, ICAS

Proactive

Mentees should not wait for things to happen. They should take the initiative by being the first ones to contact the mentor, arranging meetings, and conducting follow-ups. They should be self-driven, passionate, and 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. Mentees should ensure forward planning by envisioning problems, anticipating needs, and soliciting support to attend 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

Mentees should have the desire to learn from the skills and experiences of knowledgeable individuals that have walked the path before them. They should be hungry for knowledge, respect the authorities in their field, and avoid a “know-all” attitude.

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

Distinction

Mentees should seek to excel in whatever they do; they should aim higher and guard against mediocrity or settling for less. They should elevate their bars higher than limiting pre-set scripts, metrics and rules. They should use their abilities as their standard; not comparing themselves with themselves rather than with others.

I went beyond the call of duty, establishing the right habits to do my utmost. — Dr Edith Phalane, research manager/specialist scientist, SAMRC/UJ PACER

Authentic

Mentees should be truthful to themselves. They should never have to push themselves to become someone they are not. All they must do is challenge themselves to become their own best versions by stretching their knowledge and abilities to the fullest. Mentees can tap into their mentor's great wisdom and insights to broaden their horizon, success, and impact.

Being willing to learn from my mistakes and take guidance from their 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

Self-Disciplined

Mentees should have the 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.

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, managerial specialist, ICAS

Efficient

Mentees should use their prime time effectively. They should set their priorities, have a plan to achieve these, timeframes within which they will achieve set tasks, set up reminders, execute tasks promptly, and solicit support when needed.

I continuously developed myself, establishing the right habits and challenging myself to practice these consistently.
— Dr Edith Phalane, research manager/specialist scientist,
SAMRC/UJ PACER

Focused

Mentees should avoid making excuses, and unnecessary distractions that would remove their focus from valuable work:

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 University

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 their betterment. Therefore, mentees can express their appreciation verbally; in writing (e.g., small note of appreciation); by giving their mentor a treat, and through actions (e.g., completing an assigned task).

In appreciation of my mentees' support, I have showed support to her other initiatives as and when I could. — Ms Lebogang Ramalepe, UJ

I made time to spent with my mentor, took her out, and expressed my appreciation of her support. — Ms Zinhle Sokhela, research manager, Wits University

Growth-oriented

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.

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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).

Build 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 it to others (Voytko, 2018). The development of mentorship skills involves among others, development of mentor-mentee attributes needed for effective mentor-mentee relationship. Despite mentoring being a highly effective transformational and developmental

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tool for shaping and sustaining career progression in academia for African women, it may fail if mentors and mentees do not have the required skills. This implies that they may not be able to sustain the mentorship relationship or achieve the desired objectives. This will result in missed opportunities as working with mentees from different backgrounds and generations can provide mentors with opportunities for putting their knowledge, skills and experience into good use; networking, exchange of different perspectives, alternative approaches, experiences and new ideas, as well as insights into the latest trends or best practices (Badawy, 2017; Sorkness, Pfund, Ofili, Okuyemi & Vishwanatha, 2017). It can also enable the sharing of contacts, technologies and programmes. The other benefits of having mentorship skills have been highlighted throughout the book. It is important to consider implementing mentorship certification.

Increase diversity, equity, and inclusivity in research mentorship

Women, especially black women, are still grossly underrepresented in academia as demonstrated throughout this book (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 strengthening their 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 et al., 2013; Ginther et al., 2011). At an individual level, mentors should ensure that the stereotypes and biases that discourage African women from pursuing research careers are acknowledged and addressed (Spence, Buddenbaum, Bice, Welch & Carroll, 2018). At an institutional level, there should

be mentorship programmes that consider intersectional needs to enhance African women's 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; Kozlowskia, 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, African women can become recognised 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 African 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 women (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 (LSHTM) and the University of Limpopo (UL). She is the director of the first and newly established SAMRC/UJ PACER EMU and a professor of epidemiology and public health, FHS, UJ. She is also the MSc reproductive biology and reproductive health lecturer (epidemiology) at PAULESI, African Union.

Furthermore, she serves as a mentor for South Africa's Department of Higher Education and Training (DHET) Future Professors Programme (FPP), 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 NWU (2017-2020), acting executive director, research director and chief research manager at the HIV/AIDS/STI/TB (HAST) 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 (SSA) 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 groundbreaking Covid-19 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;

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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 (AHRI); and member of the World Congress of Epidemiology (WCE) 2024 Local Organising 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 of South Africa (ASSAF), the 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 National Science and Technology Forum (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 recognised 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 research excellence awards, recognitions, credentials and profiling institutionally, nationally and internationally. Her

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cumulative achievements, and recognition over the years have made her one of the most remarkable scientists of her time.

As this book was soft-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 is an excellent academic and brilliant researcher. Her dedication to nurturing young talent and multiplying the number of skilled women is truly inspiring. Her collaborative spirit knows no boundaries, as she extends her research collaborations beyond the borders of her country. Her impactful work continues to empower the next generation of researchers. She is an accomplished academic and a role model for us all!” Prof Olive Shisana, chief executive officer, Evidence Based Solutions

“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 FHS, 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, UJ

“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 in leaving a legacy of mentees that will carry the torch of

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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

"Prof Refilwe Phaswana-Mafuya is an inspiring academic who exerts effort and time to share her wisdom with young adults 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, UJ

"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 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, chief executive officer, NRF

"The mentorship work that Queen Mother Obahemaa Kyeredeh (OK), publicly known as Prof Refilwe Phaswana-Mafuya does through the 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 Abeadze State, Central Region of Ghana, West Africa

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“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, UNISA and younger sister to author**

“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 overload 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 inspire generations to come.” **Dr Kyeremeh Atuahene, Director General, GAC**

“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 inspires 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,

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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, FHS, UJ

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