



**UNIVERSITY of the
WESTERN CAPE**

**Structural Dynamics of Leadership in Current Intra-African Higher
Education Collaborative Research Teams: The Case of Selected South African
Research-based Universities**

by
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A thesis submitted in partial fulfilment of the requirements for the degree of

**UNIVERSITY of the
WESTERN CAPE**
DOCTOR OF PHILOSOPHY
in
The Institute for Post-School Studies
at the
UNIVERSITY OF THE WESTERN CAPE

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April 2023

DECLARATION

I hereby declare that this thesis, submitted for a Doctorate in the Institute for Post School Studies at the University of the Western Cape, Belville, South Africa, is my own independent work, and has not previously been submitted by me at another university or faculty.

Signature

Date: 13 April 2023



Divinia Jithoo



ACKNOWLEDGEMENTS

மாதா, பிதா, குரு, தெய்வம்

Mata, Pita, Guru, Daivam

-Mother, Father, Guru and the Divine-

I dedicate this work to my mother and father. Thank you for everything you do for me. Throughout my life, through all my challenges, you have been my pillar of strength. To my mother, thank you for all your support, guidance, and encouragement to take this journey one step at a time and keep committed until the end. To my father, thank you for always encouraging me to strive for excellence, for being my sounding board and supporting me through all the ups and downs in this journey. To my Guru, Kirith Bhai Acharya, thank you for all your dedicated prayers throughout this process. Your prayers and encouragement have helped me keep the faith that I needed to accomplish this goal. And to the Divine for the strength to complete this work, I am forever grateful.

I would also like to express my sincere gratitude to my supervisors. Thank you to Professor Patricio Langa, I am forever indebted to you for accepting me into your fold, your belief in me and unwavering support as well as the highly professional manner in which you have astutely guided me through this process. To Professor Peter Cunningham, without whom I would not have achieved this goal, thank you. Prof, from the time we began working together in 2009 to taking on this project, you have encouraged and supported me in my work and studies. Without your belief in me, I would not have considered taking on this challenge. Thank you for everything you have done and continue to do for me. To both Professor Langa and Professor Cunningham, I look forward to our continued work together.

Also, to Dr Nelson Nkhoma and Dr Patrick Swanzy from the UWC Institute for Post-School Studies, thank you both for all your assistance in navigating the administration related to this project. In addition, your guidance and mentoring in developing my proposal is appreciated.

To my husband, Yashvir, thank you for all the unconditional love and support. Your sacrifice, patience and encouragement have helped me to achieve this goal. With you, Champ and Joey as my study buddies every day, the support of our little family has helped me achieve this goal. This thesis is dedicated to the three of you as well.

To my siblings, Piasha, Arushka, Hooben and Sheni, thank you for your support and patience. I know I have missed many important family milestones, but your support and encouragement have motivated me to complete this task.

To my employer, the Durban University of Technology, thank you for the support in granting me space and time away from my duties to focus on this project. Dr Lavern Samuels, your encouragement to press on amidst the pressures and the leeway you have afforded me to ensure that I have time to focus hereon, is greatly appreciated.

I would also like to thank my colleagues and friends. Firstly, Vinay Rajah, you have been my biggest cheerleader for this degree. Our conversations have inspired me to keep at it and achieve my goal. To Huba Boshoff, thank you for coming in and taking the work pressure off when I needed it the most, I am grateful to both of you. Jade Bailey, Claire Raga and Toheira Bagus, thank you for the care packages, check-ins, and motivation. And finally, to Dr Savo Heleta, thank you for allowing me to talk to you at every stage of this process at length. Your advice and support are always highly appreciated.

Also, they say that pursuing a PhD is a lonely journey. My online social media network of PhD candidates has helped at every stage. Thank you to @TheScholarlyDiaries (Dr Cindy Pham), @Brittneyxedu, @Oxpat, @nafisa_insan and @PhDKate for sharing your stories and advice. Whenever I had doubts and faced challenges, you helped me through.

And finally, to my research participants, for your time and assistance, I thank you.

ABSTRACT

The study is situated in the field of higher education Internationalisation research. More specifically, the lens is on the structural dynamics of leading IRC within the borders of the African continent. Issues such as research team structure and leadership are explored.

To overcome the complexities of executing research while grappling with contextual challenges, the research includes the modified snowball sampling method, Referral Sampling. Making use of an interpretivist paradigm and a mixed methods approach, data was obtained via online semi-structured interviews with South African research-intensive university representatives and collaborative research team PI's. Data collected was analysed against internationalisation concepts and leadership theory.

Literature covering IRC concludes that research collaboration between South Africa and institutions in other African countries is nominal. The data in the study also found minimal engagement between South Africa and the rest of Africa.

Furthermore, data has shown that institutional leadership roles of specific departments in leading IRC are not clear. There is no clear division of the roles played by the international and research offices at South African research-intensive universities, which contribute to the facilitation of partnerships and collaborative activities.

In addition, the data showed that a combination of leadership frameworks are evident in the way multi-national collaborative research teams within the context of Africa are led, confirming that there is no one size fits all model of leadership for successful intra-Africa academic collaborative research. In fact, the data exhibits combined traditional and shared leadership frameworks contributing to the leader role. Through an exploration of the leadership structures, roles and systems, the study has aimed to provide an understanding of the role of leadership of IRC within the African context.

KEY TERMS/WORDS

Academic Research, Africanisation, collaborative research, higher education, internationalisation of higher education, internationalisation of research, intra-Africa, leadership, research universities, the leader role.



Table of Contents

DECLARATION	i
ACKNOWLEDGEMENTS	ii
ABSTRACT	iv
KEY TERMS/WORDS	v
LIST OF TABLES	x
LIST OF FIGURES	xii
ACRONYMS/ABBREVIATIONS	xiv
CHAPTER 1: INTRODUCTION	1
1.1 Problem Statement	1
1.2 Background and Context	3
1.3 Research Question	6
1.4 Research Objective	6
1.5 Rationale	7
1.6 Study Parameters and Limitations	9
1.7 Structure of the Thesis	10
1.8 Concluding Remarks	11
CHAPTER 2: LITERATURE REVIEW	12
2.1 Introduction	12
PART 1: A CONCEPTUAL FRAMEWORK OF INTRA-AFRICAN COLLABORATIVE ACADEMIC RESEARCH WITHIN CONTEMPORARY INTERNATIONALISATION DISCOURSE	13
2.2 Research Collaboration	14
2.3 Research in Africa: Participation and Contribution	16
2.4 International Research Collaboration (IRC)	26
2.4.1 Internationalisation of Research and International Research Collaboration	26
2.4.2 The Concept and Benefit of International Research Collaboration	29
2.4.3 International Research Collaboration in Africa	39
2.4.4 Multi-National Collaborative Research Teams	44
2.5 Intra-Africa Research Collaboration	46
2.5.1 The South African Context	48
2.5.2 The Context of the African Continent	57
2.5.3 The Global Research Core, the Periphery and Collaboration	70
2.5.4 Governing Strategies for International Research Collaboration in Africa	75
2.5.5 Funding for Research and IRC in Africa	80
2.5.6 An Overview of Research Networks and Teams in Africa	89

PART 2: THEORISING THE LEADER ROLE IN INTRA-AFRICAN ACADEMIC COLLABORATIVE RESEARCH TEAMS	98
2.6 The Knowledge Base of Leadership Frameworks	98
2.6.1 Leadership in the African Context	101
2.6.2 Shared Leadership	106
2.6.3 Leadership of Academic Research Collaboration	107
2.6.4 Leading Multi-National and Culturally Diverse Research Teams	109
2.7 The Role as a Concept	112
2.7.1 The Leadership Role	114
2.8 Key Influences on Leadership in Africa	116
2.8.1 Influence of Governance on IRC in Africa	119
2.9 Chapter Summary	125
CHAPTER 3: RESEARCH METHODOLOGY	127
3.1 Introduction	127
3.1.1 Metatheory/School of Thought	127
3.1.2 The Interpretivist Approach of Social Constructionism	129
3.2 Research Design	130
3.2.1 Research Type and Approach	133
3.2.2 Target Population	134
3.2.3 Sampling Process and Techniques	136
3.2.4 Data Instruments and Collection Procedure	177
3.2.5 Data Analysis and Presentation	183
3.3 Parameters of this Research and Possible Limitations to the Study	185
3.4 Ethical Considerations and Confidentiality	185
3.5 Chapter Summary	186
CHAPTER 4: DISCUSSION AND ANALYSIS	187
4.1 Introduction	187
4.2 Theme 1: the Nature and Extent of intra-African Collaborative Academic Research Teams	189
4.2.1 Sub Theme 1: The Extent of intra-African Academic Research Collaboration across the African Continent	189
4.2.2 Sub Theme 2: The Nature of intra-African Collaborative Academic Research	193
4.2.3 Sub Theme 3: Types of Teams and Team Structures	202
4.3 Theme 2: Perception of intra-Africa Academic Collaboration as a Concept	206
4.3.1 Sub Theme 1: Perception of intra-African Collaboration	206
4.3.2 Sub Theme 2: Rationale for intra-African Collaborative Academic Research	210
4.4 Theme 3: The Perceived Benefits, Challenges and Facilitators of intra-African Collaborative Academic Research	216
4.4.1 Sub Theme 1: Perceived Benefits	217
4.4.2 Sub Theme 2: Perceived Challenges	224
4.4.2.1 Funding and Administration Challenges	225
4.4.2.2 Infrastructural Challenges	229
4.4.2.3 Challenges Experienced as a Result of the COVID-19 Pandemic	230
4.4.2.4 Capacity and Competence Challenges	232
4.4.2.5 Political/Legislative Barriers	235
4.4.2.6 Language and Cultural Barriers	238

4.4.2.7	Lack of Opportunities to Publish	240
4.4.3	Sub Theme 3: Perceived Challenge Mitigation or Facilitators	241
4.5	Theme 4: Funding Academic Research Collaboration on the African Continent	250
4.6	Theme 5: Structural Leadership of intra-African Collaborative Academic Research Teams	252
4.6.1	Sub Theme 1: Institutional Leadership of intra-Africa Academic Collaborative Research Teams	253
4.6.1.1	The Role of University Senior Management or Leadership	253
4.6.1.2	The Role of Research and International Offices	255
4.6.1.3	The Role of Research Centres	258
4.6.1.4	The Role of Faculties	260
4.6.1.5	The Role of Individual Researchers and Academic Staff	264
4.6.2	Sub Theme: Influences on the Perception of the Leader Role	266
4.6.3	Sub Theme 3: The Influence of Funding Agencies on Leadership Strategies and Approaches	285
4.7	Theme 6: Leading intra-African Collaborative Academic Research Teams	290
4.7.1	Sub Theme 1: Perceptions of the Leader Role of intra-African Collaborative Academic Research Teams	291
4.7.2	Sub Theme 2: Leadership Type and Activities	307
4.7.2.1	The Emergence or Appointment of the Team Leader	307
4.7.2.2	Leadership Nature and Methods	310
4.7.2.3	Shared Leadership Approaches	318
4.7.2.4	Servant Leadership	325
4.7.3	Sub-Theme 3: Collaboration and Project Management	328
4.7.3.1	Project Management Tools	331
4.7.4	Sub Theme 4: Leading Cultural Diversity	333
4.8	Chapter Summary	340
CHAPTER 5: SUMMARY AND INSIGHTS FOR FUTURE RESEARCH		341
5.1	Summary	341
5.2	Conclusion	342
5.2.1	The Nature and Extent of intra-African Collaborative Academic Research	344
5.2.2	Describing the intra-African Collaborative Academic Research Teams, Conceptually	345
5.2.3	Discussion of the Benefits, Facilitators and Challenges for Research Leaders in Leading intra-African Collaborative Academic Research Teams	346
5.2.4	Opportunities for Multi-National Research Collaboration in Africa	349
5.2.5	Leaders Perceptions of the Leader Role in intra-African Collaborative Research Teams	350
5.3	Suggestions for Future Research	352
5.3.1	The Nature and Extent of intra-African Collaborative Academic Research Teams	352
5.3.2	intra-African Collaborative Academic Research in the context of Internationalisation	353
5.3.3	Benefits, Challenges and Facilitators of intra-African Collaborative Academic Research	353
5.3.4	Opportunities for intra-African Collaborative Academic Teams	354
5.3.5	The Perception of the Leader Role	355
5.4	Final Comments	356
BIBLIOGRAPHY		358
Appendix A: Interview Schedule: Directors of International Offices or Research Offices as custodians of information on Intra-Africa research.		398

Appendix B: Semi Structured Interview: The Structural Dynamics of Intra-Africa Academic Collaborative Research Teams	403
Appendix C: Letters of Invitation to Participate	407
Appendix D: Participant Suitability Test	409
Appendix E: Participant Information Sheet and Consent Form	410
Appendix F: Research Ethics Approval	412
Appendix G: Proof of Editing	413



LIST OF TABLES

Table 2.1: Research Output and Citations in Africa	21
Table 2.2: Country Shares of Africa's Publication Production: 2005 – 2010 and 2011 - 2015	42
Table 2.3: Pattern of Collaborations between Academic and Scientists in Africa	52
Table 2.4: South Africa's African Country Collaborations	55
Table 2.5: Funding Organisations for Research on the African Continent between 2009 and 2017.	87
Table 2.6: Most Frequent Funding Agencies for Research Collaboration with Africa	88
Table 2.7: Countries frequently collaborating with South African Institutions	90
Table 2.8: South African Collaboration Patterns between 1975 – 1978 and 2005 – 2008	91
Table 2.9: Africa Agenda 2063 Goals compared to the SDGs	122
Table 3.1: Research Hierarchy according to Dervin, Pickard and Mouton	128
Table 3.2: South African University Typological List	138
Table 3.3: 11 Research Intensive University Codes	139
Table 3.4: Research Ethics Application Procedures	140
Table 3.5: Results from Communication with International and Research Offices	143
Table 3.6: HOD Communication and Results at University Light Blue	145
Table 3.7: HOD Communication and Results at University Green	149
Table 3.8: HOD communication and Results at University Yellow	154
Table 3.9: HOD Communication and Results at University Orange	156
Table 3.10 Hod communication and results at University Red	157
Table 3.11: HOD Communication and Results at University Pink	160
Table 3.12: HOD Communication and Results at University Brown	162
Table 3.13: HOD Communication and Results at University Grey	163
Table 3.14: HOD Communication and Results at University Purple	165
Table 3.15: HOD communication and results at University White	168
Table 3.16: HOD Communication and Results at University Blue	169
Table 3.17: Results from Referral Sampling	174

Table 3.18: Summary of Sampling Process	174
Table 3.19: Intra-Africa Academic Collaborative Research Team Leader Codes	177
Table 3.20: Text Based vs Videoconferencing for Online Data Collection	182
Table 4.1: Benefits of intra-Africa Research Collaboration	224
Table 4.2: Perceived Roles of International and Research Office Directors	255



LIST OF FIGURES

Figure 2.1: Researchers in R&D per million, 2015	17
Figure 2.2: The World Scaled by Authors from each Country in Web of Science	19
Figure 2.3: Summary of High-performing Collaborative Research Teams	45
Figure 2.4: South African Partnerships by Region: 2000 - 2005	49
Figure 2.5: Most Frequent Intercontinental Research Collaborations for Six Key African Research Economies	51
Figure 2.6: Trends of Single Country (South Africa) and Multiple-country Authored Papers	54
Figure 2.7: VOSViewer Intra-continental Collaborations in 2011	56
Figure 2.8: Institutional Affiliations of Lancet Commission Authors	62
Figure 2.9: Africa Publication Collaboration Profiles (2005 – 2015)	66
Figure 2.11: Library and Information Science Journals across the Globe	69
Figure 2.12: Spending on R&D as Share of GDP, 2014	81
Figure 2.13: Percentage of GDP Spending on R&D	82
Figure 2.14: Co-authorship Trends of African Countries between 2008 and 2019	89
Figure 2.15: Strength and Consistency of Research Networks in Africa	93
Figure 2.16: Collaboration Networks of 13 African Countries with the most Scientific Publications from 2007 - 2011	95
Figure 2.17: The associations that make up the Implicit Leadership Theory	101
Figure 2.18: Maslow's Hierarchy of Needs	104
Figure 2.19: Collaborative Leadership Framework	106
Figure 2.20: Leadership for Multi-cultural Teams	111
Figure 3.1: The Research Design Process	132
Figure 3.2: The Sampling Process	137
Figure 3.3: Cross-border collaboration within Africa for intra-Africa academic collaborative research suitability	141
Figure 4.1: Number of Intra-African Collaborative Academic Research Projects	190
Figure 4.2: Type of Collaboration at South African Higher Education institutions	191
Figure 4.3: Percentage of Publications of each Country with at least two African Countries.	192

Figure 4.4: Academic Fields of Research	193
Figure 4.5: Countries Collaborating with South African Research-Intensive Universities	194
Figure 4.6: Areas of Collaboration and Interdisciplinary Projects	201
Figure 4.7: Team Structure 1	202
Figure 4.8: Team Structure 2	202
Figure 4.9: Team Structure 3	203
Figure 4.10: Team Structure 4	204
Figure 4.11 Team Structure 5	205
Figure 4.12: Team Structure 6	205
Figure 4.12: Benefits of intra-African Research Collaboration	217
Figure 4.13: Challenges faced by intra-Africa Academic Collaborative Research Team Leaders	225
Figure 4.14: Main Challenges Reported by South	225
Figure 4.15: Funding for the intra-African Collaborative Academic Research Teams	251
Figure 4.16: Funding Organisations Funding Research Collaboration Occurring in Africa	252
Figure 4.17: The Role of Institutional Senior Management in intra-Africa Academic Collaborative Research Teams	254
Figure 4.18: The Role of Research Centres in intra-African Collaborative Academic Research Teams	258
Figure 4.19: The Role of Faculties in intra-African Collaborative Academic Research Teams	261
Figure 4.20: The Role of Individual Researchers and Academic in intra-Africa Academic Collaborative Research Teams	265

ACRONYMS/ABBREVIATIONS



AU	African Union
AAU	African Association of Universities
AAS	African Academy of Sciences
ACE	Africa Centres of Excellence
AIR	Average Impact Rank
ANIE	African Network for International Education
ARUA	African Research Universities Alliance
ARU	Australian Research Council
BCC	Benguela Current Commission
BLM	Black Lives Matter
BRICS	Brazil, Russia, India, China and South Africa
CARTA	Consortium for Advanced Research Training in Africa
CGIAR	Consortium of International Agricultural Research Centres
CHE	Council on Higher Education
CMC	Computer Mediated Communications
COHRED	Council on Health Research for Development
COP	Conference of the Parties
DAAD	German Academic Exchange Service
DFID	Department for International Development
DHET	Department of Higher Education and Training
DHA	Department of Home Affairs
DIRCO	Department of International Relations and Cooperation

DOAJ	Directory of Open Access Journals
DRC	Democratic Republic of Congo
DSI	Department of Science and Innovation
DVC	Deputy Vice-Chancellor
EQ	Emotional Quotation
EU	European Union
EXCO	Executive Committee
FAO	Fisheries and Aquaculture Organisation
4IR	Fourth Industrial Revolution
GDP	Gross Domestic Product
HIC	High Income Country
HOD	Head of Department
IAEA	International Atomic Energy Agency
IAU	International Association of Universities
IDRC	International Development Research Centre
IFS	International Foundation of Science
IEASA	International Education Association of South Africa
IOP	Institutional Operating Plan
IRC	International Research Collaboration
LIS	Library and Information Science
LGBTQI+	Lesbian, Gay, Bisexual, Transgender, and Intersex
LMIC	Low-and-Middle Income Countries
LPMC	Local Project Management Committee

MANCO	Management Council
McF	Mastercard Foundation
MF	Mellon Foundation
MDG	Millennium Development Goals
MRCI	Mobilising Regional Capacities Initiative
MS	Microsoft
NPF	National Policy Framework
NIH	National Institutes of Health
NIMH	National Institute for Mental Health
NDP	National Development Plan
NIHSS	National Institute for Humanities and Social Sciences
NFF	New Funding Formula
NGO	Non-Governmental Organisations
NORAD	Norwegian Agency for Development Corporation
NPF	National Policy Framework for Internationalisation of Higher Education in South Africa
NRF	National Research Foundation
OECD	Organisation for Economic Co-operation and Development
PEER	Partnerships for Enhanced Engagement in Research
PhD	Doctor of Philosophy
PI	Primary Investigator
PMC	Project Management Committee
PMI	President's Malaria Initiative
POPIA	Protection of Personal Information Act

RCUK	Research Councils of the United Kingdom
RDP	Reconstruction and Development Programme
RE	Research Excellence
RFI	Research Fairness Index
RRING	Responsible Research and Innovation Network Globally
R&D	Research and Development
SA	South Africa
SADC	South African Development Community
SAMRC	South African Medical Research Council
SAREC	South African Department for Research Cooperation
SARUA	Southern African Regional Universities Association
SAQA	South African Qualifications Authority
SGCI	African Science Granting Councils
SDG	Sustainable Development Goals
SIDA	Swedish International Development Agency
S&T	Science and Technology
STEM	Science, Technology, Engineering and Mathematics
STI	Science, Technology and Innovation
SWIOFISH	Southwest Indian Ocean Fisheries
TVET	Technical and Vocational Education and Training
THE	Time Higher Education
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organisation

UK	United Kingdom
USA	United States of America
USAID	the United States Agency for International Development
VC	Vice-Chancellor
WHO	World Health Organisation
WoS	Web of Science
WIOMSA	Western Indian Ocean Marine Science Association
WB	World Bank



CHAPTER 1: INTRODUCTION

The introductory chapter of the study provides the context of the research. The section begins with the problem related to intra-African academic research collaboration within the South African context. The contextual background follows, unpacking research and the leadership thereof within the context of the historical development of higher education in Africa. The research question and objectives are introduced, followed by the rationale, highlighting the need for the research. The study parameters are then explained and finally, the structure of the thesis is set out.

1.1 Problem Statement

This study is guided by the premise that intra-African academic collaborative research between South African higher education institutions and other African institutions, is minimal. This is expanded upon within this thesis. Given the history of the African region, the ways in which research is conducted has been informed mainly by the development of higher education in the Western Bloc, and the colonial structures that have influenced higher education in Africa. Van Zyl and Dalglish (2009: 43) argue that since coming into contact with Africa, the Western bloc has judged the continent by non-indigenous standards leading to a range of (mis)conceptions about why Africa has not achieved its full potential.

As a result, there is a need for a 'new' format for how research is conducted, with Kariuki (2016) arguing that there is a need to move towards collaborative research. In addition, there is a need for the pooling of human resources within the continent to provide the collective capacity.

Abebe, Tekleab and Lado (2020: 146) indicate that until recently, there has been limited research on leadership in Africa, and more specifically academic leadership is still in its infancy. Research of International Research Collaboration (IRC) has focused mainly on dynamics resulting from multi-cultural settings. As a result, there is a lack of an intelligible understanding of the leader role in terms of leading IRC between countries within the borders of the African continent. This is despite the recognition that Research and

Development (R&D) are essential to capacity development in the African region (Kotecha, Walwyn and Pinto, 2011: 11). Scholars such as Hertel, Geister and Konradt (2005), Kozma and Kalero-Medina (2014), Reichie, Bird and Mendenhall (2016), Pinto (2018) and Tanneau and McLoughlin (2021) have argued that the nature or multi-national and cross-cultural teams requires specialised leadership.

In the context of Africa, Letsekha (2022: 74) argues that higher education continues to grapple with the form and purpose of higher education following the colonial era. He (2022: 77) further argues that the concepts of decoloniality and Africanisation may be appropriate instruments to achieving the purpose and form of higher education in Africa.

Furthermore, Globalisation has had a sustainable impact on higher education. Popescu (2015: 412) states that higher education institutions throughout the world are undergoing considerable functional and structural changes to meet the needs of the global and knowledge-based economy. The resulting National Policy Framework (NPF) for Internationalisation of higher education in South Africa has placed further emphasis on internationalisation within the higher education sector in South Africa.

Consequently, the research problem can be stated as follows: Intra-African academic collaborative research between South African higher education institutions and academic institutions in other countries in the continent is minimal. Compared to collaborations with institutions external to Africa, especially those within the global North, the scales are unequal. To reduce the gap, the leadership dynamics and structures that influence research leadership must be explored in order to enhance knowledge on how to increase intra-continental collaborations.

It is against this background that the research addresses the nuanced ways in which leadership of collaborative research and the leader role is conceptualized within the context of higher education internationalisation structures in South Africa. Issues in African higher education such as globalisation, Africanisation and internationalisation are explored to understand the ways in which the leader role in intra-African academic

collaborative research is influenced by the institutional. national, regional and global structures within which they work.

1.2 Background and Context

The following section contextualises both the research, and leadership of research, within Africa. In so doing, the historical development of higher education in Africa and South Africa is outlined. Following the historical context, contemporary higher education in Africa is discussed with a specific focus on the South African structure. This section also discusses the importance of academic research as an answer to the current realities of globalisation, Africanisation and internationalisation. The concluding aspect of this section includes the leadership of research and the reasons that it is necessary within the context of higher education in Africa.

Assie'-Lumumba (2007) in a working paper series entitled *Higher Education in Africa, Crises, Reforms and Transformation* discusses the development of higher education in Africa. He (2007: 25) argues that although contemporary higher education institutions in Africa originated from the colonial or neo-colonial framework, the concept of higher education was not foreign to Africa before the period of colonisation. However, the colonisation process created the types of institutions in post-colonial Africa. Although not unique, the provision of higher education in South Africa under colonial and apartheid rule, reproduced itself along racial and ethnic lines, and in line with white, political, economic and cultural domination, as reported by Reddy (2004:9) in the Council of Higher Education's (CHE) *Higher Education and Social Transformation*.

Exploring the extent of higher education in Africa, Mba (2017) estimated 1650 higher institutions within the continent in the article *Challenges and Prospects of Africa's Higher Education*. Despite this vast number, he (2017) attributes the weak performance of African higher education institutions to the economic downturn in African countries. He (2017) also specifies the implementation of structural adjustment programmes, and the brain drain that followed the latter part of the 1970s. In South Africa, the post 1994 and post-apartheid government set out to reconstruct the entire South African social system.

Additionally, the aim was to reintegrate into the international community while taking a leading role on the African continent, as explained by Reddy (2004: 34) in their account of South Africa's higher education history. The Education White Paper of 1997 outlined the general purposes that higher education was to fulfil, acting as support to the process of societal transformation as outlined in the Reconstruction and Development Programme (RDP) (Education White Paper 3).

In the news article *South Africa's Universities and Colleges*, that describes the higher education system in South Africa, Bevan (2019) differentiates between the public and private sector in education. The public higher education sector in South Africa is divided into tertiary institutions and Technical and Vocational Education and Training (TVET) colleges. The tertiary institutions include Universities of Technology, Traditional and Comprehensive Universities. These categories amount collectively to 26 universities within the public sector. Webbstock (2016: 6) in her review of South Africa's higher education system during two decades of democracy, infers that the South African higher education sector in its current form is different from the fragmented, insular, elite and uneven apartheid scenario. Nevertheless, the apartheid legacy continues to shape and influence the sector in less desirable ways, with the stresses exerted by the challenging socio-economic context having a far-reaching effect on the quality of the system (Webbstock, 2016: 6).

In their work *A Philosophical Outlook on Africa's Higher Education in the Twenty-First Century: Challenges and Prospects*, Daniel, Robert and Samuel (2019) respond to challenges faced in Africa. They (2019: 1) assert that research collaboration is one of the aspects of higher education that will aid universities to contribute to the comprehensive development of the continent. Vessuri's (2008: 119) work on *The Role of Research in Higher Education: Implications and Challenges for an Active Contribution to Human and Social Development* further argues that higher education and research are focused, with renewed enthusiasm, on finding answers to world development, noting the establishment of millennium centres and science academies in Africa and in other parts of the world.

However, Lamberts (2013) in her Huffington Post article *Two Heads are Better than One: The Importance of Collaboration in Research* discusses the digital divide and contends that research is becoming increasingly difficult for researchers to conduct on their own. Lamberts (2013) further highlights the new realities of scientific research, and argues that because of increasing new developments of new technologies, scientific research collaboration is necessary. In Africa, Kankuzi (2015) through a blog article *The Challenges of Doing Research in Africa* states that conducting research in Africa proves to be difficult in African universities. He (2015) notes different challenges specific to the African context. including the lack of funding to present research at international conferences, consequently leading low participation in academic research from the continent. One assertion is that “African science is dominated by three countries, namely Egypt, Nigeria and South Africa, with the three countries collectively accounting for 80% of the total output of scientific papers, as concluded by Kotecha, Walwyn and Pinto (2011: 5) in their Southern African Regional Universities Association (SARUA) article, *Deepening Research Capacity and Collaboration across Universities in SADC*.

Despite the low participation, Globalisation, Africanisation, and Internationalisation all have an impact on higher education in Africa, as argued by Mwesigye and Muhangi, (2015) in their paper on *Globalisation and Higher Education in Africa*. “Globalisation has rapidly developed into a complex system of circuits of exchange, interactive dynamics, and structures that collectively interact at high levels to produce rapid change affecting most aspects of human life” (Mwesigye and Muhangi, 2015: 97). The consequence is that all countries have unique research systems and cultures. Thus, the research leadership required in these circumstances will be unique. However, as pointed out by Mouton and Blackenberg (2018: 22), collaboration between South African institutions and institutions in countries throughout the rest of Africa is minimal. They (2018: 22) have also highlighted that collaboration with institutions outside of the African continent is the prominent type of collaboration occurring in South Africa.

In relation to leadership, Antes, Mart and Du Bois (2016: 408) in their interview study around leadership and management for research have revealed that researchers are not

adequately prepared for leadership roles within research. However, in the survey conducted by these same researchers, leadership and management are considered to be essential for effective research (Antes, Mart and Du Bois, 2016: 408).

Similarly, Ball (2007: 449) in his article *Leadership of Academics in Research*, describes leadership as a key issue for universities and notes that it is increasingly regarded as beneficial for improved performance across all activities, including research. Gigliotti (2016) in his article *Leader as performer: leader as human: A discursive and retrospective construction of crisis leadership* supports the importance of leadership. He (2016: 190) discusses the growing number of efforts to strengthen the capacity of leaders in higher education, noting though that the existing scholarly literature in higher education leadership capacity building is limited. The position adopted for leadership within research is that context has been critical to leadership in universities and that it is likely to shape the leadership of university academics in research (Ball, 2007: 449). Ball (2007: 455) further notes that certain leadership theories emphasise that context is one of the key elements, with leadership being influenced by the impact of prevailing circumstances both within the organisation and within other organisations.

1.3 Research Question

What does leadership of intra-African academic collaborative research entail in South African research-intensive ¹universities while working within institutional, national regional, continental and global structures between 2019 and 2021?

1.4 Research Objective

The following are the study's objectives:

- 1.1.1 To describe intra-African academic collaborative research teams conceptually;
- 1.1.2 To outline the nature and extent of intra-African academic collaborative research teams within the context of South African research-intensive institutions;

¹ The term research-based universities used in the title is interchangeable with the term research-intensive universities used throughout the thesis.

- 1.1.3 To discuss the benefits, facilitators and challenges for research leaders in leading intra-African academic collaborative research teams;
- 1.1.4 To identify the opportunities for multi-national research collaboration within the African continent;
- 1.1.5 To analyse the leader's concept of the leadership role when leading intra-African academic collaborative research teams.

1.5 Rationale

Primarily, the study aids in addressing the gap in empirical research on internationalisation of academic research that occurs within the African continent. Literature found on Intra-continental cross border academic collaboration has mainly occurred through bibliometric studies on research output (Kozma and Calero-Medina, 2019). Specifically, the study addresses IRC within Africa and the leadership thereof. Akanji, Mordi, Ituma, Adisa and Ajonbadi (2019: 2) argue that the macro context shapes the organisational culture which influences the leadership of IRC. Furthermore, the position adopted for leadership within research is that context has been critical to leadership in universities and that this is likely to shape the leadership of university academics in research (Ball, 2007: 455). Consequently, this research focuses on the institutional, national, regional and global leadership structures influencing intra-Africa cross border research collaboration in South African research-intensive universities.

Moreover, focusing on Africa, Karluki (2016) notes that collaboration within Africa is rare, despite the fact that most African countries face similar health and developmental challenges. Research in Africa and in particular, funding for research within Africa, is focused on primary and secondary education, rather than tertiary education with research aims (Owusu, Kalipeni, Awortwi and Kiiru, 2015: 227). In research that does occur in Africa, Karluki (2016) notes that these researchers still tend to work in silos, wasting limited human resources and infrastructure. The literature presented has highlighted the need for further research into the nature and extent of intra-Africa academic collaborative research.

Secondly, research on the effectiveness of multi-cultural teams usually compares the performance of culturally diverse groups with that of culturally homogenous groups. Maznevski and Chudoba (2000: 476) have concluded that multi-culturally diverse groups offer a high potential for performance on complex tasks but may fail to reach that potential. Research on leading multi-national and multi-cultural collaborative research in Africa is scarce. Thus, this study aims to bridge the gap in research that addresses IRC within the context of Africa and the leadership thereof.

In addition, as leadership of research is recognised as a necessity within higher education, academic staff at universities have noted that they are not adequately prepared for the leadership role Maznevski and Chudoba (2000). However, leadership and management are considered to be essential for effective research (Antes, Mart and Du Bois, 2016: 416). Furthermore, Ball (2007: 455) has argued that leadership is essential for universities and beneficial to performance across all activities, including research. In this regard, Frantz, Marais and Du Plessis (2022: 3) in *Exploring the Voices of Academics on an Academic Leadership Programme in Higher Education*, have reiterated that there is a need for further research on leadership development. They (2022: 3) further highlight how leadership links with the organisational outcomes in higher education. In this regard, the concept of the leadership role according to team leaders of these teams is explored.

Finally, research on leadership within the context of Africa is scant. Pillay, Subban and Govender (2013: 105) argue that leadership in Africa should be understood within its historical and cultural context. In connection therewith, due to Western theories mainly being implemented in the developing world, the nature of leadership in Africa is yet to be understood (Abebe, Lado and Tekleab, 2020: 148). In relation to these arguments, there is thus further rationale for studies exploring the influence of institutional, national, regional and global structures on the leader role in intra-Africa academic collaborative research teams.

1.6 Study Parameters and Limitations

In order to achieve the objectives of this research in a reasonable timeframe, the public higher education institutions in South Africa which are research-intensive in nature, are included in the study. Here I aimed to determine which of the 11 research intensive universities participate in intra-African research through their collaborative research projects by means of a series of questions (Appendix A). However, after realising that there is a lack of institutional knowledge and record keeping in terms of international research collaboration, I had to add an extra step in the sampling process of this research. These additions are detailed in Chapter 3 of the research report. With the data received from these steps I limited the sample to the research teams that emerged from the research-intensive South African higher education institutions.

Following this phase, research leaders of the teams which emerged, were then sampled to participate in an in-depth semi-structured interview schedule (Appendix B) with the objective of exploring the nature of leadership within each team.

Limitations must be considered. Firstly, as mentioned earlier, there is a lack of institutional knowledge on the nature and extent of intra-African academic research collaborations within the South African research-intensive types of institutions. Further to lack of institutional knowledge, there was my presupposition based on experience of working in higher education, that this information would be stored in either the international, or research office at each institution. During the first phase of the sampling, I found out that the information on the nature and extent of intra-African academic research and the details of the research team leaders was stored in different departments at each institution.

As a result, I had to add the step of going through Heads of Departments (HODs) to the sampling process. The additional sampling activities are detailed in Chapter 3 of the research report. However, the additional activities were not without limitations. Even though emails were sent to each departmental HOD at all 11 South African research-intensive universities, with follow up emails, the limited responses to the enquiry was a limitation of the research. The result is that the study may not report on the full nature and

extent of intra-African academic research collaboration. Acknowledging this limitation also leads to a further limitation reported in the literature in that there is a lack of research collaboration with institutions in the rest of Africa. Chapter 4 of the research details the survey (Appendix A) results which confirm the low rate of research collaboration reported in earlier years. Current SciVal and Scopus data detailed in Chapter 2 also confirms this conclusion. The low rate of research collaboration between South African academics and academics in the rest of Africa has resulted in limited research teams emerging from the sampling processes, adding another limitation to this study.

Finally, the commencement of the Protection of Personal Information Act (POPIA) in South Africa in July of 2021, and the unique institutional interpretations of the impact of POPIA on research within higher education affects snowball sampling which was included in the research design. As the research-intensive university ethics and gatekeeping processes have interpreted POPIA as a limitation to snowball sampling, a modified version of snowball sampling, known as referral sampling (Cunningham, 2021) has been used instead. Referral sampling is also detailed in Chapter 3 of this research.

1.7 Structure of the Thesis

The completed study report is presented as a thesis composed of various chapters. The first chapter outlines the conceptual framework underpinning intra-African academic collaborative research team leader understanding of the leadership role and what it entails. In order to do so, the chapter outlines the context of the study by discussing the internationalisation of higher education and specifically academic research as a concept. Following internationalisation of academic research discussion, the concept of leadership is discussed together with leadership theory. The chapter concluded with contextualising leadership and the leadership role in the internationalisation of higher education and global trends. The chapter also includes the problem statement that informs the research as well as the research question, and the aims and objectives that drive the process of the research project.

The second chapter which serves as the literature review of the study, begins with a conceptual framework of intra-African academic collaborative research within the context

of higher education internationalisation in South Africa. The contextual concept framework discussion is then followed by theories of leadership in order for the reader to understand the landscape of the literature on this topic. Also, outlined and defined are the concepts of globalisation, Africanisation and internationalisation along with other relevant political, economic and social factors. The latter are seen as the structural influences on leadership within the African region. A number of guiding policy and legislative instruments that aim to regulate and influence higher education, research collaboration and leadership are also outlined in this chapter.

Chapter three serves as the research methodology chapter and explains the methodology adopted. The school of thought, or metatheory, that underpins the exploration of leadership role within the context of higher education research in Africa is considered, along with the design and approach of the research. As part of the method, the sampling methodology for the target population is explained together with the data collection instrument and data analysis methods used.

The fourth chapter of the thesis focuses on the presentation of the data collected from the interview schedules posed against leadership and role theory. The fifth and final chapter includes reflective concluding insights and suggestions for further research and a way forward.

1.8 Concluding Remarks

The introductory chapter of the study has aimed to contextualise the concept of leadership of intra-African collaborative academic research within the broader context of higher education internationalisation. I have presented the research question and objectives. In addition, I have presented the relevance and rationale of the study highlighting the need for an increase in research collaboration within the borders of the African continent and the barriers to IRC in Africa, contributing to the scholarship of leadership of these types of teams.

Furthermore, the parameters and limitations of the study have been outlined, setting the scene for the research target population and sampling. The presentation of these has been outlined, as well as sketching the content for each chapter and the flow of the thesis.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

Focusing on the research-intensive universities in South Africa, this study explores the structural dynamics of intra-African academic collaborative research teams while focusing on leadership and more specifically, how the leadership role is perceived by the leaders of these teams. The literature review of this study shows how this research is located in the works of others by covering secondary literature written about the different dimensions that exist within the research topic and question (Labaree, 2014). This chapter will review literature which provides the conceptual and theoretical frameworks of this study by highlighting the primary concepts and theories related to this study. The main concepts of this research include IRC, intra-African cross border collaboration, leadership and the leader's role. Furthermore, structural levels of influence at institutional, national, regional, and global levels on the leader role are also reviewed. Each of these will be further unpacked below.

To understand the leader's role within the context of research collaboration between different higher education institutions located within different African countries, the literature will explore the above-mentioned pertinent themes such as IRC, leadership and cross border research collaboration within the context of Africa. The concept of international research as related to higher education will be elucidated upon from a broader global perspective before focusing on Africa and intra-continental cross border

collaboration. Further to this detail, a broad framework of higher education Internationalisation and IRC will be presented. This framework includes a presentation of the governance of research in Africa and the landscape of funding for research and cross-border research collaboration in Africa. These issues will be covered in terms of their structural influences on research and the leadership thereof.

Leadership as a concept will be discussed in relation to leading academic research, as well as leading multi-national and multi-cultural teams. Thereafter the concept of the role will be unpacked in this chapter.

And finally, to understand the leader's role, theoretical frameworks of leadership are discussed and factors influencing the leader role are outlined. As an integrated synopsis of the subject matter, the literature review will provide the framework against which the data obtained in the study will be analysed and interpreted.

PART 1: A CONCEPTUAL FRAMEWORK OF INTRA-AFRICAN COLLABORATIVE ACADEMIC RESEARCH WITHIN CONTEMPORARY INTERNATIONALISATION DISCOURSE

To provide a conceptual framework for the study's topic, the concepts that contribute to the leadership of intra-African academic collaborative research include cross border research collaboration, and internationalisation of higher education. In particular, the internationalisation of academic research contributes as a concept to intra-African academic research. To develop the conceptual framework, this section outlines the pertinent aspects of inter- and intra- continental research collaboration through the lens of research and development in Africa. These aspects are then linked to a discussion around international research collaboration within the context of internationalisation of research as an aspect of higher education. The discussion around internationalisation of research includes a discussion around the concept as a value and how this has manifested within the continent. Within these discussions, the notion of multi-national teams is unpacked in terms of cross border collaboration that is multi-cultural in nature.

These concepts are followed by an outline of intra-African research collaboration, focusing first on the South African context and existing literature that covers the nature and extent of IRC within the continent. This is then complemented by a discussion on intra-African collaboration between other countries within the continent. Within this outline, a discussion of the governance structures and funding landscape is included. Part one of this chapter concludes with a discussion around the research networks visible in Africa from the literature.

2.2 Research Collaboration

This section outlines the definitions of research collaboration found in literature. Measuring or tracking international research collaboration has traditionally been linked to authorship of research outputs. However, in the context of the global south, new ways of evaluating academic research collaboration may be necessary. In 1997, Katz and Martin (1997: 2) cited multi authorship as a basic counting unit to measure collaborative activity when the concept of research collaboration in a journal article. However, they (1997:2) also note that a holistic perspective should be adopted when evaluating collaboration, due to the limitations of co-authorship measures. Boshoff (2009) supports the drive for further clarity in an article covering South-South research collaboration in the SADC region. He (2009: 487) argues that there is no conceptual clarity as to what constitutes research collaboration and states that a clear theoretical definition is lacking. Consensus has not been reached on informal links that may include loose groupings and what constitutes a collaboration varies across institutions, fields, sectors, and countries, and very probably may change over time (Boshoff, 2009: 487). The current literature explored in this section aims to explore the extent of academic research collaboration within the continent and relies mainly on bibliometric data.

Somasundaram (2019) in his work regarding the types of research every researcher should know, implies that research collaboration is a team of individual researchers working toward achieving a common goal, with different team members being responsible

for defined areas of the research and all researchers understanding how their work contributes to the completion of the whole project. Somasundaram (2019) describes the different types of research collaboration as collaboration within the institution, research collaboration with a private company, collaboration with other institutions, research collaboration with other institutions in person, collaboration based on task expertise and IRC.

Counter to Katz and Martin (1997), Boshoff (2009: 488) contends that research collaboration may not be synonymous with co-authorship and argues that there is a difference between co-producing knowledge and co-reporting knowledge. Not all instances of research collaboration may lead to a co-authored paper. Collaboration could also include creatively contributing to the research process, theoretical and conceptual tasks of the research, performing routine tasks, providing access to research equipment or conveying special relevant knowledge. However, these aspects may not lead to co-authorship of the research. Furthermore, not all co-authored papers include equal labour of all listed authors. There is therefore a level of uncertainty when determining research collaboration (Boshoff, 2009: 488).

In a journal article *Collaborative Research in Modern Era: Needs and Challenges*, Medhi, Bansal, Mahendiratta, Kumar, Sarma and Prakash (2019: 137) define collaborative research as research involving coordination between the researchers, institutions, organisations and/or communities. Cooperation can bring distinct expertise to a project and can be classified as voluntary, consortia, federation, affiliation and mergers occurring at disciplinary, interdisciplinary, transdisciplinary, national or international levels.

“Collaborative research has the capabilities for exchanging ideas across disciplines, learning new skills, access to funding, higher quality of results, radical benefits, and personal factors” (Medhi et al., 2019: 137).

This section has outlined various definitions and explanations of the concept of research collaboration within the context of higher education. This section forms part of the

conceptual framework of intra-African collaborative academic research and contributes the concept of collaboration within research to the overall topic.

2.3 Research in Africa: Participation and Contribution

The following section details the contribution from the continent toward global research and development (R&D) as well as the development of the continent as part of the global south. In order to understand research collaboration in the context of Africa, it is necessary to discuss the state of research on the continent. In discussing R&D in their analysis of the continent's research, Duermeijer, Amir and Schoombee (2018) write that Africa generates 1% of the world's research; however, Africa has by far the strongest growing scientific production, citing the growth rate at 38.6% over a five-year period (2012 – 2016) (Duermeijer, Amir and Schoombee, 2018).

These statistics are important within the context of the need for academic R&D. Universities are the most important institutions in the production and consumption of knowledge and information in the third world and particularly so in Africa. Singapore Management University (2017) in its work on *The Role of the Research University in Higher Education*, supports the argument, stating that higher education institutions are important for the development of societies and contributing to the knowledge economy within the societies they operate. Further to this argument, the Singapore Management University (2017) indicates that the role of the university in competing and cooperating in the broader society and economy lies in its research contributions.

However, while discussing higher education in Africa and the continent's contribution to R&D, Teferra and Altbach (2004:38) report that only a limited number of institutions serve as preeminent and dominant centres of knowledge and information in Africa. They (2004: 38) further note that research and publishing in are in a critical condition.

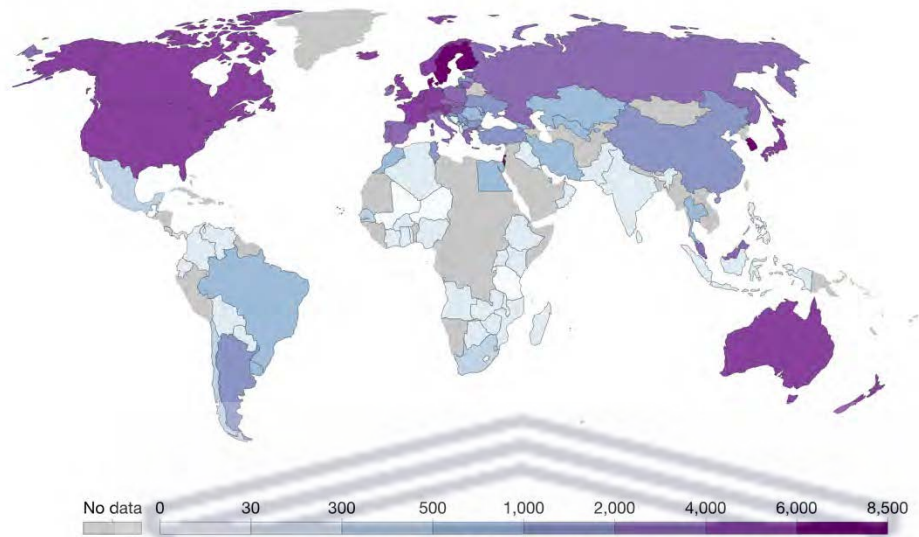


Figure 2.1: Researchers in R&D per million, 2015

Source: Our World in Data (2017).

The above figure reiterates the limitations and outlines global participation in R&D, indicating representation per region as of 2015. This image shows that in Africa, engagement in the conception, or creation of new knowledge, products, processes, methods, or systems, are far less than that of regions such as Northern America and Europe, which are largely considered to be representative of the global north as well as other regions in the global south (Our World in Data, 2017).

In 2009, Boshoff (2009: 486) contended that South Africa was the primary producer of science on the African continent, contributing 30% of Africa's scientific papers, between 2000 and 2004. Sooryamoorthy (2018: 322) writes that between 2000 and 2015, South Africa produced a quarter of all publications in Africa with a total of 97061 publications. Boshoff (2009: 486) further discusses the scientific productions in Africa being concentrated in only specific countries; namely, South Africa, Egypt, Morocco, Nigeria, Tunisia and Kenya. Soorthyamoorthy (2018: 321) further posits the notion that scientific output is concentrated to certain countries within the continent, noting Egypt, Tunisia, Nigeria, Morocco, Algeria and Kenya following South Africa as the top producers of

scientific research in Africa. Adams Gurney, Hook and Leydesdorff (2013: 459) further focus on the extent to which science in Africa is dominated by three nations. Between 2000 and 2013, Egypt in Northern Africa produced 58000 publications. For West-Central Africa, Nigeria produced 20 000 publications and South Africa in the South was the leader with 98 000 publications in the same period (Adams et al., 2013: 459).

Zeleza (2002:9) in discussing the historical development of higher education in Africa, has explained that the development of universities and research in Africa has been influenced and impacted by the effects of external factors such as state politics and policy vagaries, shifting missions and mandates of international donor agencies and the unpredictable demands and dislocations of civil society. Internal factors that impact the development of universities and research in Africa include the cultures of universities themselves, their goals and governance, management of resources and infrastructure, capacity to pursue intellectual excellence and equity, political autonomy, and public accountability as well as local relevance and international recognition. These influences have contributed to the current state of research and development from the continent.

Similarly, Teferra and Altbach (2004: 38) contend that the general state of research in Africa is extremely poor, and its research infrastructure is inadequate. They (2004: 38) specify a number of limitations as contributors, including: scarcity of laboratory equipment, chemicals, and other scientific paraphernalia; a small number of high-level experts; poor and dilapidated libraries; alarmingly low and declining salaries of academic and research staff; a massive brain drain out of academic institutions; the “expansion” of undergraduate education; poor oversight of research applicability; and declining, non-existent and unreliable sources of research funds. Figure 2.2 also shows the proportion of authors per continent and highlights the low rate of contribution from the global south including Africa.

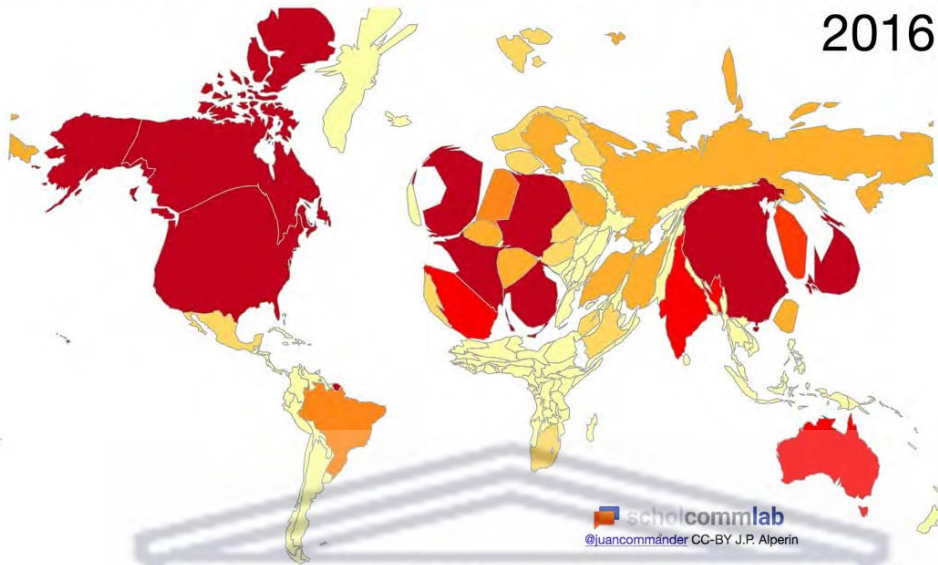


Figure 2.2: The World Scaled by Authors from each Country in Web of Science
Source: Alperin (2016)

Kamanzi and Damen (2016) also discuss the contribution of the continent to global research output in their article *The Role of African Academic Institutions in Promoting Open Access in Africa: Obstacles and Opportunities*. They (2016:2) argue that even though knowledge generation is increasing in the African region, Africa contributes only 6% of the journals listed in the Directory of Open Access Journals (DOAJ). They also question the authenticity of knowledge from the continent.

“Epistemologically, not only is Open Access knowledge in Africa and for Africa is consumer knowledge, but also non-African, colonial, and methodologically challenged. Africa is mostly a consumer of knowledge generated from the North, Europe and the United States of America (USA); knowledge generated in Africa is sporadic and lacks the African meaning, definition and content of open access scholarship” (Kamanzi and Damen, 2016: 2).

Despite the questions around the contextual authenticity of the research produced by the continent, Fonn et al. (2018: 1163) have cite a 2014 World Bank (WB) study showing the increase in quantity and quality of research output on sustainability between 1994 and

2014 in Sub-Saharan Africa. The continent's overall share of global research increased from 0.44% - 0.72% and the share of global citations also rose from between 0.06% – 0.16%, ranging between 0.12% and 0.28%. Fonn et al. (2018:1164) attribute external funding for research in Africa to have contributed to this increase, albeit over deliberate decisions by governments of African states.

Current literature indicates that further rigorous investigation into the presence and influence of African countries other than South Africa in intercontinental scientific research is necessary. Table 2.1 below outlines the research output per country in Africa in 2020. South Africa's research output is reported as the highest. Despite these stats, compared to research output from other parts of the world, the tables above still indicate that the rate is minimal.

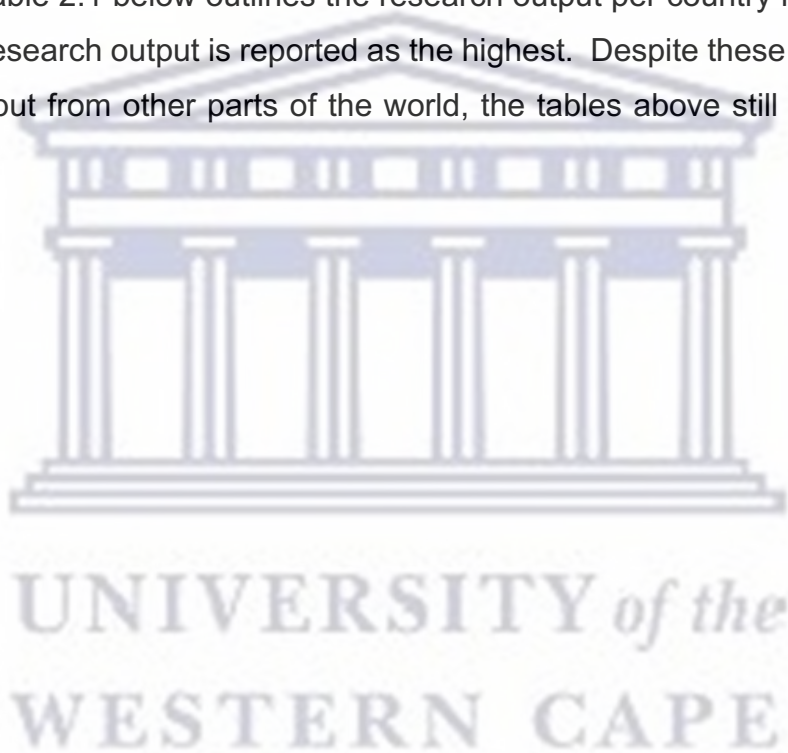


Table 2.1: Research Output and Citations in Africa

Rank	Country	Region	Documents	Citable documents	Citations	Self-citations	Citations per document	H index
1	South Africa	Africa	303863	275974	4434473	921646	14,59	468
2	Egypt	Africa/Middle East	230156	221423	2410995	473454	10,48	288
3	Nigeria	Africa	102154	96260	812185	168289	7,95	208
4	Tunisia	Africa	94962	90118	840209	168596	8,85	193
5	Algeria	Africa	74802	72646	569227	120385	7,61	178
6	Morocco	Africa	71536	67432	623082	118851	8,71	196
7	Kenya	Africa	39051	35034	788048	107724	20,18	261
8	Ethiopia	Africa	27461	25830	331025	70700	12,05	155
9	Ghana	Africa	23715	21770	307727	40293	12,98	160
10	Tanzania	Africa	19678	18052	363861	50452	18,49	175
11	Uganda	Africa	19550	17730	379857	54167	19,43	184
12	Cameroon	Africa	18273	17084	246363	42795	13,48	138
13	Zimbabwe	Africa	11740	10493	183155	19031	15,6	140
14	Senegal	Africa	11275	10501	143880	15855	12,76	129
15	Sudan	Africa	10141	9558	122578	10632	12,09	100
16	Botswana	Africa	8417	7461	113911	10369	13,53	109
17	Malawi	Africa	8347	7546	166150	19464	19,91	147
18	Burkina Faso	Africa	7419	7034	114145	15438	15,39	111
19	Côte d'Ivoire	Africa	7115	6731	108869	8977	15,3	119
20	Zambia	Africa	6876	6106	135558	12477	19,71	131
21	Libya	Africa	6291	6036	57402	2614	9,12	76
22	Benin	Africa	6127	5814	97478	11473	15,91	98

23	Congo	Africa	5305	4883	87752	6927	16,54	109
24	Madagascar	Africa	4830	4548	74058	10947	15,33	98
25	Mozambique	Africa	4428	4014	99706	7652	22,52	108
26	Namibia	Africa	4197	3701	62515	5477	14,9	101
27	Mali	Africa	3925	3661	74881	6322	19,08	104
28	Mauritius	Africa	3910	3516	44345	4231	11,34	81
29	Rwanda	Africa	3698	3263	62159	4534	16,81	88
30	Gabon	Africa	2925	2750	64269	6009	21,97	106
31	Gambia	Africa	2793	2583	114400	7251	40,96	131
32	Niger	Africa	2444	2293	40662	3248	16,64	81
33	Togo	Africa	2311	2139	23636	1534	10,23	55
34	Swaziland	Africa	1652	1520	19880	902	12,03	62
35	Angola	Africa	1313	1219	15791	1220	12,03	49
36	Sierra Leone	Africa	1309	1144	22570	1988	17,24	57
37	Democratic Republic Congo	Africa	1308	1204	23354	669	17,85	66
38	Guinea	Africa	1127	1039	21431	1212	19,02	63
39	Central African Republic	Africa	828	766	13505	730	16,31	55
40	Reunion	Africa	811	751	13139	211	16,2	54
41	Lesotho	Africa	770	703	8308	349	10,79	40
42	Mauritania	Africa	763	715	8846	622	11,59	45
43	Burundi	Africa	742	684	11118	444	14,98	45
44	Seychelles	Africa	717	664	22675	1193	31,62	65
45	Guinea-Bissau	Africa	710	647	15904	3201	22,4	61
46	Liberia	Africa	699	579	10205	747	14,6	46
47	Eritrea	Africa	685	644	9799	630	14,31	46

48	Chad	Africa	621	589	10112	761	16,28	45
49	Cape Verde	Africa	378	364	3914	288	10,35	30
50	Somalia	Africa	292	251	2817	108	9,65	23
51	Djibouti	Africa	287	272	2641	202	9,2	26
52	Equatorial Guinea	Africa	237	223	4498	325	18,98	28
53	Comoros	Africa	173	159	1912	122	11,05	18
54	Mayotte	Africa	97	93	747	28	7,7	13
55	Sao Tome and Principe	Africa	82	78	1254	73	15,29	21
56	Republic of South Sudan	Africa	67	54	388	9	5,79	11
57	Saint Helena	Africa	47	44	340	4	7,23	10
58	British Indian Ocean Territory	Africa	29	26	378	0	13,03	7
59	Western Sahara	Africa	10	7	51	0	5,1	4

Source: Scimago Lab (2020)

A myriad of challenges contributes to the lack of participation in research by the global south, including Africa. Minai (2021) in a web article discussing challenges for academics in the global South, highlights the challenge of access to journals as one of the major challenges. Teferra and Altbach (2004:38) mirror this challenge, arguing that having access to journals, periodicals and databases is a major prerequisite to undertaking viable, sustainable and meaningful research. However, they (2004:38) also note that in much of Africa, these resources are either lacking or are extremely scarce. In addition, the escalating cost of journals and ever dwindling library and university funds have compounded the number of challenges faced when doing research in Africa. As discussed earlier, authors who have reported on research collaboration within the continent, usually make use of the bibliometric method for review. However, it must be noted that the challenge of access to journals can have an impact on the extent of research collaboration in Africa.

Njuguna and Itegi (2013) present further challenges for research in Africa in their work *Research in Institutions of Higher Education in Africa: Challenges and Prospects*. They (2013: 358) argue that these are not purely academic and note that these are caused by the failure of governments to develop policies recognising the fundamental impact research could have on governance and efficient use of public resources. The result is insufficient attention being given to research by governments and institutions of higher education. Njuguna and Itegi (2013) posit that the practical implications of this lack of attention manifests in the following ways:

- Research capacity in the form of technical skills and competencies is presented as a challenge, with Njuguna and Itegi (2013: 353) arguing that there is competition for the limited international funds for research. In addition, training in research methodology is deficient due to inadequately prepared teaching personnel, teaching and learning staff to student ratios and inadequate practical exposure of students.
- Financial constraints impact all areas of research including the research agenda, the process, participation and data collection as well as dissemination of findings. Due to the low spend on research by governments in Africa, funding is largely left to Non-Governmental Organisations (NGOs), the United Nations (UN) system and other international funding agencies (Njuguna and Itegi, 2013: 354).
- The low rate of policy research on the African continent is also presented as a challenge resulting in a lack of research needed in the developing world to provide communities and decision makers with useful recommendations and possible actions for resolving fundamental problems in these regions (Njuguna and Itegi, 2013: 356).
- Research methods are also critiqued by Njuguna and Itegi (2013: 357), with the argument that research methods have to be tailored to the context of the relevant society and be inclusive of its culture.
- The lack of incentives to publish in Africa as a representative of the global south, or the developing world, is also noted as a challenge and contributes to the decreasing position of Africa as a knowledge producer in the world (Njuguna and Itegi, 2013: 358).

- The use of IT in research is another challenge in the developing world by the lack of resources as well as the higher cost of computer technology in the developing world as opposed to the developed world (Njuguna and Itegi, 2013: 359).

Hoogeveen and Pape (2020: 2) in their book on *Data Collection in Fragile States* add that data deprivation seems to be a pressing problem in the developing world for both decision makers and members of society within these regions. There is a lack of voice and agency of the poor who remain invisible unless researchers identify their existence and state of being through data sourcing. The need for reliable data in these regions is far greater; however, data deprivation tends to be worse.

Scholars have also attempted to offer solutions for facilitating suggestions that would counter the challenges experienced in the global south. Nel Rich, Morojele, Harker Burnhams, Petersen Williams and Parry (2016: 376), in their article discussing data collection challenges have advised that in the developing world and in particular, Africa, it is important to anticipate challenging conditions that arise in the preparation for, and execution of, fieldwork. Lynch et al, (2020: 296) in exploring the African perspective and the social context of knowledge adds that there is a broad array of factors hindering the development of a data culture in Sub-Saharan Africa as part of the developing world or the global south. Challenges related to access to data or information in Africa are also outlined by Shaffer et al. (2018) in their work on the development of data collection and management of research in West Africa as the following:

- Lack of uniform definitions and reporting;
- High rates of data entry errors (capacity);
- Unstable and limited internet access; and
- Lack of software and technology maintenance (Shaffer et al., 2018: 2).

Further to these challenges, Ruwoku (2021) in her online article regarding reliable data, writes that data inadequacies have been pinpointed as a major drawback to educational development in Africa. As a result of this drawback, there is a drive to

develop a continental strategy to provide sustainable solutions for data inadequacies that will aim to make data available for national development, leading to training of data collectors and the provision of facilities for data storage and retrieval.

Highlighting the funding challenges for research in Africa, Teferra and Altbach (2004:38) remark that around 70% - 90% of research activities are largely funded, managed and directed by external agencies including bilateral and multilateral bodies, NGOs and foundations. The impact of the lack of internal funding, is that all aspects of research, including what is researched, is influenced by these funders.

Similarly, in discussing the state of affairs of R&D in Africa, Mouton (2018: 3) describes research in Africa as the deinstitutionalisation of science as a result of funding and policies related to funding over the past two decades. Furthermore, he (2018: 3) credits an increase in student enrolments and continuing political instability on the continent for the state of R&D on the continent.

This section has outlined the contribution from the continent towards R&D, detailing challenges resulting in the limited participation from the continent. The next section will detail the concepts of IRC and focus on a contextual framework of this phenomenon in Africa.

2.4 International Research Collaboration (IRC)

Section 2.4 of this research details the concept of IRC and how this concept integrates into the internationalisation of higher education and research. To begin, the concept of IRC is explored through definitions discovered in literature. The discussion also includes an outline of IRC and its value for higher education. An exploration of IRC in Africa follows and is linked to the nature of IRC teams being multi-national and multi-cultural.

2.4.1 Internationalisation of Research and International Research Collaboration

This sub-section details internationalisation of research within the context of higher education. In addition, IRC is discussed as a concept and definition as a contribution to internationalisation of research. Academic institutions are frequently linked by their participation in an international system of knowledge distribution. It is important to note

the differences in the concepts of internationalisation of research and IRC. In a report for the Department of Industry and Science, Cahill (2015: 9) highlights the difference, by stating that internationalisation of research refers to the extent to which national research systems interact with others. He (2015: 9) notes that Internationalisation is one of a number of values that emanate from IRC.

Kozma and Calero-Medina (2019: 1293) in a paper on *The Role of South African Researchers in Intercontinental Collaboration*, note that even though collaborative research increasingly gains value among researchers across the world, the evaluation of these relations is still poorly understood. To explore IRC within the context of internationalisation of research, it is important to understand the concepts of internationalisation of higher education and research.

A number of definitions on internationalisation of higher education have been presented. The definitions discuss higher education internationalisation as a series of international activities such as academic mobility for students and staff, international links, partnerships and projects, international academic programmes and research initiatives. Jowi, Knight and Sehoole (2013) have written on *Internationalisation of African Higher Education*.

“To many, it means cooperating with universities in other countries to reform and modernise curricula and pedagogy. For others it means delivering education to other countries using a variety of face-to-face and distance techniques and new types of arrangements such as branch campuses or franchises. Still others see international development projects or, alternatively, the increasing emphasis on commercial cross-border education as internationalisation. Finally, the term is used to describe regional education hubs, zones, hotspots, education cities, and knowledge villages. Internationalisation is expressed in a diversity of ways, but a key principle is that it respects and is guided by local culture, values and needs” (Jowi, Knight and Sehoole, 2013: 5).

One of the more popular definitions used by higher education institutions is that of Knight's 1994 definition published by the Canadian Bureau for Internationalisation. Knight (1994) defines internationalisation as the integration of international and

intercultural dimensions into teaching research and service functions. Other definitions have been developed since Knight's definition. In the South African context, a more recent definition developed by De Wit and Hunter (2015) in their work on the future of higher education in Europe. The definition has been utilised to guide local institutional internationalisation strategies. It reads as follows:

“The intentional process of integrating an international, intercultural, or global dimensions into the purpose, functions and delivery of post-secondary education, in order to enhance the quality of education and research for all students and staff and to make a meaningful contribution for all” (De Wit and Hunter, 2015).

In the discourse of rethinking higher education and in particular, internationalisation of higher education within the context of decolonisation of higher education, new definitions are being developed. Heleta and Chasi (2022) have presented a contextual definition for internationalisation of higher education in South Africa as follows:

“Internationalisation of higher education is a critical and comparative process of the study of the world and its complexities, past and present inequalities and injustices, and possibilities for a more equitable and just future for all. Through teaching, learning, research and engagement, internationalisation fosters epistemic plurality and integrates critical, antiracist, anti-hegemonic learning about the world from diverse global perspectives to enhance the quality and relevance of education” (Heleta and Chasi, 2022).

As mentioned earlier, IRC results in internationalisation of higher education. Similar to Medhi et al's, (2019) definition of research collaboration, Cahill (2015: 9) defines international collaboration as occurring where researchers and research organisations engage with each other for mutual support and contributions to conduct the research. Chen, Zhang and Fu (2019) discuss IRC as an emerging domain of innovation studies. They (2019: 149) characterise IRC in the context of “big science” as collaboration between individuals, groups, departments, institutions, regions and countries. Cahill (2015: 9) further unpacks international research, indicating that it can occur as a response to top-down policy, or through bottom-up, researcher-led initiatives. IRC may vary in scale, intensity and duration with the wider effects achieved across a complex network or systems of relations (Cahill, 2015: 9).

In line with the diverging notions of research collaboration, Kozma and Calero-Medina (2019: 1294) argue that it is important to carefully evaluate the indicators of collaborative research in the current scientific world. They (2019: 1294) echo the arguments by Boshoff (2009), that focus should not only be placed on research outcomes when evaluating collaboration, but also on the processes of integrative research. Boshoff (2009: 501) further argues this point, noting that co-authored research papers are only a partial measure of collaboration, also highlighting that the extent to which co-authored papers are measured in the global south differs from country to country, particularly if an international data source such as the Web of Science (WoS) is used.

The above section has outlined definitions of IRC within the context of higher education internationalisation. The next section details the rationale for IRC by discussing the value of IRC through the lens of continental higher education development.

2.4.2 The Concept and Benefit of International Research Collaboration

To understand intra-African academic collaborative research as a concept, IRC is discussed in the context of globalisation and the development of higher education. Wai-Chan (2017:61) in a paper discussing the impact of IRC, observes that research intensive universities have higher levels of international collaboration. She (2017: 61) asserts that IRC in research-intensive universities is growing at a much faster rate than the world average of research collaboration. Scientific knowledge has increasingly become co-produced across sectors and national borders with the emergence of socially distributed knowledge systems. Consequently, national research system perimeters have been fading to the extent that regional, or country, research output is evolving in terms of global networks.

The development of these networks has largely been attributed to individual scientists self-organising and establishing disciplinary practices of co-producing and co-reporting research (Boshoff, 2009: 481). Somasundaram (2019) argues that scientists pursue IRC when conducting research in order to gain a more global perspective on a particular research problem.

In discussing the value of collaboration, Allen (2017: 6) describes science as an increasingly global enterprise with research collaborations considered by policy makers and funding agencies to be a crucial ingredient for addressing global challenges. Increasing global competition and rapid technological changes have seen more countries place importance on science and technology collaboration as a critical way to foster and maintain their global innovation competitiveness. Furthermore, Chen, Zhang, and Fu (2019: 150) discuss the distinctive characteristics of IRC that differ from domestic research collaboration, citing geographical, linguistic, political and cultural characteristics contributing to IRC and the overall quality of research.

Jowi, Knight and Sehoole (2013: 17) promote IRC for its impact on the quality of research and its potential to lead to new and innovative knowledge to address developmental challenges. Onyancha and Maluleka (2011: 99) in their paper discussing research collaboration between South Africa and other countries, reiterates the contribution of IRC, arguing that international collaborations have yielded higher average citations per paper than continental collaborations. In addition, Jowi, Knight and Sehoole (2013: 17) cite reasons to pursue this practice, such as access to increased funding, improved infrastructure, and incentives.

Despite the reasons for IRC presented above, authors have also argued that IRC exposes institutions and academics to unequal and unfair treatment that impacts the greater institution as well as the broader society within which the institution resides. Pouris and Ho (2013: 90) in their work *Research Emphasis and Collaboration in Africa*, have highlighted arguments against collaboration. They (2013: 90) notes with concern that spending on international cooperation is not always beneficial to the paying country and that critical technologies and key knowledge for competitiveness are given away to competitors. An additional concern is the notion that collaborative agreements advocate strategic or political ends rather than the interests of science and technology (Pouris and Ho, 2013: 90).

Fransman, Hayman and Newman (2018) in their online article on the principles for fair and inclusive research supports the concern for equality. They (2018) argue that while the rhetoric of partnerships sounds good, in practice it is challenging and unequal. They (2018) further explain that in the case of north-south partnerships, northern

partners hold a considerable amount of power compared to their southern partners. In their report exploring the costs and benefits of collaboration, Haylor, Porter, Ghezze and Savage (2015: 6) further unpack the international power dynamics by encouraging research collaboration approaches that include the setting of goals and direction of the research and collaboratively defining budget requirements and the methods from the outset (application stage). This notion is explored in the International Foundation of Science (IFS) report produced by Haylor et al. (2015: 7) suggesting that researchers who start collaborating early in their careers are more likely to be operationally orientated in their collaborative decision-making.

Haylor et al. (2015: 7) outline three conceptual levels of collaboration within the context of research, which include strategic, organisational and operational levels. These levels illustrate the different stages within the cycle of a research project. At a strategic level, partners determine the goals and direction of the research. At an organisational level, collaborative activities are outlined as well as aspects such as budget requirements and methodology. Operational collaboration includes decisions about the use of joint resources along with publication and dissemination of results. Furthermore, Wai-Chan (2017: 61) discusses the different types of collaboration activities that may be included in the context of research collaboration, listing exchanging ideas, data and insights, networking with international researchers, paying site visits to each other, participating in grant applications and publishing research findings. In describing the activities within a research project outline, these authors have outlined the steps at which collaboration can occur. Wai-Chan (2017: 61) however, echoes Boshoff's (2009) description of the nature of collaboration, arguing that international co-authored publications are not the only indicator of international collaboration. Due to unequal collaboration resulting research outputs excluding all collaborators.

“Researchers may collaborate in sharing ideas and networking which will not be published. International collaboration is still hard to measure. There is a need to develop more reliable metrics to reward researchers for collaborating internationally” (Wai-Chan,2017: 61).

The National Research Council (2014) in their summary of a workshop for building infrastructure for IRC has discussed ways in which inequality can be addressed. It (2014: 17) advocates for detailed agreements facilitating IRC, arguing that potential areas for misunderstanding are decreased. It (2014:17) also notes that formal agreements do not necessarily ensure successful collaboration. Strong, trusting and resilient personal relationships that are sustainable, consistent and systematic, are further tools for the fostering of reliable international research groups. Wai-Chan (2017: 16) adds that structures such as formal agreements are important to facilitate collaborative activities and decision-making processes. Successful outcomes of research collaboration require explicit shared research goals and objectives, committed researchers with visionary leadership, and mutual respect and recognition of each team member's contribution. Wai-Chan (2017: 61) also calls for funding agencies to consider international and cross disciplinary research more carefully and encourages governments to increase support for cross border interdisciplinary research. Haylor et al. (2015) indicate that there is a complex set of factors that determine collaboration between scientists. They (2015: 6) promote mechanisms to encourage organisational and strategic approaches to partnerships that lead to joint outputs. These arguments have highlighted inequalities in IRC that may have resulted in the perception of low participation in research from Africa. However, there is greater motivation for research collaboration and IRC when approaching such challenges.

In discussing the extent and value of IRC, Wai-Chan (2017: 61) cites the results of a Research Gate publication review which indicates that 43% of all papers published between 2012 and 2017, globally, were co-produced by international research teams which included at least two authors from different countries. When choosing to collaborate, academic researchers prioritise publication assets, costs of research coordination and additional funding opportunities over the perceived administrative burdens and time constraints connected to IRC (Haylor et al., 2015: 12).

Further motivations for IRC are made by Cheruvellil, Soranno, Weathers, Hanson, Goring, Filstrup and Read (2014) in their work on creating and maintaining high performing research teams. They (2014: 32) argue that diversity has been found to increase team productivity as well as the quality of end products. IRC also enables

researchers to share their knowledge and combine their perspectives to solve complex issues that are inter-disciplinary in nature. To illustrate Cheruveill et al.'s contention,

“Collaboration allows nurse researchers to access resources beyond their own, especially funding, talent and equipment to develop innovative nursing interventions for managing complex health problems”. (Wai-Chan, 2017:61).

Wai-Chan (2017: 61) further explains that collaboration enables leverage and allows researchers to magnify the benefits of their own inputs and maximise their own outputs and outcomes. In addition, global and inter-regional research collaboration may help to overcome fragmentation and lack of critical mass in research investments (Wai-Chan, 2017: 61).

Moreover, Cheruvilil et al. (2014: 31) argue for collaborative research teams, stating they are a necessary and desirable component of most scientific endeavours, as effective collaborative teams exhibit important research outcomes, far beyond what could be accomplished by individuals working independently. Cheruvilil et al. (2014: 31) also note that when collaborations are successful, the outcomes surpass any one individual's accomplishments, with collaborations referred to as “high performing cooperative groups.” Wai-Chan (2017: 61) presents further motivation for IRC, arguing that it is a critical component on the international outlook indicator, accounting for 2.5% of the ranking formula used by Times Higher Education (THE) in the annual World University Rankings.

Freshwater, Sherwood and Drury (2006) present the opportunities, benefits and challenges of IRC, indicating that this type of collaboration presents researchers with opportunities to share experiences, data and methods that can provide the basis for new and important perspectives on existing practices (Freshwater, Sherwood and Drury, 2006: 296). Cahill (2015: 1) argues that significant benefits accrue from international collaboration at research macro (system), mesa (institution) and micro (individual researcher) levels. The benefits that Cahill (2015: 1) lists include access to research expertise, research scale, cooperation and societal challenges, cost sharing, risk reduction, and access to international funds. These benefits are further elaborated upon:

“When international research teams collaborate, they bring together different cultural perspectives and methodological approaches widening

the perspective of analysis and interpretation. Such engagement enables the pooling of resources to create larger and more extensive networks of knowledge; international collaboration increases the reach and impact of a country's research and has significant career implications for researchers. Global connections between researchers and institutions have sizable social, cultural and economic impacts, with benefits extending beyond academe" (Cahill, 2015: 1).

Similarly, Haylor et al. (2015) present seven benefits of IRC, beginning with the sharing of knowledge, skills and techniques, stating that no single individual can possess all the knowledge, skills and techniques required for a research undertaking. Collaboration provides a more effective and cost-efficient use of combined talents. The 2015 IFS report notes that after one year of collaborating, 94% of researchers found that collaboration was more useful in tackling a research topic (Haylor et al., 2015: 8).

Tacit knowledge transfer is noted as the second proposed benefit. Haylor et al. (2015: 8) note that much of knowledge may be tacit and could remain so until researchers have had the time to deliberate and set out their findings in a publication. This transfer may be done through collaboration.

Thirdly, graduate students or early career researchers gain the social and management skills needed to work as part of a team when engaging in collaborative activities. The IFS report cites that 94% of researchers found collaboration to be a useful way of learning these skills.

The fourth proposed benefit presented by Haylor et al. (2015: 9) lists the "cross fertilisation of views" that result in the generation of new insights or perspectives that individuals may not reach while working alone. Haylor et al. (2015: 9) propose that cross fertilisation is enhanced when collaboration includes partners from more divergent scientific backgrounds. Cheruvilil et al. (2014: 32) adds that the characteristics of international collaborative research teams include positive interdependence of team members, effective communication and individual and group accountability. International research collaborative teams are seen to be highly

productive, providing a positive environment for team members to maximise the net benefits for both the team and the individuals who make up the team (Cheruvilil et al., 2014: 32).

Intellectual companionship, or expanded companionship, is a further benefit proposed by Haylor et al. (2015: 9). They argue that individuals can overcome intellectual isolation through collaboration. Further to overcoming isolation, collaboration also results in researchers being plugged into wider networks. The IFS report shows that 55% of researchers who collaborate make useful contacts beyond their collaborative teams. In a chapter focusing on *Mobility and the Careers of Young Scientists*, Beaudry, Mouton and Prozesky (2018b: 107) further argue this networking point as the most substantial benefit of international collaboration. They (2018b: 107) note that the practice leads to the acquisition of research networks that lead to participation in other research projects and access to other funding opportunities.

Greater scientific visibility is also proposed as a benefit from Haylor et al. (2015: 9) along with increased access to resources and infrastructure needed for research. Particularly in the global south, disciplines where research requires scientific fieldwork, the use of laboratory and machine resources or facilities, and specialised tools, the cost of research is exponentially high. To elaborate, van Helden (2012:1) while discussing the cost of research, writes that scientists in poorer countries are disadvantaged by unfair pricing. A consequence of research collaboration is that scientists are able to share equipment and other resources (Haylor et al., 2015: 9).

Cheruvilil et al. (2014: 32) add that there are other factors influencing research outcomes of IRC such as cognitive abilities and experience of collaborative team members, physical space and the funding level of the project. They (2014: 32) argue that for a collaborative team in research to perform effectively, consideration must be given to fostering diversity for the development of interpersonal skills, social sensitivity, and emotional engagement.

Even though there is sufficient argument for IRC, the practice is not without challenges. In order to understand the leadership dynamics of IRC, the benefits that

motivate the practice along with the challenges that accompany IRC are also important.

Wai-Chan (2017: 61) argues that despite the increasing trend in IRC, there are challenges, and he offers language barriers as one such example:

“When working with people from countries where the same language is not spoken, addressing issues specific to the local community, and managing the complexity of intellectual property rights” (Wai-Chan, 2017: 61).

The National Research Council (2014: 17) adds that issues may also arise when team members who collaborate, come from different cultural backgrounds and intellectual traditions and work within differing national bureaucratic and legal contexts. They may also belong to different academic disciplines, complicating the agreement on research concepts and methods.

In an article on the University Affairs website, Owens (2018) discusses the benefits and challenges of IRC. He (2018) outlines that range from minor inconveniences to those that are able to halt a project. Challenges include getting used to the work culture in another country, language barriers and multiple time zones. Similarly, Wai-Chan (2017), and the National Research Council (2014) note that specific challenges involved in initiating and organising collaborations include issues such as different cultural backgrounds and intellectual traditions. Further, and more serious challenges are outlined by the National Research Council (2014: 17) and Owens (2018). These include:

- Working within different national bureaucratic and legal contexts;
- Lack of funding;
- Time constraints; and
- General sources of differences that create countless opportunities for misunderstanding, disagreements, confusion and even conflict (National Research Council, 2014: 17).

Time costs are also presented by Haylor et al. (2015:10) as a challenge to IRC. Time is extended in IRCs when preparing joint proposals, securing joint funding from two or more sponsors, jointly defining research problems and planning the approach, carrying out research at different locations, keeping all team members fully informed of the research progress and handling differences of opinion within the team. These are all aspects contributing to time limitations as a result of IRC.

Owens (2018) also cites funding as a major challenge to IRC, citing the Universities Canada 2014 Survey on Internationalisation (AUCC. 2014: 36), that indicates 83% of universities view the lack of research funding opportunities as the most significant barrier to international collaboration. Owens (2018) also cites other serious challenges to IRC. They include:

- Immigration or visa issues;
- Intruding politics; and
- Differing time zones.

The National Research Council (2014: 17) echoes that obtaining funding for international research is complicated due to different national and policy requirements. Furthermore, international collaboration is generally more time consuming and more costly. The multiple sources of perspective within an international collaborative team may also create opportunities for misunderstanding, disagreement, confusion and at times, conflict between team members (National Research Council, 2014: 17).

Haylor et al. (2015: 10) also cite financial costs as a challenge to IRC, arguing that issues of travel and subsistence costs, the transport of material as well as labour costs for technical setups of research equipment, add to the financial challenges of IRC. Cheruvellil et al. (2014: 31) add that the possible interdisciplinarity of international collaborative research may contribute additional challenges, arguing that the practice requires specific strategies. To combat this challenge, Cheruvellil et al. (2014: 31) suggest strategies prioritising a focus on processes and goals as well as understanding and managing basic philosophical differences between collaborative team members. They (2014:31) further explain that training on how to collaborate

effectively is limited in professional education programmes and cite this limitation as a challenge.

Additionally, Haylor et al. (2015: 10) describe limitations in finding collaborative partners as a challenge in IRC, stating that close proximity has historically been known to promote collaboration. However, in the context of virtual reality, and in the current context of the COVID-19 pandemic, where strides have been made in international virtual engagement, this limitation may be in a decreasing phase. Kolm et al. (2021: 1) in their systematic review article on the competencies needed for international online collaboration, argue that virtual teamwork was on the rise even before the present COVID crisis. They (2012: 1) state that virtual methods allow teams to work more flexibly and with less travel required. However, Kolm et al. (2021: 1) also acknowledge that in certain instances, there is a lack of competency to use the virtual space, resulting in reduced team commitment and lower performance.

Similar to the National Research Council (2014), Haylor et al. (2015:11) also detail administrative challenges related to IRC. Research teams which comprise team members in different geographical spaces require greater effort in managing processes within different institutional systems that could include bureaucratic burdens. When two or more different institutions collaborate, management cultures also tend to be different including the rules on how to manage intellectual property. Differences on reward systems, promotion criteria, values regarding what is important in research, are examples of challenges. In addition, reconciling different financial systems is also a challenge when embarking on IRC.

Even though there are challenges, Hetzel and Bonfoh (2020: 1963) in their writing on balanced representation in Lancet Commission, argue that the most pressing challenges are global, and suggest a transnational approach for solutions:

“If knowledge is to be trusted and translated into action, it must be a joint effort emerging from participatory knowledge generation, which is at the heart of trans disciplinaryity” (Hetzel and Bonfoh, 2020: 1963).

In his bibliometric study on IRC in sub-Saharan Africa, Onyanha (2021: 557) also recommends three-tier collaboration as an answer to creating capacity in overcoming

challenges, particularly within Sub-Saharan Africa. While international collaboration is important, developing countries may reconsider their collaboration with mainly northern partners rather favouring an approach that is also inclusive of other developing countries. With this research focusing on the context of Africa, the extent of cross-border research collaboration within the boundaries of the African continent is unpacked next.

2.4.3 International Research Collaboration in Africa

Through an informetric analysis of collaborative research outputs in the sciences in South Africa, Jacobs (2013: 45) argues that globalisation of science has resulted in an increase in international scientific collaboration, in general. This increase has necessitated renewed and relevant information on scientific co-operation, co-authorship, and influence. Information on collaboration is important not only for scientifically advanced countries, but perhaps even more so for the developing world whose contribution to scientific achievement and its legacy does not receive the same level of attention and reflection.

To understand the extent of IRC within the continent, it is also important to note the rate of participation in higher education within Africa. Fonn et al. (2018: 1163) look at participation in higher education in Africa, discussing the steady rise of enrolment from 181 000 in 1975, to 600 000 by 1980 and 1 750 000 by 1995. With growing numbers while funding was being reduced, tensions arose between governments and academics, precluding working together in search of solutions. The result is lasting consequences for universities, with the continuation of the growth in higher education shown through the doubling of annual enrolments increasing from 2.3 million to 5.2 million between 2000 and 2010 (Fonn et al., 2018: 1163).

Furthermore, the context that has been influenced by history and contemporary politics is also noteworthy when discussing IRC within Africa. Teferra and Altbach (2004: 22) add that Africa is the least developed region in terms of higher education institutions and enrolments, noting at that time, Nigeria, Sudan, South Africa, and Egypt each had 45, 26, 21, and 17 universities, respectively, with each country having additional post-secondary institutions as well. Specific countries are noted for their lack of higher education institutions. They include Cape Verde, Djibouti, Gambia,

Guinea-Bissau, Seychelles, and Sao Tome and Principe. However, Teferra and Altbach (2004: 22) report that preparations have been underway to create one or more major post-secondary institutions in these countries. Moreover, as a result of political turmoil, countries such as Somalia, Angola and the Democratic Republic of Congo (DRC), have lost university-level institutions (Teferra and Altbach, 2004: 22).

Further contemporary debates on higher education within the African continent include arguments for rethinking the value of knowledge from the global south including Africa. In a Rhodes University article on the debate on Africanisation and transformation, Bradfield (2014) argues for the reclamation of African knowledge. He (2014) says that all African universities have adopted a western model of academic organisation, shaped by colonialism and organised according to European models. Quoting Teferra and Altbach (2004), he (2014) states that “higher education in Africa is an artefact of colonial policies.” As a response, Jowi, Knight and Sehoole (2013: 2) highlight that international higher education initiatives such as academic mobility of students and faculty, open educational resources and international partnerships that help build capacity, enhance access, inform policy, strengthen curriculum development, promote social cohesion, help to broaden perspectives in African universities (Jowi, Knight and Sehoole, 2013: 2).

Taferra and Altbach (2004: 22) posit that higher education is again being recognised as a key sector in African development after two decades of being shunned by governments and international agencies. Similarly, Vessuri (2008: 119) in her work on the role of research in higher education towards human and social development, adds that there is renewed enthusiasm for higher education and research in Africa as the way forward to world development.

Taferra and Altbach (2004: 22) argue that generalising about Africa, a large and diverse continent is difficult. However, they also note there are common challenges. Universities in Africa operate under very difficult social, economic and political challenges and thus, in the context of globalisation, successful development will not be easy (Teferra and Altbach, 2004: 21). Adams, Gurney, Hook and Leydesdorff (2013: 548) in their journal article exploration of international collaboration clusters in Africa, state that more than half of the African nations were off-track, or regressing, on

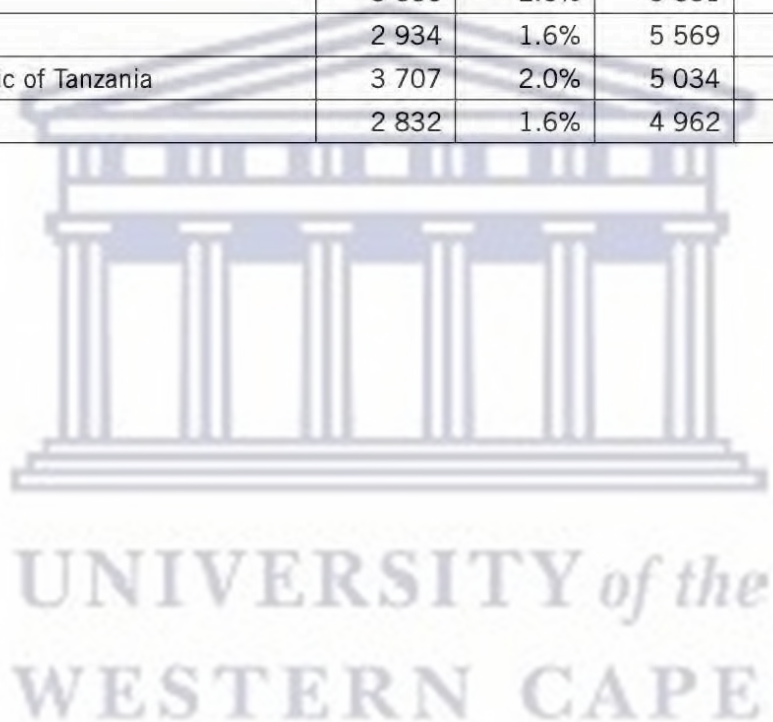
objectives to achieve universal primary education by 2015. Without basic education, the development of higher education in Africa is limited.

In discussing Africa's contribution to global research collaboration, Duermeijer, Amir and Schoombee (2018) consider Africa's contribution to global scientific production. They (2018) argue that at 1.8% between 2000 and 2004 compared to the 3.5% of Latin America, there is a clear decline in the African contribution. Mouton (2018: 3) also discusses the diminishing share of African Science, stating that Africa has lost 11% of its share in global science since its peak in 1987 and sub-Saharan Africa lost 31% of its share since this peak. Between 1998 and 2002, Algeria, Egypt, Mauritania, Libya, Morocco and Tunisia accounted for the modest growth of the African share of the worldwide output.

Furthermore, studies have shown that Sub-Saharan Africa's share of the world's scientific papers declined from 1% in 1987 to 0.7% in 1996 (Mouton, 2018: 3). For instance, Fonn et al. (2018: 1163) pointed out that sub-Saharan Africa accounts for 13.5% of the global population but less than 1% of global research output. Similarly, in their analysis of African Science Mouton and Blackenberg (2018: 15) revealed the skewed distribution of publications produced from Africa. As presented in Table 2.2, 13 of the 54 countries contributed 1% or more to Africa's total global research output during the period of 2005 – 2015 and collectively contributed 89% of the continental output.

Table 2.2: Country Shares of Africa's Publication Production: 2005 – 2010 and 2011 - 2015

Country	2005–2010		2011–2015	
	No. of pubs	Country share	No. of pubs	Country share
South Africa	53 072	29.1%	77 687	28.2%
Egypt	32 267	17.7%	54 000	19.6%
Tunisia	16 546	9.1%	25 420	9.2%
Algeria	10 519	5.8%	18 313	6.6%
Nigeria	13 583	7.5%	16 717	6.1%
Morocco	9 295	5.1%	14 140	5.1%
Kenya	6 954	3.8%	9 767	3.5%
Uganda	3 666	2.0%	5 651	2.1%
Ethiopia	2 934	1.6%	5 569	2.0%
United Republic of Tanzania	3 707	2.0%	5 034	1.8%
Ghana	2 832	1.6%	4 962	1.8%



Cameroon	3 441	1.9%	4 463	1.6%
Senegal	1 877	1.0%	2 635	1.0%
Sudan	1 438	0.8%	2 393	0.9%
Malawi	1 549	0.9%	2 356	0.9%
Zimbabwe	1 691	0.9%	2 137	0.8%
Burkina Faso	1 379	0.8%	1 938	0.7%
Zambia	1 190	0.7%	1 853	0.7%
Benin	1 051	0.6%	1 650	0.6%
Botswana	1 370	0.8%	1 604	0.6%
Libya	1 046	0.6%	1 496	0.5%
Côte d'Ivoire	1 169	0.6%	1 471	0.5%
Madagascar	1 021	0.6%	1 333	0.5%
Mozambique	689	0.4%	1 198	0.4%
Reunion	790	0.4%	1 108	0.4%
Mali	1 009	0.6%	1 077	0.4%
Rwanda	407	0.2%	1 068	0.4%
Namibia	552	0.3%	931	0.3%
Mauritius	460	0.3%	817	0.3%
Democratic Republic of the Congo	391	0.2%	769	0.3%
Gabon	624	0.3%	738	0.3%
Gambia	686	0.4%	730	0.3%
Congo	610	0.3%	715	0.3%
Niger	468	0.3%	664	0.2%
Togo	307	0.2%	435	0.2%
Sierra Leone	106	0.1%	360	0.1%
Guinea	182	0.1%	326	0.1%
Angola	169	0.1%	314	0.1%
Swaziland	195	0.1%	261	0.1%
Seychelles	153	0.1%	212	0.1%
Burundi	87	0.0%	169	0.1%
Lesotho	135	0.1%	167	0.1%
Mauritania	136	0.1%	163	0.1%
Liberia	39	0.0%	146	0.1%
Chad	113	0.1%	136	0.0%
Eritrea	164	0.1%	114	0.0%
Cape Verde	47	0.0%	109	0.0%
Djibouti	23	0.0%	59	0.0%
Somalia	11	0.0%	57	0.0%
Comoros	22	0.0%	28	0.0%
South Sudan	2	0.0%	7	0.0%
Western Sahara	3	0.0%	1	0.0%
	182 177		275 468	

Source: Mouton and Blackenberg (2018: 15).

In discussing articles and reviews authored within Africa (i.e. that have no collaborative co-author from outside the region), Adams et al. (2013: 548) notes the increase since 2000 from 6,319 to 12,089 in 2012. However, the authors (2013: 548) present this increase of as a decline of African co-authorship compared to the percentage of total research paper output from 54% to 42%. However, in terms of the collaborative output of G8 countries, the output of research collaboration has increased. The authors also note that autonomous research output has grown over the last decade. Adams et al. (2013: 548) still conclude that collaborative research is necessary within the region of Africa.

Jowi, Knight and Sehoole (2013: 17) build on the argument for IRC by discussing research as a major driver of internationalisation. They (2013: 17) state that academic research activity in Africa remains weak due to quality challenges, weak institutional capacity for research, and inadequate funding, among other factors. They (2031: 17) argue that research outputs and knowledge production are vital for Africa's sustainable socio-economic development. Research partnerships and collaboration along with research capacity building initiatives will allow for the mitigation of challenges in Africa. In the context of Southern Africa, Fonn et al. (2018: 1164) discuss the need for skills development in research, motivating for research universities across sub-Saharan Africa to be identified, recognised, strengthened and invested in. They (2018: 1164) argue that universities should focus their resources on graduate training and research through collaboration.

In addition, the practice may contribute to the adding of African voices and perspectives to the global higher education system and result in the inclusion of Africa in regional and international globally connected resources (Jowi, Knight and Sehoole, 2013: 18). This section has outlined Africa's share in research output through international research collaboration. This is linked to the concept of multi-national teams, which contributes to the overall concept of intra-Africa collaborative research teams.

2.4.4 Multi-National Collaborative Research Teams

Intra-African academic collaborative research teams are multi-national and multi-cultural in nature. In discussing the structural dynamics of intra-African academic

research collaboration, it is necessary to discuss the multi-national and multi-cultural nature of the teams as a concept. There is a plethora of literature on the concept of multi-national teams. However, in the context of research collaboration, or internationalisation of research, the literature is limited. Cheruvellil et al. (2014: 31) describe multi-national teams in the context of research as “high-performing collaborative research teams.” In the context of research, they may manifest from small to moderately sized teams of productive scientists working together for a period of time to large networks that work over an extended period of time through long-term transdisciplinary research efforts focused on critical problems.

The authors (2014: 31) also describe multi-national teams as researchers committed to a common purpose, approach and performance goals for which they hold themselves mutually accountable (Cheruvellil et al., 2014: 31). Figure 2.3 below summarises the nature of multi-national teams.



Figure 2.3: Summary of High-performing Collaborative Research Teams
Source: Cheruvellil et al. (2014: 31).

Jayanthi and Rajandran (2014: 3) in their *Study on Multi-cultural Team and the Culture Diversity in Multi-National Companies* have concluded that cultural diversity in multi-national teams results in improved team member qualities. They argue that multi-national teams result in better communication skills, open mindedness, flexibility and cultural awareness, which in turn enables a working atmosphere of mutual respect and acceptance. Sinha (2021) in their Harvard Business Review article on building trust within a team, adds that the above traits may result in successful teamwork and successful teams.

These sentiments are mirrored by Cheruvelil et al. (2014: 32) who argue that cultural diversity contributes to interpersonal skills such as social sensitivity and emotional engagement. They (2014: 32) further argue that team diversity and the interpersonal skills that come with it strongly influence the research outcomes by affecting critical aspects of team function such as communication patterns, problem solving and group creativity.

Hajro and Pudelko (2010: 3) in their analysis of core-competencies of multi-national team leaders, argue that even though there is a substantial body of literature addressing the performance of teams in general, multi-national teams are relatively understudied. In addition, they (2010: 3) add that research focusing on the competencies needed to lead such teams, is lacking. The following section deals with multi-national research teams within the context of Africa, outlining the nature and extent of such teams within the continent.

2.5 Intra-Africa Research Collaboration

Editors of the Merriam-Webster (2021) dictionary define the prefix *intra* as “within”, as opposed to the meaning of the prefix *inter* meaning “between”. This section addresses the concept of intra-African collaboration, first by engaging literature that defines the concept. Following the description of the context, the section explores the patterns of research collaboration, first focusing on the South African academic sector and then broadening out to the African context. The discussion highlights funding resources that facilitate collaboration. In addition, this study aims to outline the governance frameworks that influence academic research collaboration within the continent.

To support the study’s concepts intra- vs, inter, Jowi, Knight and Sehoole (2013: 5) discuss the concept of inter-nation collaboration stating that it implies relationships between and among countries, people, systems and cultures. The authors (2013: 5) add that the concept differs significantly from global or worldwide flow and the scope of globalisation. Onyancha (2021: 2) writes that researchers in sub-Saharan Africa have taken note of the benefits associated with IRC Africa; however, he (2021: 2) also identifies the influence of research funding on the choice of working with partners mainly from the global north.

Geographic proximity and spatial physical distance also influence collaboration. Sun and Cao (2015: 215) in their paper covering intra- and inter-regional research collaboration, argue that innovative actors in close proximity tend to interact more frequently and intensely than those at a distance. They (2015: 215) further argue that intra-regional collaborative research and inter-regional research collaboration are both useful options for organisations to seek external knowledge.

In regions external to Africa, the continent is seen as one country (Woods, 2019). However, Green (2013) argues that Africa is widely noted for its high levels of ethnic diversity. In their work on appreciating the diversity in sub-Saharan Africa, Appiah, Arko-Achemfuor and Adeyeye (2018: 1) add that diversity in Africa is centred around culture, ethnicity, gender, and religion. The authors (2018: 1) further argue that people of African descent encounter similar challenges, which points to the need for integration to realise the full benefit of this diversity.

Within the discourse of the principles of internationalisation and intercultural exchange, Hoekman, Frenken and Tijssen (2010: 663) discuss the heterogeneity of regional research collaboration in Europe. However, Innis (2017), in an online article, presents Africa as the most diverse continent, arguing that Africans and those of African descent are the most genetically diverse. As the second largest continent in the world with 54 countries, there are at least 3000 ethnic groups and 2000 languages spoken. In discussing the impact of IRC, El Ansari, Phillips and Hammick (2001: 215) say that it is influenced by diversity of perspectives and conceptual facets. These arguments support the argument for increased intra-Africa research collaboration.

In addition, within the theme of higher education transformation through internationalisation, Boshoff (2009: 482) says that science policy makers from developing countries should not ignore the size and structure of the countries' international scientific collaborations. He (2009: 482) argues that the exclusion of the developing world from the scientific core results in limited capacity to implement scientific knowledge produced elsewhere. Similarly, Pouris and Ho (2013: 90) acknowledge that governments are known to utilise research collaboration as a policy instrument for knowledge transfer from abroad as well as a means to improve diplomatic relations with other countries.

Bradfield (2014) discusses the concept of Africanisation within the context of transformation of higher education objectives. He (2014) says that in South Africa, it is multi-dimensional and can involve at least four different kinds of transformations, or changes, including transformation reflecting the demographic profile of the country at all levels of life in the institution; transformation of the syllabus or content; transformation of the curriculum; and transformation in terms of throughput rates and research profile". He (2014) further argues that in the absence of feasible models the debate about exactly what the implementation of an Africanisation process would involve must continue.

2.5.1 The South African Context

Kozma and Calero-Medina (2019: 1305) state that South Africa has a dominant presence in the continental scientific collaboration process. There is also divergent thinking in terms of trends of collaboration with South African universities. The literature outlined in this section displays arguments by authors who have found strong intra-continental ties, while others argue that international collaboration with countries outside of Africa is more prominent. Different authors have also argued that intra-South African collaboration is the more popular choice for collaboration for South African researchers. The authors have all commented on South Africa's dominance in research within the continent and have discussed patterns of collaboration by South African authors compared to other strong contenders within the continent.

Mouton and Blackenberg (2018: 15) further reiterate South Africa's dominance in IRC globally, presenting the annual article output that displays South Africa as the dominant producer of annual article output followed by Egypt, Tunisia, Algeria and Morocco. Smaller significant contributions are attributed to Nigeria and East African countries such as Kenya, Uganda and Tanzania. Within the context of the South African Development Community (SADC), Boshoff (2009: 500) reports that 78% of intra-regional (intra-Africa) papers are co-produced by South Africa, while 81% of all global collaborative papers in Africa are produced by South Africa as well.

Jacobs (2013: 45) says there has been a significant increase in the number of internationally co-authored papers in South Africa and comments on the geographical

locations of collaborations being dominated by the global north. Between 1994 and 2003, the collaborations between South Africa and the USA ranked at 45% and 13% with the United Kingdom (UK). Other countries in order of ranking were France (8.05%), Germany (7.80%), the Netherlands (7.60%), Australia (3.40%) and Belgium (3.20%). However, the affiliation with other countries was minute, such as Sweden (2.90%), Japan (2.90%), Canada (2.50%) and with all the African countries as a whole (3.20%). Figure 2.4 depicts this collaborative pattern.

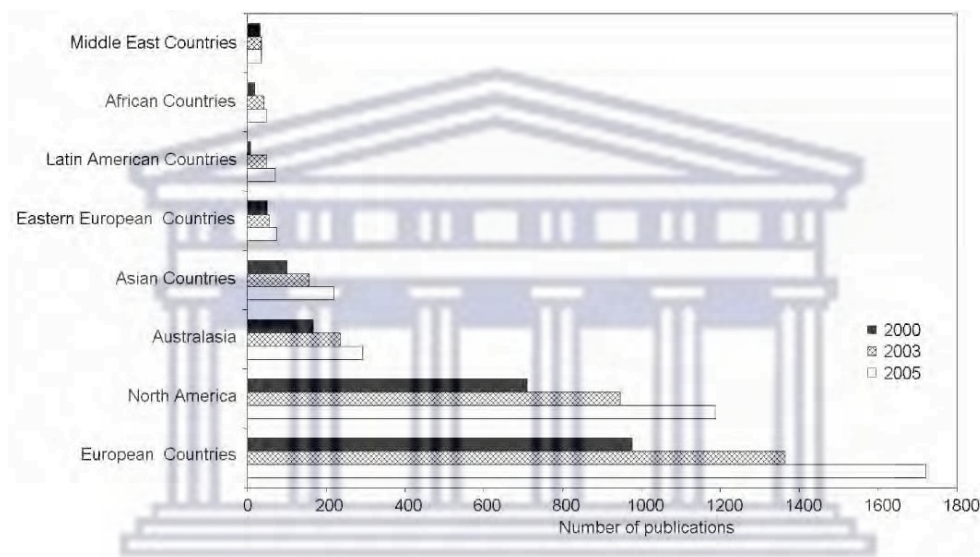


Figure 2.4: South African Partnerships by Region: 2000 - 2005
 Source: Sooryamoorthy (2009: 429).

The above figure reflects the steady growth of research collaboration in South Africa with collaborators across the globe. Sooryamoorthy (2009: 419) in his investigation into how collaborative South African scientists are, notes that South African scientists are highly orientated towards collaborative rather than individualistic research. The type of collaborative research preferred is IRC, with publication issues contributing to these decisions. Sooryamoorthy (2013: 536) further reports on the collaborative research activity of South African researchers, arguing that the endeavours are dominated by white male researchers at PhD (Doctor of Philosophy) level. Indian and African researchers make up the minority of researchers collaborating and contributing to research output from South Africa.

Further to the discussion on the extent of participation in IRC in South Africa, Sooryamoorthy (2013: 537) in his paper *Publication Productivity and Collaboration in South Africa*, notes that 57% of collaboration is intra-provincial collaboration, 31% national, 10% intra-African and 40% international collaborations outside of Africa. Sooryamoorthy (2009:435) further argues that international scientific collaboration in South Africa is sustained with countries where South Africa has historical contacts and collaboration. Sooryamoorthy (2009: 435) also claims that most collaborators working with South African scientists are from distant locations and not from neighbouring African countries. South African researchers prefer collaborating with international partners over domestic partners, as Sooryamoorthy (2009: 436) articulates:

“These point either to the increasing propensity of South African scientists to collaborate or to those zealous foreign scientists who want to establish ties with South African scientists for collaborative research initiatives” (Sooryamoorthy, 2009: 436).

However, these comments are contradicted by Onyacha (2011: 104) who writes that countries tend to collaborate with their neighbouring countries and that continental collaboration largely involves Southern African countries. Onyacha (2011: 104) also argues that collaboration by South Africa in the global north is strong with the USA as the leader, followed by England, Germany, Australia, Canada, France, the Netherlands, Belgium and Italy. The USA, England and Germany accounted for 66.34% of the international multiple country-authored papers with South Africa between 1986 and 2005. A total of 123 countries produced the remaining 33.66% of the publications with South Africa. Notably, researchers based in institutions in the USA are the majority collaborators with South African researchers (Onyacha, 2011: 104).

Jacobs (2013: 41) affirms that South African authors mainly collaborate with international partners (73.99%) rather than with national partners (26.01%). Jacobs (2013: 41) further notes that there is a sharp decline in publication output from 1995 until the end of 1998 and then again from 2003, arguing that the decrease in publication output is also an indication of the lack of collaborative research by South African scientists (Jacobs, 2013: 41). Figure 2.5 below illustrates the patterns of intercontinental research collaboration with countries in Africa.

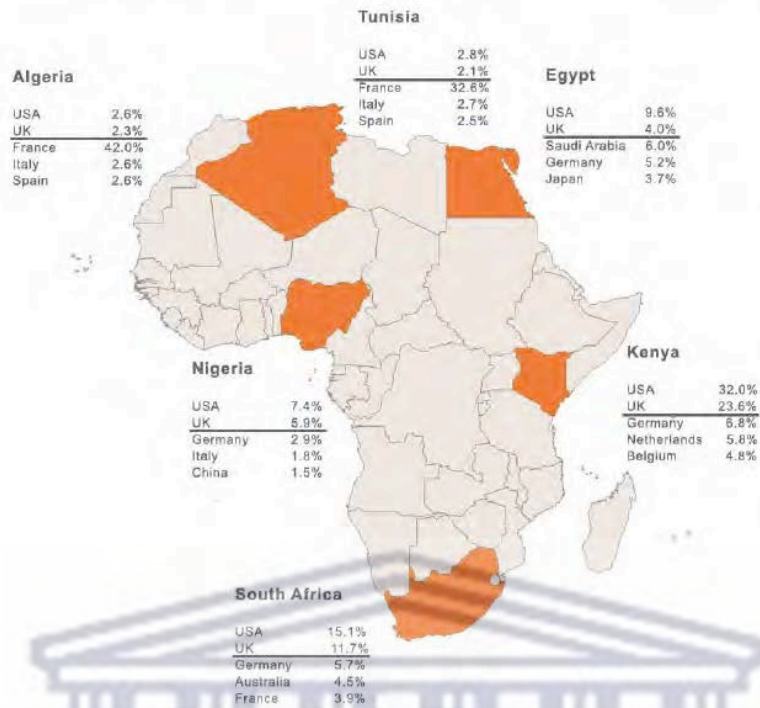


Figure 2.5: Most Frequent Intercontinental Research Collaborations for Six Key African Research Economies
 Source: Adams et al. (2013: 10)

Adams et al. (2013: 6) in Figure 2.5 highlights the most frequent collaborative partners in Africa as the USA, followed by the United Kingdom (UK) and Germany. This pattern is shown to be the case for South Africa as well. Similarly, Sooryamoorthy (2009: 437) reports that collaboration by South African institutions with Eastern European countries, African countries and Latin America was less prominent. Nevertheless, trends in international collaboration indicate that IRC is set to continue and expand in South Africa. In the early 2000s, the USA and UK's collaboration with South Africa increased in absolute numbers and in share of publications. In addition, collaborative papers with countries such as China and India seemed to be increasing (Jacobs, 2013: 47).

Pan, Zhong, Young and Niezink (2021: 14) in their network study of growing research capacity in Africa, substantiates the narrative that South African researchers collaborate mainly with partners in the global north, stating that institutions in the global north have remained important in evidence synthesis publishing and institutions in Europe and North America dominate the network. Pan et al. (2021: 14) also note that 60% of collaborations include at least one author from a high-income country.

Sooyamoorthy (2013: 539) presents in Table 2.3 below, the quantitative data on types of research (single and collaborative) of academics and scientists at research organisations in South Africa. The table details the patterns of collaboration in terms of the number of research projects per academic that are collaborative. The table then also further breaks the type of collaboration down between domestic and international collaboration. Notably, all collaborations outside of Africa are higher than those within Africa.

Table 2.3: Pattern of Collaborations between Academic and Scientists in Africa

Project details	Academics		Scientists		All	
	Mean	SD	Mean	SD	Mean	SD
Research projects [*]	5.26	5.702	7.64	11.71	5.98	8.07
Projects directed	3.32	4.07	4.72	10.15	3.75	6.6
Collaborated projects	5.17	9.5	4.68	5.83	5.02	8.56
Collaborated partners in career	15.4	18.38	20.4	27.81	16.8	21.51
Collaborated years in career ^{**}	9.35	9.65	6.38	8.02	8.43	9.27
	<i>N</i>	(%)	<i>N</i>	(%)	<i>N</i>	(%)
Any collaborative projects in career ^{***}	124	71.7	49	28.3	173	84.8
First project reported ^{*** a}	128	70.3	54	29.7	182	89.2
Collaborated project	115	74.7	39	25.3	154	84.6
Located in the province	66	75.0	22	25.0	88	57.1
Located in the country	33	68.7	15	31.3	48	31.2
Located in Africa (outside South Africa)	11	73.3	4	26.7	15	9.7
Located outside Africa	52	85.2	9	14.8	61	39.6
	Mean	SD	Mean	SD	Mean	SD
Partners	5.94	10.56	7.62	4.75	6.37	9.45
Beginning year of the project	2002.60	5.08	2003.08	8.244	2002.72	6.03
Duration of collaboration (year)	4.15	3.23	3.15	2.53	3.88	3.08

	<i>N</i>	(%)	<i>N</i>	(%)	<i>N</i>	(%)
Second project reported****a	96	80.0	24	20.0	120	58.8
Collaborated project	85	82.5	18	17.5	103	85.8
Located in the province	48	80.0	12	20.0	60	50.0
Located in the country	22	73.3	8	26.7	30	25.0
Located in Africa (outside South Africa)	8	100	0	0	8	6.7
Located outside Africa	30	88.2	4	11.8	34	28.3
	Mean	SD	Mean	SD	Mean	SD
Partners*	4.59	3.94	6.69	4.11	4.94	4.02
Beginning year of the project	2002.43	5.61	2002.63	11.51	2002.5	6.86
Duration of collaboration (year)	4.81	4.83	1.87	1.19	4.33	4.58
	<i>N</i>	(%)	<i>N</i>	(%)	<i>N</i>	(%)
Third project****a	56	83.6	11	16.4	67	32.8
Collaborated project	50	86.2	8	13.8	58	86.6
Located in the province	29	87.9	4	12.1	33	49.3
Located in the country	16	80.0	4	20.0	20	29.9
Located in Africa (outside South Africa)	6	100	0	0	6	9.0
Located outside Africa	15	83.3	3	16.7	18	26.9
	Mean	SD	Mean	SD	Mean	SD
Partners	4.72	4.92	4.67	2.65	4.71	4.61
Beginning year of the project	2002.78	4.77	2004.86	1.57	2003.04	4.54
Duration of collaboration (year)	4.37	4.33	2.29	1.38	4.11	4.13

Source: Sooryamoorthy (2013: 539)

Similar to the above authors, Onyancha (2011: 99) discusses the rise of multi-country-authored papers and collaborating countries of South Africa's, stating that since 1986, the USA topped the list of countries. However, when reporting on the countries collaborating with South Africa from within the continent, Onyancha (2011, 99) indicates that Zimbabwe is the number one country collaborating with South Africa. This observation is contradictory to Sooryamoorthy's, (2009: 436) argument that South African researchers tend not to collaborate with neighbouring countries but in line with Onyancha's (2011) earlier arguments about collaborations with neighbouring countries.

Onyancha (2011: 103) offers a trend line that displays the growth rate of multiple-country-authored papers, showing a steady increase and a higher growth of the total number of domestic papers, specifically after the end of the apartheid regime in South Africa. Onyancha (2011: 103) further argues that the opening up of South Africa's

collaborative space contributed to 75 countries (51 external to Africa and 24 intra-continental) collaborating with South Africa between 1986 and 2005.

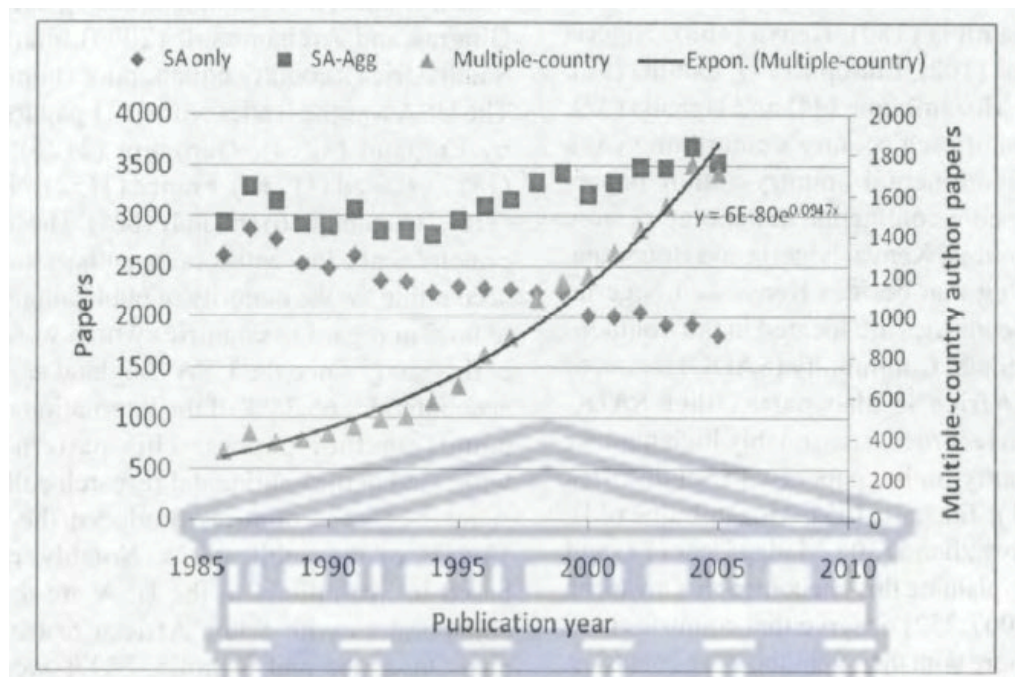


Figure 2.6: Trends of Single Country (South Africa) and Multiple-country Authored Papers
Source: Onyancha (2011: 103).

There are arguments from Boshoff (2009), Mouton and Blackenberg (2018) and Soorthyamoorthy (2018) in his analysis of science production in Africa, that scientific production in Africa is limited on the continent. However, in the context of intra-continental collaboration including South Africa, Onyancha (2011: 104) discusses the high rate of research collaboration between South Africa and other countries within the continent. He (2011: 104) notes that between the period of 1986 and 2005, 46 of the 53 independent countries in Africa participated in cross border research collaboration with South Africa. Zimbabwe was the leader with 224 articles, followed by Namibia (180), Kenya (168), Nigeria (123), Botswana (102), Ethiopia (77), Zambia (51), Tanzania (45), Mozambique (44) and Uganda (42).

An examination of each country's contribution as a percentage of continental-authored papers reveals that the core continental collaborators were Zimbabwe, Namibia, Kenya, Nigeria and Botswana. It is worth noting that besides Kenya and

Nigeria, the other three countries are located in the Southern African Development Community (SADC) region of which South Africa is also part. Other SADC countries which recorded a reasonably high number of multiple-country authored papers with South Africa are Zambia (51), Tanzania (45), Mozambique (44), Malawi (37), Swaziland (30), Madagascar (17) and Lesotho (15) (Onyancha, 2011: 104). Table 2.4 below outlines the collaboration with South Africa over a 20-year period.

Table 2.4: South Africa's African Country Collaborations

	Papers	% ^a	% ^b	% ^c		Papers	% ^a	% ^b	% ^c
Zimbabwe	224	0.35	17.95	1.23	Cote d'Ivoire	13	0.02	1.04	0.07
Namibia	180	0.28	14.42	0.99	Mali	12	0.02	0.96	0.07
Kenya	168	0.26	13.46	0.93	Algeria	11	0.02	0.88	0.06
Nigeria	123	0.19	9.86	0.68	Zaire	11	0.02	0.88	0.06
Botswana	102	0.16	8.17	0.56	Sudan	8	0.01	0.64	0.04
Ethiopia	77	0.12	6.17	0.42	Gabon	8	0.01	0.64	0.04
Zambia	51	0.08	4.09	0.28	Congo	7	0.01	0.56	0.04
Tanzania	45	0.07	3.61	0.25	Angola	5	0.01	0.40	0.03
Mozambique	44	0.07	3.53	0.24	Eritrea	5	0.01	0.40	0.03
Uganda	42	0.07	3.37	0.23	Mauritius	4	0.01	0.32	0.02
Egypt	37	0.06	2.96	0.20	Rwanda	4	0.01	0.32	0.02
Malawi	37	0.06	2.96	0.20	Cen. Africa Rep.	4	0.01	0.32	0.02
Cameroon	31	0.05	2.48	0.17	Guinea	2	0.00	0.16	0.01
Swaziland	30	0.05	2.40	0.17	Guinea Bissau	2	0.00	0.16	0.01
Ghana	22	0.03	1.76	0.12	Seychelles	2	0.00	0.16	0.01
Senegal	19	0.03	1.52	0.10	Burundi	1	0.00	0.08	0.01
Madagascar	17	0.03	1.36	0.09	Chad	1	0.00	0.08	0.01
Benin	15	0.02	1.20	0.08	Comoros	1	0.00	0.08	0.01
Lesotho	15	0.02	1.20	0.08	Libya	1	0.00	0.08	0.01
Tunisia	15	0.02	1.20	0.08	Mauritania	1	0.00	0.08	0.01
Burkina Faso	14	0.02	1.12	0.08	Niger	1	0.00	0.08	0.01
Morocco	14	0.02	1.12	0.08	Sierra Leone	1	0.00	0.08	0.01
Gambia	13	0.02	1.04	0.07	Togo	1	0.00	0.08	0.01

Key:
^a Country's % contribution to South Africa's total publication output (N=63426)
^b Country's % contribution to continental multiple-country-author papers (N=1248)
^c Country's % contribution to all multiple-country-author papers (N=18147)

Source: Onyancha (2011: 105)

Figure 2.7 below, created by Adams et al. (2013: 6) using VOSViewer to map out intra-continental collaboration in 2011, shows similarities in the statistics of the number of countries collaborating with South Africa (46). VOSViewer is a computer programme developed for creating, visualising and exploring bibliometric maps of science (Nees, Van Eck and Waltman, 2011).

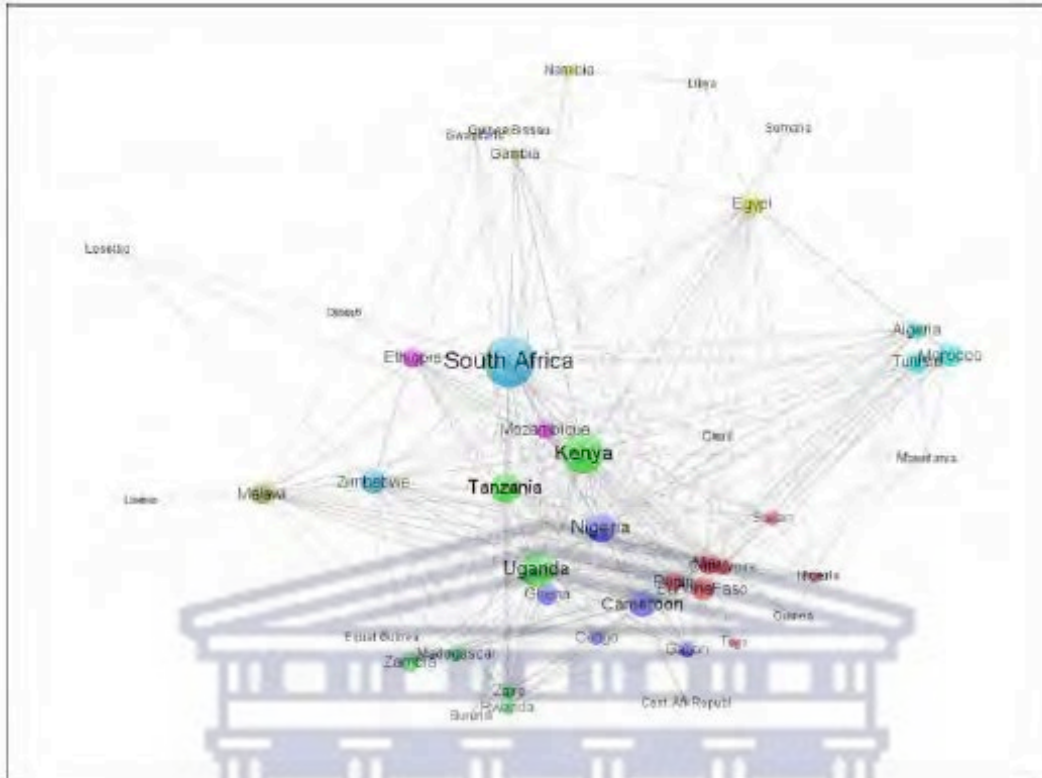


Figure 2.7: VOSViewer Intra-continental Collaborations in 2011
 Source: Adams et al. (2013: 559)

These statistics and contradiction by Onyancha (2011), may bring into question the issue of fair cooperation in addition to whether collaboration and scientific impact can be determined through bibliometric studies within the developing world. With Boshoff (2009), Mouton and Blackenberg (2018) and Soorthyamoorthy (2018) using bibliometric studies to determine scientific output, Onyancha's (2011) statistics on collaboration within Africa coincides with the arguments by Boshoff (2009) and Somasundaram (2019) that not all collaboration leads to co-authorship.

Kozma and Calero-Medina (2019: 1295) speak of the tendency of African researchers to collaborate more within their own countries. This indication is in line with Sooryamoorthy's (2013) statistics mentioned above. Kozma and Calero-Medina (2019: 1295) also comment that cooperation with other African countries is less frequent and they speak of the differences between research institutes and academic institutions, where research institutions tend to collaborate more within a country and universities participate more in intercontinental research collaboration.

In South Africa, there are many reasons to collaborate internationally. These authors have written about subsidies as well as academic promotion as reasons that academic researchers tend to collaborate. The location and extent of collaboration may be linked to these reasons. Kozma and Calero-Medina (2019: 1295) explain that researchers place emphasis on intercontinental collaboration within the African continent, based on the importance of a balanced partnership for the future of African research.

However, in South Africa, a government subsidy is granted to higher educational institutions to reward research outputs (primarily journal publications and post-graduate student graduations). Woodiwiss (2012: 424) in her editorial focusing on the challenges and dilemmas facing South African researchers, discusses international collaboration in the context of the governmental subsidy in South Africa. She notes that even though the practice is recommended, because of its enhancement of citations and subsequent quality, it also creates a dilemma in terms of the distribution of research output credits. She (2012: 424) argues that if each country involved in the collaboration is allocated a share of the collaborative publication, the publication count will decrease. The New Funding Formula (NFF), in place in South Africa since 2004, is critiqued by Woodiwiss (2012: 422) as she perceives it as a challenge that the government determines the total public funds spent in a given year on higher education. As a result, there is a decrease in the monetary value of a research output unit, likely creating a disincentive to increase research outputs nationally. This issue could also be attributed to a lack of collaboration in research.

2.5.2 The Context of the African Continent

Broadening the focus to the rest of the continent in exploring intra-African IRC, this section focuses on the trends of IRC against the dynamics between South Africa and the rest of the continent. In a discussion on capacity development for transformation in Africa, Leautier (2014: 1) explains that the human capital and institutional capacities needed for Africa to address its challenges and develop further, relies on how education is viewed, developed, and used. Education in Africa plays a critical role in development by way of contributing to the capacities needed to define and implement policies, uncover innovations and generate the calibre of leaders needed to transform societies and economies. Consequently, transformation requires the generation of

competencies provided by academic institutions. However, academic institutions in Africa face a myriad of challenges (Leautier, 2014: 1).

Teferra (2020: 240 - 242) in his chapter *Imperatives and Realities of Doctoral Education in South Africa*, details the private higher education sector's contribution of 0.2% of doctoral (PhD) students. Furthermore, he argues that historically, the largest producers of doctorates are the privileged universities in South Africa. These are the historically advantaged universities and are defined as those universities that were reserved mainly for white students during the South African apartheid regime. The majority of the doctorates in the Science, Technology, Engineering and Mathematics (STEM) areas produced in South Africa in 2017 were produced by these historically advantaged universities with the previously black universities adhering to the call to produce more PhDs in the fields of the soft or applied sciences. However, Teferra (2020: 242), notes that this separation of disciplines contributes to the preserving of the historical divide in the South African higher education system.

He also discusses the National Goals to produce 12 000 graduates by 2019 and the critique of this goal by Universities South Africa (USAf) as producing unrealistic goals and objectives and the lack of recognition of challenges limiting this achievement. An example of challenges is the low supervisory capacity rates in the South African higher education sector.

At a continental level, Khodabocus (2016: 26) in his work on challenges limiting doctoral education in Africa, refers to the results of a study focusing on doctoral enrolment at select flagship universities in Sub-Saharan Africa. The number of doctoral graduates between the period of 2001 and 2014 reached 3 538 with the University of Cape Town (UCT) producing the majority share of these graduates. Khodabocus (2016: 27) also notes the slow growth rate of doctoral enrolments in the Sub-Saharan African region. Similar to Teferra's (2020) observation, he (2016: 27) attributes the slow growth rate in South Africa and broader Africa to the lack of supervisory capacity in the region. He (2016: 27) intimates that in order to produce quality doctorates, adequate importance and emphasis must be given to the quality of supervision through internationalisation of research and post-graduate programmes.

Boshoff (2009: 500), unpacks supervisory capacity in the context of power dynamics in the region of Africa, presenting the SADC as periphery to the scientific core of South Africa. A report by the South African Council on Higher Education, shows that in 2005, 32% of all doctoral students and 45% of all master's graduates were from the SADC periphery. Boshoff (2009) describes South Africa as part of the global south periphery of science, but in the context of Africa, as part of the semi-periphery fulfilling the role of the scientific core. The arguments around the power dynamics in IRC outlines the issue of lacking supervisory capacity within periphery countries. In the context of SADC, South Africa has more capacity to develop researchers. However, within a global context, IRC allows for greater capacity for research development in South Africa through supervisory contributions from countries in the global north.

Kozma and Calero-Medina (2019: 1297) explore the issue of power dynamics within a research partnership through authorship positioning, theorising that the first authorship position denotes the most influence and effort in the writing of the publication. Bhattacharya (2010: 234) in his work explaining authorship, also says the first author position indicates the greatest effort and most significant contribution towards the manuscript, with the last position assigned to the most senior contributor. In the evaluation of the role of the South African research community in the scientific collaborative process, Kozma and Calero-Medina (2019: 1297) note that South Africans take the first and / or last authorship position in intra-continental collaborative projects. In line with the discussion on power dynamics, it is important to understand the aims of higher education in Africa to explain limited R&D participation and output.

Forming part of post-colonial discourse, Africanisation is described as a renewed focus on Africa and entails salvaging what has been stripped from the continent (Letsekha, 2013: 1). In a paper exploring decolonisation and Africanisation as instruments for transformation, Letsekha (2013: 1) explains Africanisation in the context of higher education as a call to adapt curricula and syllabi to ensure that teaching and learning are adapted to African realities and conditions. Nkoane (2006: 49), also discussing the Africanisation of a university in Africa, proposes that because of the vested interest of the global scientific community in African higher education, the issue of Africanisation must be addressed in order to benefit Africa itself and its people.

Research institutions that were established as a result of colonisation, still exist in the African continent. Mouton (2018: 5) argues that the role of different colonial powers in the formation of scientific institutions varied greatly across continents, but that a 'model' of 'colonial' science persists. However, he (2018: 5) also notes that the continuing legacy of colonial scientific institutions in African countries is not clear and should be assessed.

The colonial legacy in Africa has influenced the research agendas and patterns of collaboration in the different countries that have found independence (Boshoff, 2009: 486). As a result of the colonial ties, large numbers of collaborative publications in South Africa are associated with the UK, accounting for 29%. Boshoff (2009: 486) notes that in the case of Central Africa, France and Belgium account for 66% and 53% of the total scientific collaborative output of Chad and Burundi respectively. Adams et al. (2013: 547) point out the intense levels of interaction between leading research economies that have led to a reinforced global network which includes a core group of (fourteen) cooperative countries with strong national systems. As a result, peripheral countries could be disadvantaged by increased strength at the core (Adams et al., 2013: 547).

As discussed earlier, South Africa could be seen as the central core of science in Africa. Boshoff (2009: 500) reasons that South Africa has more to gain from collaborating with the global north being the global scientific core of science within the continent. Boshoff (2009) cites Schubert and Sooryamoorthy who note that South Africa's decision to collaborate with the north is strategic to mitigate global marginality challenges.

In discussing strategies in a post-colonial era, Jowi, Knight and Sehoole (2013: 13) observe a lack of impact by the governments of African countries in terms of development of higher education, despite the emphasis of this role at the 1962 UNESCO conference and later at the Association of African Universities (AAU) seminar in 1972 during the '*development decade*'. Consequently, universities in Africa have gained the reputation of operating as ivory towers or luxury ancillaries and as a result, the WB reported that development efforts in Africa needed to focus on primary

education. A further result is the decline in public expenditure on tertiary education in Sub-Saharan African countries (Jowi, Knight and Sehoole, 2013: 13).

Bradfield (2014) also discusses the role of Africanisation in the quest for transformation, explaining that Africanisation is generally understood to involve institutional transformation, and more specifically 'decolonisation' of higher education. Prior to Bradfield's definition, Makgoba (1997: 199) in his reflection on transformation, defined Africanisation as the process of inclusion rather than exclusion, saying that it is the process of defining, or interpreting, African identity and culture and affirming the African culture and its identity in the world community. Bradfield (2014) presents Professor Kai Horthemke's definition of Africanisation in the context of higher education in South Africa, saying that it is multi-dimensional and can involve four different kinds of transformations. These dimensions include a reflection of the country's demographic profile at all levels of life in the institution, transformation of the content of the syllabi, transformation of the curriculum and transformation of throughput rates and the research profile of the institution. Further to this definition, Bradfield (2014) expands on Professor Horthemke's discussion of Africanisation, that includes the questions of:

"What knowledge is of most worth to South African university students located on the African continent and part of a global society" (Bradfield, 2014).

The above discussion and question are also made in the context of internationalisation of higher education, with Bradfield (2014) arguing that Africanisation and transformation include a shift from science systems to global science networks, the capitalisation of knowledge and the integration of academic labour into the industrial economy.

Further to the argument of the inclusion of all knowledge in the global academic space, Hetzel and Bonfoh (2020) discuss the issue of balanced representations in commissions such as the Lancet Commission. Bradfield (2014) and Hetzel and Bonfoh (2020: 1693) ask whose knowledge really counts, who drives the synthesising and prioritising of knowledge for change and argue that three recent Lancet global health Commissions are examples of imbalances, with more than 70% of the Commission authors originating from institutions based in global north countries such

as North America and Europe. This imbalance is despite these countries being home to less than 20% of the world's population. Hetzel and Bonfoh (2020: 1693) offer that the statistics in Figure 2.8 below represent yet another betrayal in a globalised world, showing that target populations in the global south, including Africa, are not adequately represented.

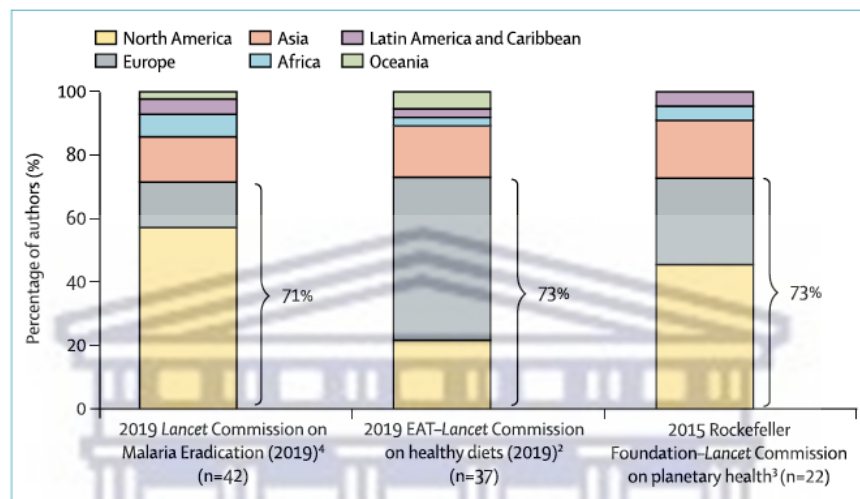


Figure 2.8: Institutional Affiliations of Lancet Commission Authors
Source: Hetzel and Bonfoh (2020)

When considering reasons for South Africa to collaborate within the spaces of the SADC and broader Africa, which are even more marginalised in the global scientific arena, Boshoff (2009: 500) argues that even though limited, in the case of the SADC, pockets of scientific strength exist. While promoting the type of intra-regional collaboration, Boshoff (2009: 500) advocates for guidelines that charter the course of collaboration that would ensure each partners equal association throughout the joint research. He (2009: 500) further intimates' guidelines as an answer to inequality in research partnerships and appeals for guidelines at each of the different stages of the joint research, including joint conceptualisation and drafting of project proposals.

Similar to Jowi, Knight and Sehoole (2013), Adams et al. (2013: 548) also refer to the WB observations and argue that by 2015, more than half of the nations on the continent had been behind timelines or regressing on objectives to achieve universal primary education. Challenges such as Internet penetration only in North Africa, constraining communication and access to knowledge is acknowledged as one reason

for the objective lag. They (2013: 548) argue for international research partners to increase impact and achievement of objectives. They further suggest that international research partnerships could facilitate the achievements of these objectives.

Beaudry, Mouton and Prozesky (2018b: 103) and Pan et al. (2021: 2) expand on facilitators that contribute to intra-continental collaboration in Africa. The mobility of academics and scientists is a key facilitator and is associated positively with an institution's reputation in terms of quality. The levels of mobility are associated with positive effects for an institution, and it is generally seen that through mobility, researchers have a larger international network allowing for increased opportunities for funding as well as increased rates of publishing and citations (Beaudry, Mouton and Prozesky, 2018b: 104).

Jowi, Knight and Sehoole (2013: 18) present international research communities as a solution to solving local challenges. Kozma and Calero- Medina (2019: 1305) confirm that international collaboration is under major expansion and visiting academics contribute to research output in Sub-Saharan Africa. They (2019: 1305) note that publications associated with the region are described mainly as non-local and transitory. However, Boshoff (2009: 500) argues that regional collaboration which includes a country significantly closer to the core of world science than the other countries in the region, does not represent south-south collaboration. This type of collaboration could be highly unbalanced and unequal and rather a variant of north-south collaboration.

Similar to Boshoff (2009), Hetzel and Bonfoh (2020: 1693) provide a guide for transboundary research partnerships, an initiative bridging the divide between low- and middle-income countries (LMIC) and high-income countries (HIC). The initiative also emphasises the importance of mutual trust, learning and shared ownership; however, Hetzel and Bonfoh (2020: 1693) report the example of Africa as representing only 7% of the members of the Lancet Commission on Malaria Eradication even though Africa consumes more of the knowledge produced by HICs. Further to this example, Boshoff (2009: 501) reiterates that any criteria or guidelines for successful north-south collaborations should also be extended to include south-south

collaborations that comprise highly unequal partners, such as collaboration between South Africa and the other SADC countries.

Besides these dynamics influencing the outcomes of IRC, Jowi, Knight and Schoole (2013: 15) explore the main motivations for African universities to embrace internationalisation, noting research outputs, knowledge production and the strengthening of institutional capacity. Fonn et al. (2018: 1164) report that in 2012, Southern Africa, East Africa, West and Central Africa produced 79%, 70% and 45% respectively of the continent's research output through international collaboration.

Confraria, Blackenberg and Swart (2020: 243) point out that it is commonly accepted that IRC improves a scientist's ability and performance. However, they also note that the total research output from researchers in Africa is a small proportion of global science (Confraria, Blackenberg and Swart, 2020: 244). In light of the limited research output, Jowi (2009) highlights developments, emerging trends and policy implications in the internationalisation of higher education in Africa. He (2009: 263) asserts that Africa, as a developing region, approaches internationalisation of higher education in a way that reflects its history, culture and context and with the aim of meeting its current needs, priorities and circumstances. In exploring the challenges and risks to IRC in Africa, Jowi (2012) presents as the following:

- There is insufficient supportive infrastructure for internationalisation including lack of partnerships, collaboration and mobility.
- The quality of higher education in Africa has suffered with the underfunding and massification of the sector.
- There is a lack of institutional capacity to respond to the opportunities and consequences of internationalisation.
- Africa's research output and post-graduate training are low as a result of a lack of strong research academics.
- ICT limitations prevent research produced in Africa from being available to the rest of the world.
- There are outside concerns about the quality of academic programmes offered in Africa (Jowi, 2012).

Despite the risks and challenges, Jowi, Knight and Sehoole (2013: 17) argue that through the practice of internationalisation, universities become strategic actors in the development of Africa with recent key policy publications illustrating the importance of north-south and south-south collaborations. These collaborations are aimed at boosting local knowledge production. They (2013: 17) state that these partnerships support universities in Africa in developing strategies that are rooted in national contexts and strengthened by international knowledge. However, Fonn et al. (2018), observe that intra-African collaboration remains severely restricted, with WB data showing that collaboration between countries in Sub-Saharan Africa ranges from 0.9% – 2.9%.

Similarly, Pouris and Ho (2013: 1) write that collaboration in the African continental research system is in an embryonic stage and at different stages of development from country to country. Consequently, Boshoff (2009: 486) notes the dependence of countries in the developing world on international collaboration to counter the low production of scientific output. Researchers in the developing world tend to participate in projects that have been conceptualised and designed by their partners in the north, meaning that they are just part of the execution (Boshoff. 2009: 487). Focusing on Africa, Boshoff (2009: 487) notes that only 1% of South Africa's publications are co-authored with scientists from other African countries.

In addition, Mouton and Blanckenberg (2018: 21) argue that African scientists increasingly collaborate with scientists elsewhere. Using Figure 2.9 below, their (2018: 21) analysis shows that intra-continental collaboration in Africa is negligible. The figure also shows fewer than 10% of papers are single-institution (no collaboration) papers, 40% intra-country collaboration and 50% intercontinental collaboration. They note that the trend is clearly in favour of the latter.

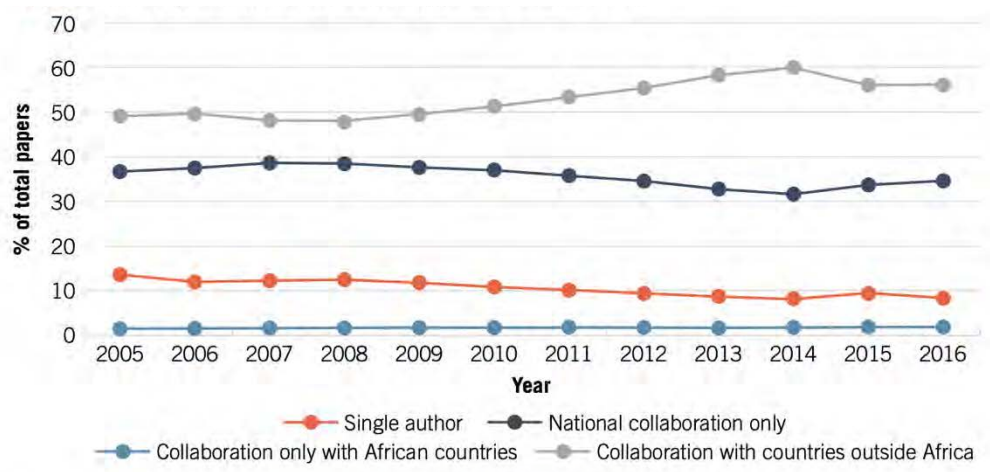


Figure 2.9: Africa Publication Collaboration Profiles (2005 – 2015)
 Source: Mouton and Blanckenberg (2018: 22)

Jowi (2009: 271) also notes that traditionally, internationalisation of African universities was predominately focused on partners external to Africa. However, there has been a steady growth towards intra-Africa cooperation and internationalisation between African countries. The International Association of Universities (IAU) in 2005 revealed that most institutions in Africa would prefer to cooperate with institutions from other African countries (Jowi, 2009: 271). Even though there is a preference to collaborate within the continent, the dependence on the developing world may restrict intra continental work.

Despite the growth noted by Jowi (2009), Mouton, Prozesky and Lutomiah (2018: 152) argue that intra-institutional collaboration is the preferred form of collaboration for African academics and scientists, citing the percentage at 62.9%, followed by international (36.9%) and national collaboration (35.7%). They (2018: 152) highlight the similarity between the survey results and the results of a bibliometric analysis of research collaboration showing the low priority given to collaboration with academics and researchers within countries on the African continent, as depicted in Figure 2.10 below (Mouton, Prozesky and Lutomiah, 2018: 152).

Figure 57: Type of collaboration

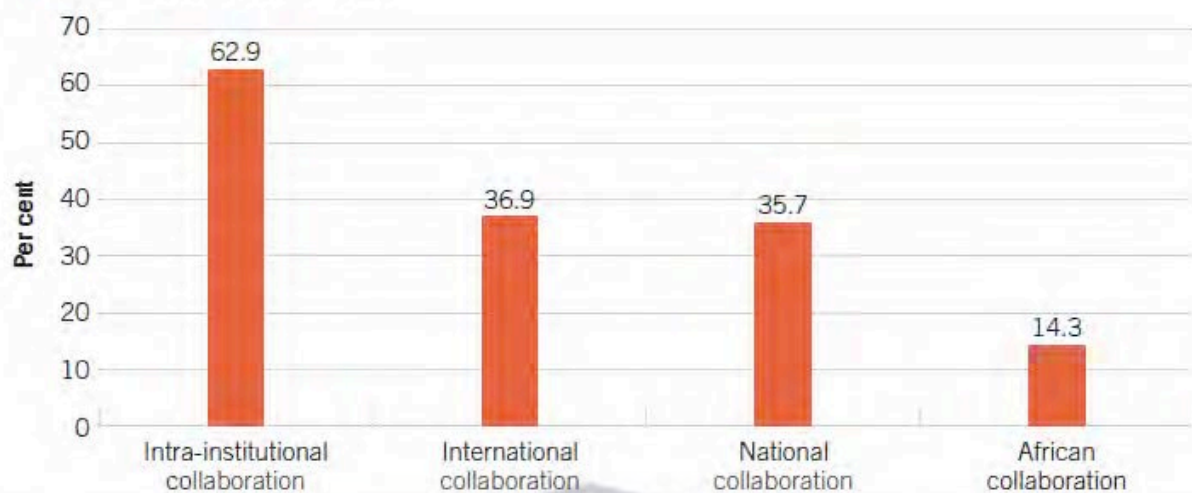


Figure 2.10: Types of Collaboration by Institutions in Africa
Source: Mouton, Prozesky and Lutomiah (2018: 152).

Boshoff (2009: 500) presents a number of insights on regional collaboration as a representation of south-south collaboration and the lessons learnt. North-south collaboration dominates the type of collaboration that occurs in the developing world. However, south-south collaboration has entered the political agenda as an alternative. In the case of the SADC region, only 3% of papers produced by the region during the period of 2005 – 2008 were co-authored by scientists from two or more countries within the same region. Five percent were co-authored with partners in other African countries and 47% co-authored with partners in HIC's. Also noteworthy of the intra-regional collaborative projects, is that a large number were the product of facilitation or mediation of north-south partnerships with 60% of these collaborations involving at least one partner from an HIC as part of the collaboration.

Kariuki (2016) cites the benefits for Africa in intra-continental collaboration, stating that collaboration can help in mobilising political support for research that has continental relevance. The academic rationale has been the most important, epitomised by the need to enhance research and institutional academic capacity (Jowi, Knight and Sehoole, 2013: 17). The research and academic capacity could manifest from the south-south collaboration facilitated through north-south partnerships.

Intra-continental research collaboration as a form of south-south cooperation is beneficial beyond the political trendiness that highlighted in literature. For example, Boshoff (2009: 409) cites the regional scientific collaboration between Israel and Palestine being pursued amidst political instability, arguing that regional collaboration could be the driving force for peace in this region. Boshoff (2009: 501) also emphasises the barriers that work against regional and intra-continental scientific collaboration, citing language and cultural division within the deinstitutionalised nature of the science systems in Sub-Saharan African countries as specific limitations.

Similar to Boshoff (2009) and Hetzel and Bonfoh (2020), Adams et al. (2013: 5) discuss definitive ways to guide these types of collaboration. They (2013: 5) argue that there is a need for determining the bottom-up regional and local factors that explain complex outcomes departing from a top-down global template. Strategic government intervention encouraging the intra-continental option as a form of south-south collaboration may provide peripheral countries with the required capacity to absorb leading edge research, countering the unequal and asymmetrical collaboration of north-south partnerships (Boshoff, 2009: 501).

In promoting intra-continental or intra-regional collaboration as the answer to the capacitation needs of the continent, Uwizeye, Karimi, Otukpa, Ngware, Wao, Igumbor and Fonn (2020: 2) discuss the Consortium for Advanced Research Training in Africa (CARTA) doctoral training programme. In their dissemination of lessons learned from this programme, they (2020) highlight the example of interdisciplinary collaborative research within Africa leading to high quality scholarly productivity which has stimulated cross institutional, cross cohort and cross disciplinary publication outputs.

Returning to South Africa's dominance in participatory global research collaboration, Boshoff (2009: 502) addresses South Africa's lead in Africa in the WoS indexing in 2008 with 52 domestic journals compared to the one indexed journal of Malawi and no journals for the rest of the SADC region. Nwankwo, Odiachi and Anene (2021: 17) explore the deprivation and bias in Library and Information Science (LIS) research. They (2021: 17) use the field and the global scientific accredited journal landscape to further describe the relative deprivation and implicit bias in research publications.

Figure 2.11 below illustrates the skewed distribution of LIS journals across all continents.

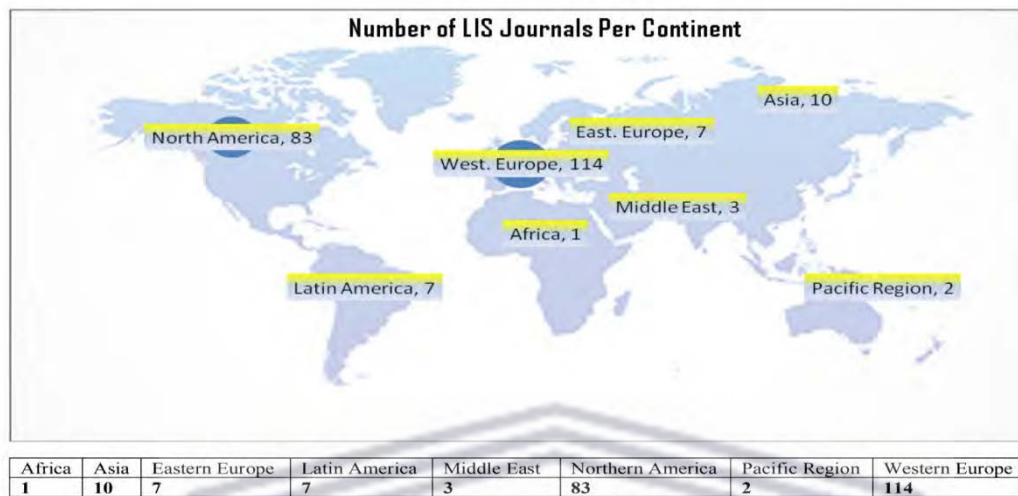


Figure 2.11: Library and Information Science Journals across the Globe
Source: Nwankwo, Odiachi and Anene (2021: 18)

Furthermore, Nwankwo et al. (2021: 23) cite the Average Impact Rank (AIR) of LIS journals and conclude that there is a need for intensified collaborations within both the same continent and externally:

“A university without many affiliations from other universities and academics would obviously be poorly impactful when compared to other universities in developed nations with established affiliations as is the case with Africa and Middle East/Pacific” (Nwankwo, Odiachi and Anene, 2021: 23).

The arguments regarding journals highlight that research emanating from peripheral regions such as Africa may not be valued, resulting in the rejection of works from deprived continents. Both Boshoff (2009: 502) and Nwankwo, Odiachi and Anene (2021: 18) deliberate on the relevance of research in terms of local benefits from output produced in alternate geographical locations.

In their review on the challenges African researchers experience in publishing research, Tarkang and Bain (2019: 6) argue Africa is underrepresented in accredited journals. They (2019: 6) report that researchers in Africa have been made to feel that

they will only gain worldwide recognition and a reputation when their papers are published outside Africa:

“They have been brain-washed to feel to feel that works published outside Africa are better than locally published ones” (Tarkang and Bain, 2019: 6).

At a continental level, the northern superiority narrative is linked to the arguments of what motivates academics to collaborate on research and how their decisions on where to collaborate are influenced. Researchers are motivated to research for promotion through successful publication. More value placed on journals that promote IRC between North-South partnerships, while as stated above, local, or regional, journals are not promoted.

Boshoff (2009: 502) asserts that the marginalisation of research from these countries will result in a decreased detection of output and therefore lower citation rates. Tarkang and Bain (2019: 6) suggest that the high mortality rate of journals in Africa call for the patronising of journals on the continent in order to raise the impact factor and usability (Tarkang and Bain, 2019: 7).

2.5.3 The Global Research Core, the Periphery and Collaboration

The discussions around marginalisation of countries on the periphery brings into focus the dynamics on the continent between South Africa and the rest of the continent. South Africa is defined as part of the developing world in relation to the Western bloc, but as the centre in relation to the rest of Africa, an important lens through which leadership of IRC within the continent should be explored. Worldpopulationreview (2021) defines the global south as comprising under-developed or economically disadvantaged nations. In addition, countries in the global south are also described as those that tend to have unstable democracies, are in the process of industrialisation and frequently face colonisation by global north countries. Moreover, Worldpopulationreview (2021) lists 46 of the 54 countries in Africa as part of the global south. They are as follows:

Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Republic of Congo, Democratic Republic of Congo, Cote D'Ivoire, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea,

Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritius, Mayotte, Mozambique, Namibia, Niger, Nigeria, Rwanda, Saint Helena, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, South Africa, South Sudan, Swaziland, Tanzania, Togo, Uganda, Western Sahara, Zambia, Zimbabwe. However, the following countries are also listed as global south nations in Arab States: Egypt, Morocco, Somalia, Sudan and Tunisia.

As the statistics presented above show, Teferra and Altbach (2004: 38) conclude that universities in the global north are the major producers and distributors of scientific knowledge with academic institutions in the global periphery being mostly consumers of the knowledge that is produced in the developed world. Boshoff (2009: 483) discusses the reality of developing countries being that whatever pockets of research excellence (RE) may exist, they are largely invisible within the context of globalisation. Within the context of power dynamics in Africa and South Africa Pan et al. (2021: 1) identify South Africa, Egypt and Uganda as having been central to the collaboration networks in Africa between 2008 and 2019.

In a paper discussing research capacity building in Africa, Chu, Jayaraman, Kyamanywa and Ntakiyiruta (2014:1) focus on the benefits for the developing world in collaborating with HICs. They (2014: 1) state that the practice has enormous promise to bring expertise, funding, and resources to Africa. However, they (2014: 1) also caution that with the benefits comes great potential for power imbalances in these relationships. Mouton and Blackenberg (2018: 22) question the increasing number of global co-authorships, noting the connection between country size and collaboration numbers. They (2018: 22) also note country policy choices and link this to the highly proportioned increased share of internationally co-authored papers in Africa over the last 30 years. Despite this increase, Boshoff (2009: 488) argues that in the peripheral countries of science, collaboration is high; however, the co-authors from Africa are more responsible for fieldwork, data collection or mere assistance in the interpretation of data that is collected.

Chu et al. (2014: 1) further posit that research in Africa is led, funded, and published by HICs without equal input and/or engagement with LMICs. Scientists from HICs seek

extractive research through mobility to the LMIC countries, obtaining data or samples and leave with the recognition and benefits of the publication. This phenomenon usually occurs because the HIC researchers secure most of the funding and therefore dictate most of the research agenda. As a result, collaborative projects in the peripheral scientific world may be unrelated to local research needs and drive conclusions that do not have any direct local benefit (Chu et al., 2014: 1).

While exploring international research collaboration as an emerging domain of innovation, Chen, Zhang and Fu (2019: 153) suggest that international collaboration is influenced by the progress of economic development in a particular country. They (2019: 153) note that the stage of the economic development of a country affects the patterns and impact of this IRC. Boshoff (2009: 487) further proposes that north-south relationships tend to be highly unequal due to a lack of capacity to store and manipulate large sets of electronic data in Africa, resulting in analysis of data occurring mainly in the north and consequently resulting in the African research partners being estranged from said data and ensuing publications.

Teferra and Altbach (2004: 38) promote the strengthening of research and publishing in Africa, arguing that governments, donor institutions, NGOs and bilateral organisations must direct their policies toward prioritising the revitalisation of African higher education if Africa is to effectively cope with the challenges of the present and future. Boshoff (2009: 483) says that strategically combining efforts and blending the best of southern research could increase the international visibility of science and participation in global science by the developing world. Further to the point arguing for south-south partnerships, Mouton and Blanckenberg (2018: 22) present social science researcher perspectives from South Africa who view international cooperation between the global north and south as time-consuming, costly, and one sided:

“Africa must take the initiative to lead its science and developmental agenda as it received global support. Collaboration will amalgamate different voices and ideas to promote and conduct research relevant to the continent’s needs”
(Kariuki, 2016: paragraph 16).

Boshoff (2009: 483) also contends that collaboration between countries in the south could result in the requisite capacity needed by researchers in the south to effectively negotiate with northern partners.

North-South collaborations can be funded by northern partner institutions, donor agencies and international organisations, presenting further challenges. Teferra and Altbach (2004: 38) argue that it is unlikely that major research funding will be available from indigenous sources in the near future; however, they note the importance for research to take place equitably and in a way that meets the needs of African scientists and the broader interest of African societies.

Tuhiwai Smith (1999) in her book *Decolonising Methodologies: Research and Indigenous Peoples*, writes about the impact of colonialism, post-colonialism, imperialism, and neoliberalism on global knowledge production. She (1999) discusses different arguments covering transformation of knowledge production at an academic research level. Southern theorist, Connell (2014: 211) also argues that there are hidden geopolitical assumptions in northern social theory resulting in a wide range of powerful social thought from the colonised and post-colonial world. In turn, academic dependency from the scientific periphery on the global north is a contemporary practice of research collaboration between north-south academic partners. Connell (2017: 7) has also termed this practice as 'quasi-globalisation', which consequently manifests as international research collaboration dominated by the northern perspectives.

Chibanda et al. (2021) in their work towards racial equity in global mental health research, discuss the under-representation of LMICs in publications, grants and project leadership. They (2012: 2) argue that colonial legacies have shaped the legal and political frameworks for research in Africa. In their paper on rethinking knowledge production, Takayama, Sriprakash and Connell (2015: v) further discuss the Eurocentric underpinnings of foundational knowledge perpetuated by mainstream institutions. Consequently, highly skewed and ultimately provincial knowledge of the world exists. Tuhiwai Smith (1999: 62) presents the argument that through colonial processes and the impact on higher education globally, the British Empire became the global laboratory for R&D. As a result, the globalisation of knowledge has reaffirmed the West's view of itself as the centre of legitimate knowledge (Tuhiwai Smith, 1999: 63). Furthermore, Connell (2017: 6) discusses the modern research systems underlying a global division of labour that entrenches the role of the periphery as

supplying data and knowledge while those in the north collate and process this data, produce theories, and later apply the theory to the periphery.

In discussing unequal partnerships, The National Research Council (2014: 23) highlight the importance of reaching agreement in advance on research authorship and dissemination of results as a solution. However, it also notes that reaching agreement can be challenging. Authorship policies of journals are at times also known to be complicated processes. In line with the argument of promotion through publishing as a rationale for IRC, the National Research Council (2014: 23) highlights conflicting objectives between periphery institutions and journals. Institutions aim to disseminate research in broader communities. Policies of journals view this objective in contrast with the academic pressure for “high quality” publication. These policies pose challenges in the global south. In addition, journals also prescribe that studies are not published anywhere before appearing in said journals, adding an additional layer of complexity for academics and researchers in the south.

The unequal global research landscape discussed above calls for greater understanding of the transnational, regional and national nexus in the production and spread of comparative educational knowledge. As a result, there is the hope that this practice will interrupt the uneven global streams of intellectual influence and encourage recognition of “other” comparative educations as a profoundly important epistemic resource for the development of new knowledge (Takayama, Sriprakash and Connell, 2015: vi). Boshoff (2009: 483) argues that relative to north-south partnerships, south-south collaboration may be more sensitive to the contextual needs of a fellow southern partner, resulting in increased opportunity to find suitable solutions to common challenges being experienced. Such partners, and particularly those within the same region, share similar environmental conditions and social challenges. This commonality provides increased opportunities to strategically address challenges that align with regional development priorities (Bickton, Manda-Taylor, Hamoonga and Mwenda, 2019: 120).

Boshoff (2009: 483) further promotes regional collaboration on the continent of Africa for the optimal and cost-effective use of limited resources, arguing that pooling of

research resources would bring developing countries closer to meeting their required investment needs and the accompanying benefits. This argument is echoed by Kariuki (2016) who discusses the benefit of pooling human resources in Africa in order to mitigate the scarcity of PhD supervisors. He (2016) further argues that intra-continental collaboration can contribute to the collective voice of Africa towards global research endeavours.

Furthermore, the issue of the brain drain from Africa to the global north is highlighted by Boshoff (2009: 483) and Kariuki (2016) as another resource challenge. Through intra-African collaboration, the diaspora from south to north could be included in south-south collaboration. Establishing regional centres of excellence in the periphery is one possible mechanism for collaboration in the south to address regional issues and may mitigate against the challenge of Africa losing 20 000 professionals annually to the developed world.

Through the discussion around global dynamics of IRC, this section also seeks to understand the strategies of the periphery to counter these issues. These challenges highlight contemporary issues within the higher education and research realm. The next section provides an overview of strategies in relation to IRC for the development of Africa through discussing governing instruments at an institutional, national and global level. In addition, challenges that limit the achievement of global strategic goals within the developing world and specifically on the continent of Africa is discussed.

2.5.4 Governing Strategies for International Research Collaboration in Africa

There are ideologies that guide internationalisation strategy and policy, which in turn guides activity at institutional, national, regional and international levels in Africa. However, strategy and policy do not necessarily translate to the realities of higher education in the developing world and specifically in Africa. Mouton (2018: 8) notes a study conducted by the WB in 2012 aimed at identifying initiatives to strengthen higher education in Africa. He (2018: 8) states that various international agencies in recent years have committed to increasing their investments specifically in African science. However, as discussed in previous sections of this chapter, a small number of countries in Africa such as South Africa, Egypt, Tunisia, Nigeria, Morocco, Algeria and

Kenya, are considered to be the research centres of the continent based on research output and collaborative pattern statistics.

De Wit, Rumbley, Craciun, Mihut and Woldegiyorgis (2019) have developed a report on international strategies adopted by national tertiary education institutions and their plans in selected countries within the global south. They (2019: 2) highlight entities such as the Organisation for Economic Co-operation and Development (OECD), the UN Educational, Scientific and Cultural Organisation (UNESCO), the WB and the European Commission as organisations prioritising internationalisation in tertiary education as key points of strategy.

Global strategies around research are driven by the pursuit of RE geared towards creating an enabling environment to groom and attract high-quality researchers. However, Tijssen and Kraemer-Mbula (2017: 392) in discussing RE in Africa, argue that there is no global consensus on what is meant by RE. Fonn et al. (2018: 1165) argue that universities which aspire to become research intensive, must establish a set of accountabilities, enhancing criteria that can be measured, and which should be met by all of them. They (2018: 1165) further argue that universities ready to step up to research-intensive status should have a record of good governance. Good governance can only be viable within a framework supported and overseen by both the relevant governments and by transparent self-regulation through a coalition of research-intensive universities across the continent (Fonn et al., 2018: 1165).

In terms of internationalisation, De Wit et al. (2019: 2) note that there is a stronger call for comprehensive internationalisation addressing all institutional aspects including internationalisation of the curriculum at home and internationalisation of research. Furthermore, internationalisation seems to be getting more globalised with increased regional, national, and institutional initiatives evident in the developing world. Calls within the global South also show international initiatives are becoming more inclusive of emerging voices and perspectives, and are contextualised and rooted in culture, place, time, and manner (De Wit et al., 2019: 3).

De Wit et al. (2019: 2) present a number of institutional and national internationalisation strategies and policy trends in the global south including:

- A greater focus on internationalisation abroad than on internationalisation at home;
- Ad-hoc, fragmented and marginal approaches rather than strategic, comprehensive, and central policies;
- Greater interest in small, elite subsets of students and faculty rather than global and intercultural outcomes for all;
- Shifting political, economic, social or cultural and educational rationales;
- Increase in motivations of national, regional and global rankings; and
- Limited alignment between international dimensions of education, research, and service to society as the three core functions of tertiary education.

Fonn et al. (2018: 1163) propose actions that should be taken by African universities, governments and development partners to foster the development of research-active universities on the continent. They (2018: 1163) note that at the point of independence from colonialism, higher education policy was defined by governments in Africa with the desire to decolonise the continent and achieve socio-economic progress, interrupted later by political opposition and civil unrest. In the quest for repositioning Africa in global knowledge production, Fonn et al. (2018: 1154) propose differentiation of the higher education system across the continent; new funding mechanisms for research intensive universities; and new accountability systems for research-intensive universities. Tijssen and Kraemer-Mbula (2017: 401) add that Africa-centric notions of RE should go beyond international research publications and scientific impact in the academic community, to embrace the wider impacts of researchers in their local or domestic environments.

Beaudry, Mouton and Prozesky (2018c: 177) while discussing the next generation of scientists in Africa, also comment on the continued legacy of weak institutions in Africa resulting from colonisation and the long-lasting impact of brain drain. They (2018c: 177) conclude that there is a general lack of established support structures within institutions. They (2018c: 182) argue that the continued dependence on international science funding along with the other challenges mentioned above, must be addressed by key stakeholders in the science system for the purpose of RE.

Within the framework of a stronger African focus, Thondhlana, Garwe and De Wit (2021) discuss internationalisation of higher education in the global South. They (2021: 4) state that the impact of internationalisation is increasingly noticeable at a local level and argue that the rethinking of internationalisation promotes the focus on developing country indigenous knowledge. New concepts of internationalisation include notions of:

- Relocalisation, referring to the need to think locally first so as to gain internationally;
- Africanisation, requiring engagement with Africa in terms of knowledge production, including indigenous knowledges and representations of African students; and
- Diversification which encompasses global engagement (Thondhlana, Garwe and De Wit, 2021: 5).

Waruru (2020) in *Taking and intra-Africa Approach to Internationalisation*, cites Professor Ahmed Bawa's comments on the existing inequalities in internationalisation in terms of capacities and capabilities between different countries. Consequently, Professor Bawa encourages universities as enterprises dependent on the flow of people and ideas, to facilitate the movement of scholars within the continent for the exchange of knowledge and ideas in Africa.

An instrument in line with the above arguments is the recently promulgated *National Policy Framework for Internationalisation of Higher Education in South Africa (NPF)*. This instrument aims to create a common direction for internationalisation while highlighting the potential benefits and risks. De Wit et al. (2019: 37) note the assertion by this instrument that internationalisation activities need to be done in a manner that prioritises the national interests of South Africa. They (2019: 37) also highlight South Africa's commitment to SADC. Pouris (2017: 2) illustrates South Africa's focus on SADC through highlighting South Africa's output that includes collaboration, with at least one co-author was from the SADC region. Further to the argument of for local interest in collaboration, Mwelwa, Boulton, Wafula and Loucoubar (2020: 31) also argue for the development of open science in Africa as a means of energising national

science systems and their roles in supporting the public and private sectors and the general public.

In line with the NPF call for a renewed focus on the continent, Fish (2018) notes that African research is slowly starting to grow in a USAF article arguing for the increase in collaboration in Africa. He (2018) summarises presentations from the USAF Second Higher Education Conference, promoting instruments such as the Sustainable Development Goals (SDGs) and the National Development Plan (NDP), each demanding that institutions work together at national, regional, and international levels.

Fish (2018) also highlights Professor Aryteetey's presentation of gaps in transnational and transdisciplinary initiatives across the African continent, noting that this collaboration has traditionally accounted for only 1% of global knowledge production. However, in 2018, it increased to 3,5%. This increase has been attributed to efforts from networks such as the African Research Universities Alliance (ARUA). Other networks that have also facilitated research collaboration within the continent is the tertiary conventions such as the ARUSHA/ADDIS Convention.

South Africa and its participation in continental development plans is also guided by the African Union's (AU) Agenda 2063 as well as the UN SDGs. In article covering IRC for the purpose of the SDG's, Makoni (2017) argues that Africa's ability to meet the SDGs is closely tied with its research capacity. He (2017) also states that meeting the SDG's requires universities to facilitate collaborations on the continent to address these goals within the context of Africa. Similarly, Mwelwa Boulton, Wafula and Loucoubar(2020: 37) conclude that there is consensus in the African Science Granting Councils' Initiative (SGCI) that major open science development in Africa would strengthen science systems and its ability to contribute to national and pan-African socio-economic priorities.

In addition to influence from governing instruments funding is also influential in IRC. The next section focuses on the different funding sources for R&D in Africa in general

as well as the funding sources that facilitate research collaboration and collaboration specifically within the continent.

2.5.5 Funding for Research and IRC in Africa

As mentioned by Jowi, Knight and Sehoole (2013: 17), funding for research in Africa originates mainly from external providers (institutions, organisations, or funding agencies). Mouton (2018: 26) asserts that it is important for research funders to have insight into how their funding schemes influence the research landscape. He (2018: 26) asserts that research funding organisations act as donors for R&D and represent a source of employment for scientists while providing facilities that may potentially be inaccessible in developing countries.

Funding for research is closely related to scientific collaboration. Beaudry, Mouton and Prozesky (2018a: 71) have noted that collaboration can be a powerful lever to raise funds. Research collaboration with multi-project research centres encourages researchers to collaborate and thereby use the available resources including those of a financial nature more efficiently. Wei-Chen (2017) highlights the example of the Australian Research Council (ARU) that has indicated commitment to enhancing IRC opportunities through the maintenance of cooperation with funding agencies in other countries. Consequently, best practices in policy development and programme delivery are shared. Wei-Chan (2017: 61) argues that this support encourages researchers to engage in IRC. Boisot, Nordberg, Yami and Nicquevert (2011: 22) also emphasise the emergence of large international endeavours that have translated into a high volume of publications with an extensive list of cross border co-authors. However, they (2011:22) argue that in the authors may not even know each other and use the “big science” ATLAS project as an example of this challenge.

In 2004, Teferra and Altbach (2004: 28) indicated that most countries in Africa have practically no funds allocated to research. Using certain countries as examples, they (2004: 38) highlight Ghana's declining trend from 0.7% of the Gross Domestic Product (GDP) in the 1970s to 0.2% in 1987. At a university level, in 2004, the University of Ghana received just \$1,4 million covering ten research centres. They (2004: 38) further present that the University of Makerere in Uganda received only \$80 000 between 1999 and 2000. Moreover, in Malawi, 07% of the entire University of Malawi

budget was allocated to research and publications in 1999 (Teferra and Altbach, 2004: 38).

The Continental Education Strategy for Africa (2016: 8) includes a strategic objective to revitalise and expand tertiary education, research, and innovation to address continental challenges and promote global competitiveness. The entity (2016: 19) notes that post-graduate research remains underdeveloped, and the strategy calls for diverse forms of resource mobilisation including support from national governments in Africa to focus more funding on R&D. Another entity, admin (2016) also identifies the noble research goals of the AU highlighting the commitment by AU states to spend 1% of GDP on research as laid out in the Science, Technology, and Innovation (STI) Strategy for Africa. However, the below figure illustrates spend on R&D globally and highlights that spend that has been committed by countries within Africa falls below the 1% mark.

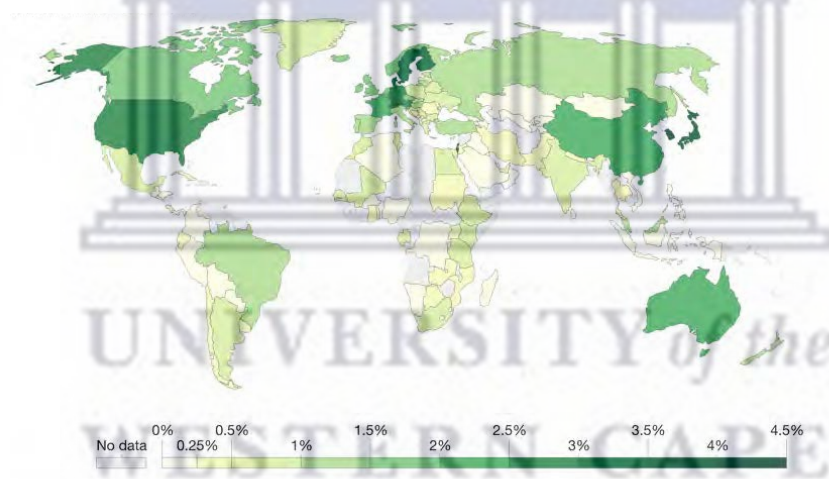


Figure 2.12: Spending on R&D as Share of GDP, 2014
Source: Our World in Data (2014)

Similarly, Figure 2.13 below illustrates the low R&D spend in Africa, with the highest percentage of GDP spend in South Africa. However, South Africa's share is still less than 1%.

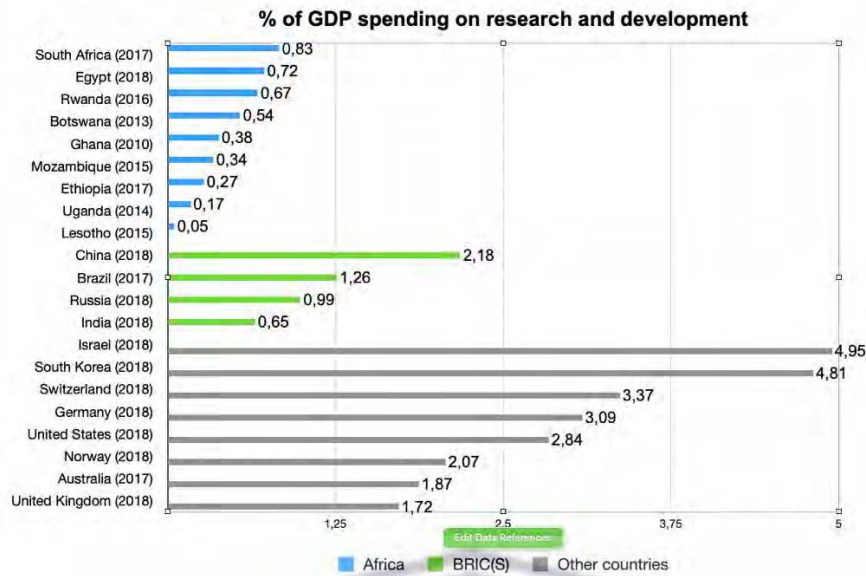


Figure 2.13: Percentage of GDP Spending on R&D
 Source: World Bank (2019)

The limited spend on R&D is echoed by UNESCO (2020) in a report on global R&D spending, which highlights that in 2017, 0,4% of the GDP in Sub-Saharan Africa was invested in R&D. This amount is opposed to the 2.5% in the USA and Western Europe and 2.1% in East Asia. Kozma, Calero Medina and Costas (2018: 42) isolate South Africa as the only country in Africa providing considerable funding for R&D and credit the NRF for the majority of this funding, with the Tunisian Ministry of Higher Education and Scientific Research also contributing significantly. However, Kozma et al. (2018: 36) and UNESCO (2020) posit that the majority of funding for R&D in Africa comes from outside of the continent and in South Africa, from government, business and external funding.

Exploring the reasons for the low investment in R&D in Sub-Saharan Africa, Fonn et al. (2018: 1163) suggest that over and above structural challenges and demands to reduce public spend, education funding has been preferentially diverted to basic education as a result of the WB contesting that the rate of return from basic education is greater than that of higher education. This explanation is echoed by Mouton (2018:3) who further argues that research and scholarship have been the main loser, with Africa's share of world science measured by citation indexes in the WoS steadily declining during this period.

The result of the low investment of funding for R&D by countries in Africa is that higher education institutions tend to depend on external funders to support their research activities. However, Beaudry, Mouton and Prozesky (2018a: 5) argue that this dependency results in the alignment of the research priorities by institutions in Africa to that of the research funder's agenda.

International funding agencies for R&D have committed to increasing investment in African Science. In 2014, the WB invested \$150 million toward 19 university-based centres of excellence in West and Central African countries, contributing to science, technology, engineering and mathematics (STEM) as well as agriculture and health science. Known as the Africa Centres of Excellence (ACE) Project, a notable investment is \$70 Million to Nigeria (Mouton, 2018: 9).

In 2013, Jowi, Knight and Schoole (2013: 2) credited the Department for International Development in the UK for research that was undertaken to explore how the international dimension of higher education can contribute to African development and in particular, the achievement of the Millennium Development Goals (MDGs). Through the Mobilising Regional Capacities Initiative (MRCI) Project in collaboration with the AAU, an open and competitive process, a number of young scholars and policy makers from the continent were included.

The National Research Council (2014: 26) and Mouton (2018: 7) discuss the role of funding in supporting science on the African continent including the enhancement of access to unique facilities, equipment and research environments; sharing the costs and risks of scientific investment and the exchange of expertise on techniques which results in the increase of capacity (National Research Council, 2014: 26).

The Swedish International Development Agency (SIDA) and the Department for Research Cooperation (SAREC) bilateral Research Cooperation, the Norwegian Agency for Development Corporation (NORAD), the Carnegie Trust, the Ford Foundation, the Rockefeller Foundation, the United States Agency for International Development (USAID), the International Development Research Centre (IDRC) as well as international research bodies such as the Consortium of International Agricultural Research Centres (CGIAR) and the World Health Organisation (WHO)

have all been highlighted by Mouton (2018: 7) as having a strong role in shaping and steering science on the African continent. Mouton (2018:7) has argued that countries in Africa have benefited immensely from these organisations and funding agencies and has outlined their significance as follows:

- “They provide some continuity in research programmes in the countries where they are located;
- They are conduits for R&D funding through their international donors;
- They form networks of collaboration and expertise that cut across national boundaries;
- They provide employment for local scientists in countries where research employment is limited; and
- They usually have much better facilities and laboratories for conducting research than the local universities and research institutes of the host country” (Mouton. 2018: 7).

The National Research Council (2014: 28) has also outlined the influence of external funding, noting the access to unique research facilities, equipment, research environments along with the sharing of costs as well as risks associated with research. In addition, the exchange of expertise, techniques and other insights and building capacity is also noted. They (2014:28) also reported on a statement from a presentation by the NSF, indicating that international collaboration should have mutual benefit as opposed to superficial collaboration where specimens, or data, are collected in the collaborating country.

Similarly, Mouton (2018:9) specifies investments by the IDR and the Department for International Development (DFID) into national SGCI to increase national internal capabilities to better arrange science, disseminate funding in an equitable and fair manner as well as monitor and evaluate the impact of the research activities within these countries. In addition, the WB and the Wellcome Trust have established research chairs and centres of excellence with the aim of creating sustainable research performing units. Furthermore, the German Academic Exchange Service (DAAD), the Carnegie Trust, the Ford Foundation and the Gates Foundation have

invested in doctoral programmes to train, build and expand future generations of African scientists and academics (Mouton, 2018: 10).

In addition, the National Research Council (2014: 26) has intimated that organisations such as the USA's National Science Foundation (Social, Behavioural and Economic Science Directorate) and the Research Councils of the United Kingdom (RCUK), aid research collaboration. Through projects like the Lead Agency Agreement, collaboration is facilitated through agreements that permit single proposals to either of the agencies. The National Research Council (2014: 26) also details programmes like the Catalysing New International Collaborations that cover the collaboration establishment costs, and the Partnerships for Enhanced Engagement in Research (PEER) USAID programme funding developing country researchers who collaborate with USA scientists.

However, Omungo (2018) highlights the perspective of the former Deputy Director: Programmes, Science Support and Systems at the African Academy of Sciences (AAS), who has described the role of external funders for R&D in Africa as so pervasive that if they were to pull out, research on the continent would grind to a halt. This comment is substantiated by Mouton (2018: 12) stating that between 2000 and 2012, Makerere University was able to maintain its research capacity and engagement through funding that was primarily from Europe and the USA, with the USA contributing \$10 million, the EU contributing \$16.5 million through the Carnegie Corporation, Norway contributing \$40 million, and Sweden \$62 million. These amounts are opposed to the \$1.2 million from the Uganda National Council for Science and Technology. In Africa, Kenya spends 0.8%, South Africa spends 0.76%, Morocco spends 0.7%, Tunisia spends 0.65% and Mali spends 0.55%. Other countries for which data are available are Uganda (0.04% in 2007), DR Congo (0.05% in 2005), Burkina Faso (0.1% in 2007), Senegal (0.1% in 2007), Sudan (0.3% in 2007) and Ethiopia (0.2% in 2007) (Fonn et al., 2018: 1164).

Mouton (2018: 7) further states that there is no alignment between the research priorities and programmes of the funders with that of the national R&D priorities of the individual countries in Africa. He (2018: 7) states that when institutes fall outside of the governance of the national science system, there is a lack of national institutional

building owing to the priorities that are usually set at a supra- or international level. Even though the funding may have a positive impact on science within the developing country or within these regions, there is still a disconnect from the national science systems.

In an open letter to international funders of science and development in Africa, Kyobutungi, Okiro, Fredros, Ifeyinwa, Midega and Ngozi (2021) highlight the case of the US\$30 million grant by the US President's Malaria Initiative (PMI) supporting African countries in the improved use of data for decision-making in malaria-control and elimination, that did not include any institutions from Africa. They (2021) urgently call for African political and research leaders to take greater responsibility to streamline research programmes and funding.

In line with this call, The NRF Annual Performance Plan for 2021/2022 – 2023/2024 (NRF Annual Performance Plan, 2021) and the National Research Foundation Act (National Research Foundation, 1998) highlights the NRF's mandate to contribute to national development through the support, promotion and advancement of research and human capacity. Funding and infrastructure aimed at facilitating the creation of knowledge, innovation, and development in all fields of science and technology can support this development. The mandate also includes developing, supporting and maintaining national research facilities, promoting public awareness and the engagement of science, and promoting the development and maintenance of the national science system.

The new NRF Policy and the encouragement by the foundation for universities to fund research collaboration is significant, given that the NRF is known to be one of the most prominent funders of research collaboration on the African continent. This prominence is illustrated in Table 2.5 below.

Table 2.5: Funding Organisations for Research on the African Continent between 2009 and 2017.

Place	Funding organization	Number of funded publications
1	National Institute of Mental Health	52
2	National Research Foundation of South Africa	51
3	National Institute on Drug Abuse	36
4	Medical Research Council of South Africa	29
5	Eunice Kennedy Shriver National Institute of Child Health and Human Development	26
6	Wellcome Trust	20
7	Fogarty International Center	20
8	Netherlands Organisation for Scientific Research	19
9	Medical Research Council of the United Kingdom	18
10	Economic and Social Research Council	16

Source: Kozma and Calero-Medina (2019: 1304)

Table 2.5 also shows the funding of research in South Africa from organisations outside of the African continent. Kozma and Calero-Medina (2019: 1294) argue that prominent funding organisations around the globe focus on western research interests, limiting the alignment with Africa's R&D priorities. They (2019: 1305) further argue that the future of African research requires a balanced partnership with researchers and institutions located in Africa.

Beaudry, Mouton and Prozesky (2018a: 78) present a more comprehensive list of most frequent funding organisations which fund research and research collaboration in Africa. Table 2.6 below outlines the funding agencies that most frequently fund collaboration with institutions in Africa to date.

Table 2.6: Most Frequent Funding Agencies for Research Collaboration with Africa

First funding organisation listed		Second funding organisation listed		Third funding organisation listed	
National Research Foundation – South Africa	773	National Research Foundation – South Africa	158	National Research Foundation – South Africa	57
European Union	89	European Union	54	European Union	32
National Institutes of Health – USA	86	Government – South Africa	50	USAID	19
Ministère de l'Enseignement Supérieur et de la Recherche Scientifique – Algérie	83	The Bill and Melinda Gates Foundation	38	South African Medical Research Council	17
Government – South Africa	74	USAID	34	World Bank	16
Government – Nigeria	64	South African Medical Research Council	33	The Bill and Melinda Gates Foundation	13
Ministère de l'enseignement supérieur et la recherche scientifique – Tunisia	59	Department of Science and Technology – South Africa	25	IDRC – Canada	11
Tertiary Education Trust Fund – Nigeria	52	DFID – UK	23	National Institutes of Health – USA	11
USAID	45	National Institutes of Health – USA	22	DFID – UK	10
The Bill and Melinda Gates Foundation	43	IDRC – Canada	21	WHO	10
IDRC – Canada	34	Ministère de l'enseignement supérieur et la recherche scientifique – Tunisia	19	Wellcome Trust	9
DFID – UK	29	World Bank	19	IRD – France	8
Wellcome Trust	28	Wellcome Trust	18	Agence Universitaire de la Francophonie	7
Direction Générale de la Recherche Scientifique et du Développement Technologique – Algeria	26	Center for Disease Control – USA	16	Medical Research Council – UK	7
International Foundation for Science	24	Direction Générale de la Recherche Scientifique et du Développement Technologique – Algeria	16	National Geographic Society	7
Water Research Commission	24	Water Research Commission	16	BMZ – Germany	6
World Bank	24	University of Cape Town – South Africa	14	DST – RSA	6
Agence Universitaire de la Francophonie	20	Government – Nigeria	13	International Fund for Agriculture Development	6
South African Medical Research Council	19	WHO	12	Ministère de l'Enseignement Supérieur et de la Recherche Scientifique – Algérie	6
Center for Disease Control – USA	17	Agence nationale de la recherche – France	11	Ministère de l'enseignement supérieur et la recherche scientifique – Tunisia	6
CNRST – Morocco	17	IRD – France	11		
University of Cape Town – South Africa	17	Stellenbosch University – South Africa	11		
Agence nationale de la recherche – France	16				

Source: Beaudry, Mouton and Prozesky (2018a: 78)

Fonn et al. (2018: 1164) suggest the creation of new funding mechanisms supporting research intensive universities in Africa. They (2018: 1164) posit that universities should at a minimum, commit their own resources to research. Further to the promotion of institutional internal funding, governments of African countries should increase their support for research in general. In addition, they should provide targeted funding for research while fostering research collaboration through joint basket funding that could result in regional multi-country collaborative research.

Similarly, in 2009, Boshoff (2009: 501) argued that for joint research to be mutually beneficial to all those involved; the marginalised countries situated on the periphery of world science should ensure that they have the required minimum capacity and commit to a minimum of national activities in science and technology. Individual national effort should also ensure the integration of Science and Technology (S&T) into priorities of national development plans supported by adequate resources that would include R&D investment and directing funding toward educational activities,

specifically in the basic sciences and effective systems of research (Boshoff, 2009: 501).

Fonn et al. (2018: 1164) similarly argue that investment into R&D should be made by regional and continental bodies complemented by bilateral and multilateral funding to enhance development opportunities. They (2018: 1164) argue that funders should designate portions of their funding to supporting research intensive African universities to create endowed chairs and partner with non-university research entities such as the CARTA group.

With the funding that is available for research in Africa, a number of networks have formed. The next section aims to outline literature covering active networks promoting research collaboration with and within Africa.

2.5.6 An Overview of Research Networks and Teams in Africa

Pan, Zhong, Young and Niezink (2021: 6) highlight that between 2008 and 2019, there was an increasing trend in co-authorship between countries in Africa and non-African institutions. Even though there is an increase in participation in research output by institutions in Africa, there is collaboration mostly with non-African institutions. This trend is illustrated in Figure 2.14 and Table 2.7 below.

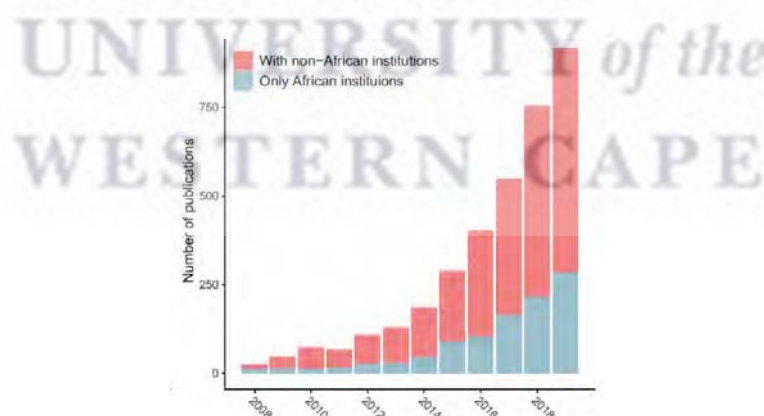


Figure 2.14: Co-authorship Trends of African Countries between 2008 and 2019
Source: Pan et al. (2021: 7)

The limited collaboration between countries on the continent is mirrored through a SciVal search of South Africa's collaborations. In South Africa, Heleta and Jithoo

(2023), in table 2.7 shows that the top 20 countries which South African (SA) institutions collaborate with on research, only includes Nigeria.

Table 2.7: Countries frequently collaborating with South African Institutions

Top 20 countries	Number of co-authorships
United States	35844
United Kingdom	26842
Germany	14177
Australia	13860
France	11036
Netherlands	10218
Canada	9971
India	9885
Nigeria	8577
China	8545
Italy	8266
Switzerland	7699
Spain	7230
Sweden	6926
Brazil	5821
Belgium	5416
Japan	4907
Norway	4643
Denmark	4281
Russia	4227

Source: Adapted from Heleta and Jithoo (2023: 7)

Boshoff (2009: 492) also outlines the rate of research collaboration in Africa including collaboration within the continent and external to the continent and has paid special attention to collaboration in the SADC region. In addition, Table 2.8 below highlights South Africa's collaboration record. The table compares statistics between the periods of 1975 – 1978 and 2005 – 2008.

Table 2.8: South African Collaboration Patterns between 1975 – 1978 and 2005 – 2008

Type of co-authorship	Angola		Botswana		DRC		Lesotho		Madagascar		Malawi		Mauritius		Mozambique	
	1975–1978	2005–2008	1975–1978	2005–2008	1975–1978	2005–2008	1975–1978	2005–2008	1975–1978	2005–2008	1975–1978	2005–2008	1975–1978	2005–2008	1975–1978	2005–2008
1. Single-authored papers	7.7% (1)	0.0% (0)	37.5% (15)	18.4% (116)	33.8% (52)	4.3% (9)	71.4% (30)	13.2% (9)	28.6% (14)	1.8% (10)	64.5% (60)	8.9% (58)	68.0% (17)	16.9% (32)	29.4% (5)	7.7% (21)
2. Papers co-authored within own country only	30.8% (4)	1.7% (1)	37.5% (15)	19.8% (125)	33.1% (51)	7.2% (15)	4.8% (2)	4.4% (3)	40.8% (20)	9.2% (51)	23.7% (22)	10.3% (67)	28.0% (7)	28.6% (54)	35.3% (6)	2.2% (6)
3. Papers co-authored with other SADC countries only (*)	0.0% (0)	3.4% (2)	7.5% (3)	8.9% (56)	0.0% (0)	1.0% (2)	7.1% (3)	33.8% (23)	0.0% (0)	0.9% (5)	1.1% (1)	7.1% (46)	0.0% (0)	0.5% (1)	5.9% (1)	2.2% (6)
4. Papers co-authored with non-SADC African countries only	0.0% (0)	0.0% (0)	2.5% (1)	4.3% (27)	0.0% (0)	1.0% (2)	0.0% (0)	13.2% (9)	2.0% (1)	2.7% (15)	0.0% (0)	1.2% (8)	4.0% (1)	2.1% (4)	0.0% (0)	0.7% (2)
5. Papers co-authored with non-African countries only	61.5% (8)	75.9% (44)	15.0% (6)	35.6% (224)	33.1% (51)	67.6% (140)	11.9% (5)	14.7% (10)	26.5% (13)	72.7% (403)	10.8% (10)	51.0% (332)	0.0% (0)	47.1% (89)	29.4% (5)	66.8% (181)
6. Papers co-authored with other SADC countries and non-SADC African countries (*)	0.0% (0)	0.0% (0)	0.0% (0)	1.0% (6)	0.0% (0)	0.0% (0)	0.0% (0)	1.5% (1)	0.0% (0)	0.2% (1)	0.0% (0)	0.9% (6)	0.0% (0)	0.0% (0)	0.0% (0)	0.4% (1)
7. Papers co-authored with other SADC countries and non-African countries (*)	0.0% (0)	8.6% (5)	0.0% (0)	7.6% (48)	0.0% (0)	4.3% (9)	2.4% (1)	16.2% (11)	0.0% (0)	3.6% (20)	0.0% (0)	12.7% (83)	0.0% (0)	2.1% (4)	0.0% (0)	12.5% (34)
8. Papers co-authored with non-SADC African countries and non-African countries	0.0% (0)	8.6% (5)	0.0% (0)	2.7% (17)	0.0% (0)	13.5% (28)	2.4% (1)	0.0% (0)	2.0% (1)	6.3% (35)	0.0% (0)	4.5% (29)	0.0% (0)	1.6% (3)	0.0% (0)	2.6% (7)

Type of co-authorship	Angola		Botswana		DRC		Lesotho		Madagascar		Malawi		Mauritius		Mozambique	
	1975–1978	2005–2008	1975–1978	2005–2008	1975–1978	2005–2008	1975–1978	2005–2008	1975–1978	2005–2008	1975–1978	2005–2008	1975–1978	2005–2008	1975–1978	2005–2008
9. Papers co-authored with other SADC countries, non-SADC African countries and non-African countries (*)	0.0% (0)	1.7% (1)	0.0% (0)	1.7% (11)	0.0% (0)	1.0% (2)	0.0% (0)	2.9% (2)	0.0% (0)	2.5% (14)	0.0% (0)	3.4% (22)	0.0% (0)	1.1% (2)	0.0% (0)	4.8% (13)
Total	100% (13)	100% (58)	100% (40)	100% (630)	100% (154)	100% (207)	100% (42)	100% (68)	100% (49)	100% (554)	100% (93)	100% (651)	100% (25)	100% (189)	100% (17)	100% (271)
(*) Intra-regional collaboration	0.0%	13.8%	7.5%	19.2%	0.0%	6.3%	9.5%	54.4%	0.0%	7.2%	1.1%	24.1%	0.0%	3.7%	5.9%	19.9%
Population 2007	16.95 million		1.88 million		62.40 million		2.01 million		19.67 million		13.92 million		1.26 million		21.37 million	
GDP (current US\$, billions) 2007	61.40		12.31		8.95		1.60		7.38		3.56		6.79		7.79	

Type of co-authorship	Namibia		Seychelles		South Africa		Swaziland		Tanzania		Zambia		Zimbabwe	
	1975–1978	2005–2008	1975–1978	2005–2008	1975–1978	2005–2008	1975–1978	2005–2008	1975–1978	2005–2008	1975–1978	2005–2008	1975–1978	2005–2008
1. Single-authored papers	41.4% (12)	9.4% (27)	40.0% (2)	5.2% (4)	39.2% (3087)	16.0% (3400)	72.2% (13)	14.3% (10)	54.9% (184)	5.2% (81)	60.5% (188)	8.3% (42)	48.3% (240)	7.9% (58)
2. Papers co-authored within own country only	13.8% (4)	4.5% (13)	40.0% (2)	1.3% (1)	53.5% (4209)	38.8% (8246)	16.7% (3)	12.9% (9)	29.6% (99)	8.8% (138)	33.1% (103)	5.1% (26)	39.6% (197)	14.0% (103)
3. Papers co-authored with other SADC countries only (*)	24.1% (7)	17.8% (51)	0.0% (0)	2.6% (2)	0.3% (26)	1.2% (254)	5.6% (1)	11.4% (8)	0.3% (1)	1.7% (26)	0.0% (0)	3.4% (17)	2.6% (13)	12.8% (94)
4. Papers co-authored with non-SADC African countries only	0.0% (0)	1.4% (4)	0.0% (0)	5.2% (4)	0.0% (3)	1.5% (316)	0.0% (0)	1.4% (1)	1.2% (4)	2.2% (34)	0.0% (0)	0.8% (4)	0.2% (1)	1.9% (14)

Type of co-authorship	Namibia		Seychelles		South Africa		Swaziland		Tanzania		Zambia		Zimbabwe	
	1975–1978	2005–2008	1975–1978	2005–2008	1975–1978	2005–2008	1975–1978	2005–2008	1975–1978	2005–2008	1975–1978	2005–2008	1975–1978	2005–2008
5. Papers co-authored with non-African countries only	13.8% (4)	31.1% (89)	20.0% (1)	66.2% (51)	6.8% (535)	39.3% (8352)	5.6% (1)	27.1% (19)	12.8% (43)	66.3% (1037)	6.4% (20)	57.4% (290)	8.9% (44)	42.4% (311)
6. Papers co-authored with other SADC countries and non-SADC African countries (*)	3.4% (1)	0.3% (1)	0.0% (0)	1.3% (1)	0.0% (0)	0.1% (15)	0.0% (0)	0.0% (0)	0.3% (1)	0.6% (9)	0.0% (0)	0.0% (0)	0.0% (0)	0.5% (4)
7. Papers co-authored with other SADC countries and non-African countries (*)	3.4% (1)	32.2% (92)	0.0% (0)	2.6% (2)	0.1% (4)	1.4% (292)	0.0% (0)	30.0% (21)	0.0% (0)	4.8% (75)	0.0% (0)	14.1% (71)	0.4% (2)	10.2% (75)
8. Papers co-authored with non-SADC African countries and non-African countries	0.0% (0)	1.7% (5)	0.0% (0)	9.1% (7)	0.1% (4)	1.6% (335)	0.0% (0)	0.0% (0)	0.9% (3)	7.7% (121)	0.0% (0)	5.7% (29)	0.0% (0)	6.3% (46)
9. Papers co-authored with other SADC countries, non-SADC African countries and non-African countries (*)	0.0% (0)	1.4% (4)	0.0% (0)	6.5% (5)	0.0% (0)	0.3% (67)	0.0% (0)	2.9% (2)	0.0% (0)	2.7% (42)	0.0% (0)	5.1% (26)	0.0% (0)	4.0% (29)
Total	100% (29)	100% (286)	100% (5)	100% (77)	100% (7868)	100% (21277)	100% (18)	100% (70)	100% (335)	100% (1563)	100% (311)	100% (505)	100% (497)	100% (734)
(*) Intra-regional collaboration	31.0%	51.7%	0.0%	13.0%	0.4%	3.0%	5.6%	44.3%	0.6%	9.7%	0.0%	22.6%	3.0%	27.5%
Population 2007	2.08 million		0.09 million		47.85 million		1.15 million		40.43 million		11.92 million		13.40 million	
GDP (current US\$, billions) 2007	7.02		0.73		283.01		2.89		16.18		11.36		3.42 (in 2005)	

Source: Boshoff (2009: 492)

Boshoff's (2009: 492) table outlining research collaboration in Africa shows that collaboration with the SADC region has increased in general, except for Mauritius and Namibia. Angola is also noted in the table as having no collaboration with SADC countries.

In terms of collaboration with non-SADC countries in Africa, the table above notes 0% in both periods for SA's collaboration with Angola. Notably, Lesotho has an increase of 13.2%. There has been a decrease in collaboration between institutions in Mauritius and non-SADC African countries. Also, noted is the increase in terms of research collaboration between South Africa and non-SADC African countries.

Adams et al. (2013: 558) illustrate the countries in Africa which consistently collaborate through Figure 2.15.

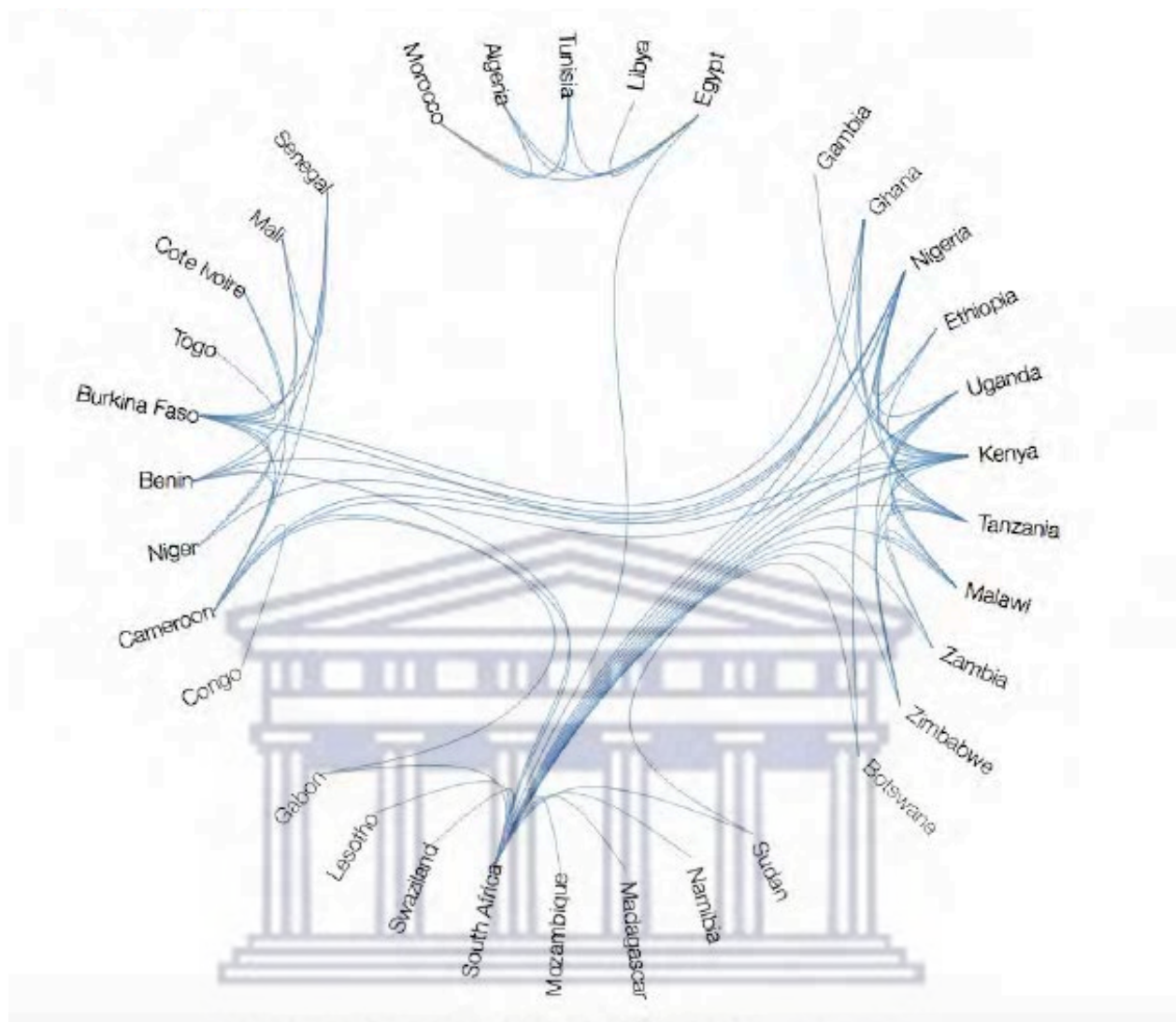


Figure 2.15: Strength and Consistency of Research Networks in Africa
 Source: Adams et al. (2013: 558)

Figure 2.15 illustrates that South Africa is included in all networks. Adams et al. (2013: 552) have focused on the strength and consistency of interaction to determine networks within the continent, finding that no single network exists. They (2013: 552) also argue that collaboration is driven by geography, but also by shared culture and shared language collaborations strongly occur.

Based on these patterns, the above figure also shows marked interaction between Northern African countries that share both language and culture. Adams et al. (2013: 552) present this network as strongly linking countries that are individually active in research in a number of different fields. Little research collaboration occurs with

African countries external to this network. However, the Egypt – South Africa link is highlighted.

The illustration also highlights a West African network that centres around the relatively productive research country, Cameroon. Adams et al. (2013: 522) argue that the cross-national business language of French is the common factor facilitating collaboration. They (2013: 522) argue that this common factor is similar to the group including Kenya and the geographical neighbours in East Africa as well as Nigeria, Ghana and Gambia which all have English as a common language of collaboration.

To explain the low rate of collaboration between SADC countries, Adams et al. (2013: 552) point out that a network does not emerge in their research diagram. The illustration above shows a split between the groups linked to Kenya and Nigeria as well as the group linked to South Africa. Adams et al. (2013: 553) conclude that collaboration networks in Africa are dependent on a small number of key players that link regional and cultural groupings. A regional grouping linked to South Africa is the integrated post-apartheid SADC objective highlighted by Boshoff (2009: 484) as formulated in the SADC treaty. The treaty aims to promote sustainable and equitable economic growth and socio-economic development ensuring poverty alleviation to enhance the standard and quality of life of the people of Southern Africa and support the socially disadvantaged through regional integration.

Even though these networks were outlined in 2013 by Adams et al. (2013), Dodsworth (2019: 9) also illustrates through Figure 2.16 below that scholars in Africa find themselves working with other scholars who are based in the global north more frequently than those in countries within the continent. For South Africa in particular, the collaboration takes place with the USA, UK as well as other European countries.

network highlighted by Fonn et al. (2018: 1164) is the CARTA group. They (2018: 1164) argue that the network proves the possibility of revitalising the African Academy in Africa by Africans. ARUA is credited as the body providing the forum for developing collaborative intra-Africa university research partnerships like the CARTA network, that Fonn et al. (2018:1664) argue should be emulated as a model.

Inaugurated in 2015 in Dakar, the ARUA brings together 16 universities from different countries in Africa, representing different historical backgrounds, but with the common vision of significantly expanding and enhancing the quality of research done in Africa by African researchers (ARUA, 2021). Member universities include research intensive universities across 10 African nations including South Africa, Kenya, Nigeria, Ethiopia, Ghana, Rwanda, Senegal, Tanzania, Uganda and Mauritius (ARUA, 2021).

Another organisation, the Southern African Regional Universities Association (SARUA) promotes regional impact on the continent through networking, collaboration and partnership. With a specific focus on the SADC region in Africa, SARUA aims to build the capacity of a responsive and capable higher education community through key projects, which include collaborative research activities that follow on from identifying key areas for strategic research and analysis (ARUA, 2021).

The AAU, another body facilitating networking for research collaboration on the continent, aims to be the leading advocate for higher education in Africa, with the capacity to provide support for its member institutions in meeting national, continental and global needs (AAU, 2016). The strategic priorities include:

- Leading dialogue and policy debates around key issues in African higher education and promoting the role of universities in sustainable development;
- Strengthening institutional capacity of key stakeholders;
- Promoting harmonisation and standardisation in order to enhance competitiveness and inter-institutional collaboration and networking; and
- Exploring other mechanisms for sustainable financing.

An Independent, non-profit making NGO, the African Network for Internationalisation of Education (ANIE) says that it is committed to the advancement of high-quality research, capacity building and advocacy with a prime focus on Africa. With research being one of ANIE's core functions, there is a focus on the development and implementation of innovative research programmes addressing key challenges and responses to needs identified by African higher education institutions (Anienetwork.org, 2021). The International Education Association of South Africa (IEASA), is another non-profit organisation in South Africa advocating, promoting and supporting internationalisation; however, it has a specific focus on Africa and the developing world (IEASA, 2020). In addition, the AAS is described as a non-aligned, non-political, not for profit, pan-African learned society with the vision to see transformed lives on the continent through science (Aasciences.africa, 2021).

Section 2.5 of this report has outlined IRC within the continent of Africa, providing information on the nature and extent of collaboration within the South African context and the broader context of the rest of the continent. Furthermore, the section has discussed the global power dynamics impacting IRC in Africa as well as power dynamics within Africa impacting intra-African research collaboration. In addition, the section has presented an overview of governing frameworks including strategy and policy at an institutional, national, regional and global level. Finally, funding sources and facilitating networks have been presented.

The previous sections such as the section 2.4.2, have established the need for leadership in research and the necessity for leadership in research within the African context. The following section will explore the concept of leadership while understanding the leader role.

Antes, Mart and DuBois (2016: 1) believe that leadership and management roles in research have received scant empirical examination. In a study conducted among genetic researchers, the results revealed that researchers themselves consider leadership and management of research essential. However, they (2016: 1) feel their scientific training inadequately prepares them for these roles.

PART 2: THEORISING THE LEADER ROLE IN INTRA-AFRICAN ACADEMIC COLLABORATIVE RESEARCH TEAMS

2.6 The Knowledge Base of Leadership Frameworks

This section will discuss leadership as a concept and pay specific attention to leadership of research within the African context. The role of the leader will also be explored in relation to the leadership of research teams. As this research is located within the borders of the African continent, the different R&D challenges faced within Africa in relation to leadership are explored.

Africa as a continent within the writings of the western world, has been a continent plagued by corruption, dictatorship, military coups, rebellious leaders, greediness, misuse of power and incompetent, politically unstable leaders. Despite different cultural values, African leadership has evolved through three historical eras: namely the African Religious Era, the Christian Era and the Era of Globalisation. Masango (2003: 707) in a journal review of leadership in the African context, states that through these eras, leadership in Africa has shifted from African values to concepts of more western values.

During the Christian Era, missionaries led African people to live with both the African and western concepts of life. However, African concepts of leadership were seen as barbaric and uncultured. Masango (2003: 711) asserts that these concepts have not acknowledged the specific cultural and geographical circumstances of the continent which should not be judged by western standards. Masango (2003: 711) concludes that the contemporary era of globalisation has allowed African leaders to revert to initial leadership traits, drawing on African concepts of unity among leadership structures.

In his work *Culture and Leadership in Africa*, Kuada (2010: 15) argues that based on complexity theories of leadership, there are elements of African culture that promote unique and positive leadership behaviours. However, Kuada (2010: 15) also argues that certain cultural rules of the continent may be known to act as drags on effective leadership and management practices and thereby constrain entrepreneurship and

economic growth. The following section outlines different leadership frameworks from the literature explored in this research.

Leadership can be understood as the ability to influence a group toward the achievement of goals. Van Zyl and Dalglish (2009: 3) while writing on leadership in the African context, points out that leadership has existed throughout the history of mankind, stating that all societies have leaders. Van Zyl and Dalglish (2009: 4) notes that with the development of leadership in the 20th century, the leader position was accepted as a result of inheritance or seizing through force and a position that could not necessarily be changed.

Both Van Zyl and Dalglish (2009) and Forsyth (2014), discuss leadership in terms of leader emergence and leader effectiveness. Van Zyl and Dalglish (2009: 4-5) explores a number of leadership theories that have evolved over time which are the concepts that academics have used to explain the nature of leadership. Van Zyl and Dalglish (2009: 4) who writes on leadership within the African context, describes the Great Man Theory as suggesting that leaders and followers are fundamentally different, with different personal attributes and acting in different ways. The notion of people being born to lead is also located within this theory. Similarly, Forsyth (2014: 286) in the 6th edition of *Group Dynamics*, describes the Great Leader Theory and asserts that leaders do not achieve their positions by accident, but rather by possessing certain characteristics that mark them for greatness.

The Big Five Model of leadership (Van Zyl and Dalglish, 2009: 4) is also explained as encapsulating all personality traits in an understandable way. These traits are said to include; dominance and extraversion, sociability and warmth, achievement, orientation, organisational ability and self-acceptance and self-control. Another leadership model, the charisma theory is described by Van Zyl and Dalglish (2009: 4). Charismatic leaders come from the margins of society and emerge as leaders during times of social crises. Forsyth's (2014: 286) description of the Zeitgeist theory mirrors the charisma theory in that the qualities people possess are largely irrelevant, but rather that leaders will emerge in line with the circumstances of the day and the situation within which the task occurs. Conversely, Van Zyl and Dalglish (2009: 4)

indicates that leadership is primarily a function of the leader's extraordinary qualities and not the situation.

Similar to the Van Zyl's description of the charismatic theory is the Situational Leadership Theory which is described in terms of relationship and task dimensions. It infers that effective leaders combine supportive behaviours depending on the developmental level of the team members (Forsyth, 2014: 305). Another theory that emphasises the relationship between the leader and the subordinate is the Leader – Member theory, which focuses on the one-on-one relationship between a leader and a subordinate. The theory notes that leaders have a dyadic relationship with each team member and that these relationships can differ between people. In essence, the theory resolves that the relationship determines the response of the team member to the leader (Forsyth, 2014: 306).

Van Zyl and Dalglish (2009: 5) argues that contingency theory depicts effective leadership as contingent on the situation. Forsyth (2014: 301) also unpacks Fiedlers' contingency model and concludes that leader effectiveness cannot be predicted by considering leader qualities or the situation. Instead, the theory assumes that leadership effectiveness is contingent on both the leader's motivational style and the capacity to control the group situation.

Van Zyl and Dalglish (2009: 5) further refers to the transformational and transactional framework as theories which must be included in the discussion of leadership. This framework is described as connected to the persona and behaviour of the leader and the context of the followers. Power and leadership are both recognised as entities within this framework, with power wielders being able to use their power to influence followers to accomplish the leader's goals. Followers are seen as a means to an end. Forsyth (2014: 311) describes transformational leadership as a leader who sets out to achieve a vision for all rather than individual initiatives. In addition to facilitation, leaders face the responsibility of planning and making possible changes with the aim of elevating the group from the previous status quo.

The sixth theory offered by Van Zyl and Dalglish (2009: 5) is the servant leadership theory which is depicted as a not-for-profit approach. Servant leaders lead because they want to serve others and have followers who follow freely through their trust of

the leader. The final theory provided by Van Zyl and Dalglish (2009: 5) is the organic / social capital leadership type which is interpreted as the 21st century leader being tasked to build social capital and infers that leaders see themselves as reaching out to their followers and facilitating change. Moreover, the implicit leader theory is discussed as another concept of leader emergence by Forsyth (2014: 295). The Implicit leadership theory intimates that leaders emerge through the influence of the cognitive structures of the team members. Figure 2.17 below illustrates this theory:

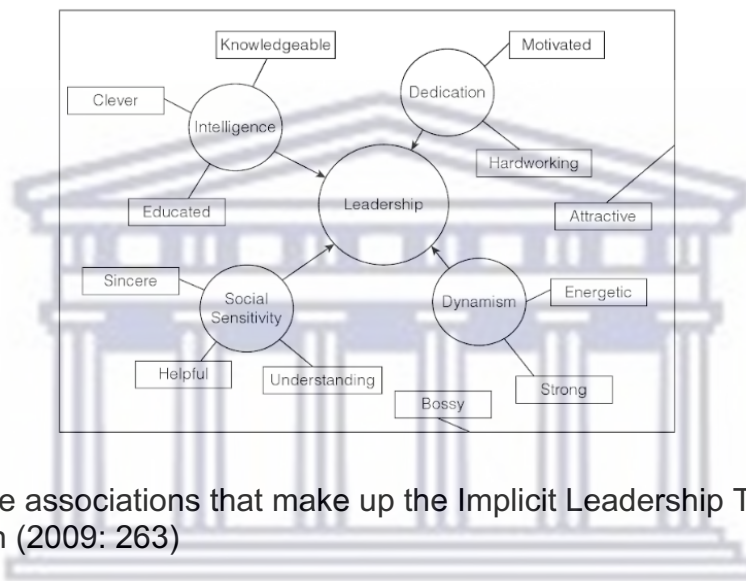


Figure 2.17: The associations that make up the Implicit Leadership Theory
Source: Forsyth (2009: 263)

Forsyth (2014: 264) offers the social identity theory, which submits that the social identity process is influential in leader emergence.

“Social identity theory predicts that when group members share a social identity, they will favour individuals in the group who best represent that identity”
(Forsyth. 2014: 264).

Similar to the implicit and the social identity theories in leader emergence, is the social role theory that is described by Forsyth (2014: 264) as one where group members have certain expectations about the characteristics of their leader. However, this theory emphasises the importance group members put on task orientated qualities rather than communal or interpersonal aspects.

2.6.1 Leadership in the African Context

In the context of Africa, the study of leadership remains in the nascent stage. Through a literature review of leadership studies within the African continent, Abbebe, Tekleab

and Lado (2020: 146) argue that there is still much to be learnt to fully understand the nature of leadership in Africa. However, they (2020: 148) also highlight principles of African leadership that are unique from Western countries, including leadership styles such as Ubuntu, virtuous leadership and Afro-centric leadership.

Pillay, Subban and Govender (2013: 105) substantiate that leadership in Africa must be understood within the framework of the rich historical, cultural and developmental diversity of its countries, in their article *Perspectives on African Leadership in the Spirit of Ubuntu*. Thus, in Africa, emerging leadership theories have become evident. A dominant theory, discussed by a number of authors, is the African leadership model of Ubuntu. Galperin and Alamuri (2016) provide a literature review of leadership effectiveness in Africa and the African Diaspora. They (2016: 37) believe that the lack of responsible leadership on the continent has resulted in continued challenges. They further argue that research on leadership in Africa remains fairly limited. Similarly, Abebe, Tekleab and Lado (2020: 145) state that despite the depth of research on leaders and leadership in the Western and Asian contexts, the study of leadership in the African context remains at a nascent stage.

The Talent Agenda Series (n.d) in an article on redefining leadership in Africa, adds that there is a necessity to bridge the gap between old models of leadership success and the modern-day shift in culture and human behaviour to accelerate development in Africa. Abebe, Tekleab and Lado (2020: 149) present the continent as far from monolithic, as it comprises 54 distinct countries with different socio-cultural and ethnic groups not only across the different countries, but also within the countries themselves. They (2020: 149) argue that such diversity is likely to shape the nature of leadership in each group, country and the continent. This argument is further reiterated by Galperin and Alamuri (2016: 34) who suggest that the complexities of the continent mean that effective leadership requires a good understanding of leadership theories and contextual factors in Africa.

Authors have presented literature which examine the implantation of traditional leadership theories within Africa as well as the exploration of theories specific to Africa. As early as 1997, Blunt and Jones (1997: 6), exploring western leadership theory in Africa, argued that nineteenth- and twentieth-century European imperialism legacies

were visible in all aspects of life including the workplace. In discussing these aspects, they also highlighted the impact of western ideologies on leadership.

“Indeed, in the micro domains of management there still may be more interest in the replication in developing countries of Western theory and practice than there is resistance to these” (Blunt and Jones, 1997: 6).

Abebe, Tekleab and Lado (2020: 149) discuss the mixed ideologies, principles and ethnocentric social structure prone to conflicts which are all a result of the colonial “scramble for Africa.” They (2020:149) question if it is reasonable to determine a single leadership style applicable to the continent and suggest that enquiries should explore leadership commonalities among different countries within the continent or between the regions of Sub-Saharan Africa, East, West and North Africa.

“If we are to have a clearer understanding of leadership in Africa, we ought to invest resources and time to build a leadership research agenda that is embedded in and a reflection of the experiences of many African countries” (Abebe, Tekleab and Lado, 2020: 149).

Similarly, Galperin and Alamuri (2016: 38) note that studies examining the transportability of western leadership approaches such as the transactional and transformational leadership frameworks to the African context, show that these frameworks do not easily translate to the African context. They (2016:39) further argue that studies which test Western-based management theories in Africa do not sufficiently incorporate local issues and cultural factors that are central to the context.

Kuada (2010: 2) also outlines the challenges of implementing western inspired leadership approaches in the developing world based on the grounds that there are wide varieties of successful leadership practices throughout the world. Consequently, Kuada (2010: 2) argues that African leaders have the intellectual capacity to understand and implement Western management principles and practices but revert to organic leadership practices, indicating fundamental weaknesses in the Western management-orientated training programmes.

Due to the similar nature of transformational leadership - as well as other leadership theories within the shared framework - to non-western inspired leadership practices

such as the Ubuntu framework, there is literature arguing for the unique ways in which transformational western leadership theory can be implemented in a developing context. The Talent Agenda Series (n.d.) links transformational leadership to Maslow's hierarchy of needs as illustrated in Figure 2.18.

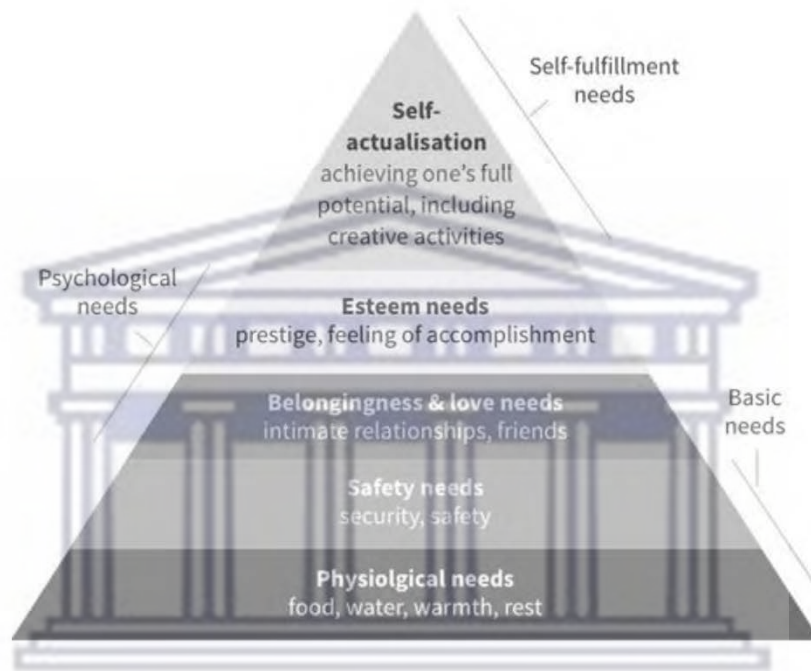


Figure 2.18: Maslow's Hierarchy of Needs
Source: Talent Agenda Series (n.d.)

Transformational leadership theory has been applied to psychological fulfilment and trends to move followers through the model within the context of Africa and is said to result in a better standard of human capital (Talent Agenda Series, n.d.). The transformational framework of leadership seeks to promote relative equality of power and status between leaders and followers; high tolerance of ambiguity; high levels of trust and openness as well as a willingness to confront divergent thinking and value in teamwork (Blunt and Jones, 1997: 7). Specific key values of the Ubuntu leadership framework are similar. They include respect for the dignity of others; group solidarity; teamwork; service to others and interdependence (Pillay, Subban and Govender, 2013: 107).

However, Akanji, Mordi, Ituma, Adisa and Ajonbadi (2019) who explore the influence of organisational culture on leadership and Kuada (2010) argue that cultural context and human value are also important. Kuada (2010: 14) highlights that Western leadership styles, or management approaches, focus on an instrumental view of people as resources as opposed to the African perception of humans having values in their own right. In addition, Akanji et al. (2019: 14) argue that leadership choice is influenced broader societal norms and traditions. They (2019: 16) further argue that specifically within the higher education context, African leaders must exhibit attentiveness to existing cultural values in a bid to change age-long leadership traditions seen to be hindering effective leadership within the African context.

In addition, Akanji et al. (2019:12) argue that managerialism within the transactional framework, promotes self-interest as opposed to the collectivism promoted by frameworks such as Ubuntu. Similarly, Kuada (2010: 15) notes studies on Western approaches implemented in Africa show that these focus on personal power and privileges and result in a lack of loyalty and commitment to the organisation which is not led with a view on collective goals.

The Ubuntu leadership concept is seen to be a redefining exercise, establishing leadership as a moral, social and political contract within the African context. Ncube (2010: 77) explores the emerging leadership philosophy of Ubuntu as a legitimate alternative to Western leadership philosophies to diversify leadership discourse. Galperin and Alamuri (2016: 40) define the Ubuntu leadership philosophy as an emphasis on collectivism and relationships over material objects, and promotes participatory, transparent and democratic decision-making, collective solidarity, community networks and social sensitivity. Similarly, Pillay, Subban and Govender (2013: 108) define Ubuntu as the foundation of sound human relations in African societies, a deep-rooted African philosophy with a high value of sharing, caring, inclusivity, compassion and communalism.

Akanji et al. (2019: 3) identify other forms of leadership in addition to the transformational and transactional models, citing the laissez-faire model, where leaders delegate power and decision-making, the authoritarian or autocratic model and shared leadership, which aims to build partnerships, promote joint responsibilities,

and is described as a participatory leadership style. Shared leadership frameworks have been highlighted within the context of collaboration and specifically in research collaboration.

2.6.2 Shared Leadership

Shared leadership has been unpacked by Kezer and Holcombe (2017) in their publication *Shared Leadership in Higher Education: Important Lessons from Research and Practice*. They (2017: 5) provide alternative terms to describe shared forms of leadership including collaborative leadership and distributed leadership. Furthermore, Kezer and Holcombe (2017:13) align the concept of collegiality with shared leadership.

In unpacking collaborative leadership, Dewitt, Hattie and Quaglia (2017: 3) characterises the concept as a type that includes purposeful actions which build deep relationships with all stakeholders. It requires co-leaders to co-construct goals. Figure 2.19 illustrates the essence of the collaborative leader, noting that collaborative leaders believe in a high level of transparency and honesty. Their teams have high levels of performance, because as stakeholders, they feel they have a voice in the process (Dewitt, Hattie and Quaglia, 2017: 5).

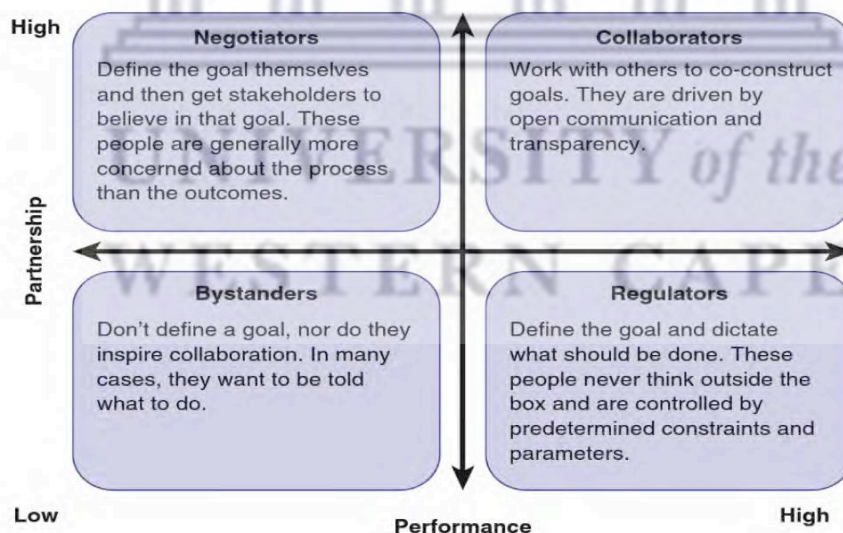


Figure 2.19: Collaborative Leadership Framework

Source: Dewitt, Hattie and Quaglia (2017: 4)

Distributed, and distributive leadership is also a form of shared leadership, defined by Spilane and Diamond (2015) in their chapter, *Taking a Distributed Perspective*. They (2015: 84) define distributive leadership as affording followers a prominent place in

the discussions of leadership practice. They (2015: 86) also note the differences this model displays in comparison to collaborative or collegial leadership, saying that while all collaborative leadership is distributed, distributive leadership is not necessarily collaborative, but is more dependent on the situation. The basic underpinnings of distributive leadership are that leadership is shared. Unlike collaborative leadership, where goals and agendas are set together, distributive leadership rather allows for shared leader activities and responsibilities without the distribution of power and decision-making (Smith, 2016).

Collegial leadership on the other hand, similar to that of collaborative leadership, also involves the building of leadership skills through interdisciplinarity and capacity building that in turn empowers co-leaders to become experts within their own fields. This interpretation is relayed by Singh (2013: 49) in his article *A Collegial Approach to Understanding Leadership as a Social Skill*. Furthermore, the entity, UKEssays (2018), presents collegial leadership as a values-based model, or framework, that systematically includes participatory agreement from all team members through common values. Within the context of IRC, authors in previous sections have presented the perceptions of academics which indicate that they are not adequately prepared for leadership roles. The leadership of academic research collaboration is discussed next.

2.6.3 Leadership of Academic Research Collaboration

As outlined in section 2.5, the statistics show that the majority of IRC in Africa takes place with institutions external to the continent. It is therefore not surprising that there is a lack of literature found on leadership of intra-African collaborative academic research. This notion is supported by Kozman and Calero-Medina (2019: 1295) who indicate that the top 500 most cited researchers collaborate primarily with researchers outside of Africa.

Before beginning to understand the leadership of IRC, it is important to note that academic leadership is not always preceded by leadership training, whether at an undergraduate level or through capacity building provided by an institution. In their empirical work on academic leadership programmes in higher education, Frantz, Marais and Du Plessis (2022) argue that higher education employees take on

leadership roles without obtaining the essential capabilities. They (2022: 139) argue that appointments are based mainly on their success within their fields, with the expectation that their scholarly success will translate into effective leadership. Similarly, in their autobiographical insight on establishing and maintaining IRC, Carr, Van der Walt, Watson and Linda (2013: 94) write that there are relatively limited resources available to guide and support researchers through the process of establishing and maintaining international collaborative research teams.

Carr, Van der Walt and Linda (2013: 94) also suggest that team structures can be quite flat due to team members from collaborating countries participating in a relatively equivalent manner with risk, power and authority shared. In discussing leadership styles in IRC, they (2013: 110) argue that the adoption of shared leadership which fosters and supports team spirit, mutual respect and trust among all members, may be the most critical success factor for IRC.

When determining the research leader, or the leadership role, within international collaborative research teams, Chinchilla-Rodríguez, Sugimoto and Larivière (2019: 2) deduce that leadership is measured through authorship position. They (2019: 2) argue that authorship is the mechanism through which researchers are acknowledged for their research activities and thereby, their scientific capacity. Furthermore, the positions of authorship within the by-line of a research piece also indicates dominance or leadership. As noted earlier, Kozma and Calero-Medina (2019) comment on the role of South African researchers in intercontinental research collaboration.

“We have counted the number of authors whose affiliated addresses are most often located in South Africa and take first and/or last authorship positions in publications in the selected fields” (Kozma and Calero-Medina, 2019: 1297).

In terms of the types of leadership that work within IRC within the continent, there were no scientific journal articles found in the literature search for this study. However, a website article (Bose and Skinkle, 2020) highlighting how leaders manage successful research collaboration has argued that most successful research collaborations thrive through delegation and the sharing of the leadership activity. Bose and Skinkle (2020) present diplomatic and empathetic leadership which promotes understanding, listening and creates the right incentives, while empowering team members and

creating an environment where team members feel appreciated and there is room for ownership and growth.

2.6.4 Leading Multi-National and Culturally Diverse Research Teams

While exploring the leadership aspect of IRC, there is also a need to explore the nature of leadership when the team is multi-national and multi-cultural in nature. These concepts contribute to intra-African academic collaborative research teams. Multi-national teams are teams comprising team members from culturally diverse backgrounds. Within the higher education sector, team members comprise of team members from different educational backgrounds as well.

In their article, *Effective Global Leaders Need to be Culturally Competent*, Tanneau and McLoughlin (2021) discuss the nature of multi-national teams as cross-cultural teams. They (2021) note that such teams have varying patterns and styles of interaction and are based on various values and belief systems around power, authority, and courtesy. They (2021) also argue that the move to virtual workplaces has resulted in greater team diversity than ever before. In a review of empirical research on managing virtual teams, Hertel, Geister and Konradt (2005: 80) mirror the concept of having to pay attention to the diversity of teams as a result of the Fourth Industrial Revolution (4IR). Nevertheless, Pinto (2018: 4) while discussing the dynamics of leadership, argues that culturally diverse teams such as virtual teams, also need specialised leadership.

Reichie, Bird and Mendenhall (2016: 11) in their typology of global leadership roles, give a name to leadership that reaches beyond the domestic context in their call for “Global Leadership”. High performing collaborative research teams require consideration of overall group heterogeneity (Cheruvilil et al. 2014: 32). Reichie, Bird and Mendenhall (2016: 3) further suggest that simply expanding domestic, or traditional leadership research to incorporate cultural considerations, risks overlooking other crucial elements of the global leadership phenomenon such as broader contextual requirements and boundary crossing activities. Successful international research teams with positive research outcomes are dependent on fostering diversity and interpersonal skills within the team. In addition, social sensitivity, deep emotional engagement, and a high degree of diversity are recommended (Cheruvilil et al. 2014:

32). Similarly, Kozma and Calero-Medina (2019: 1295) recognise the importance of social and cognitive aspects of collaboration.

Abadir, Batsa, Neubert and Halkias (2019: 2) in their work on leading multi-cultural teams, argue that leaders should leverage the diverse set of skills and different experiences to improve team performance and output. They (2019: 3) further argue that there is a critical knowledge gap on how the competencies and skills of managers can be utilised to improve the effectiveness of multi-cultural teams. This sentiment is mirrored by Rothacker and Hauer (2014: 226), who argue that current literature has no overall answer as to what makes a global leader.

Within the context of Africa, the literature on general multinational collaborative research leadership is also scarce. In their article, *Characterising Research Leadership on Geographically Weighted Collaboration Network*, He, Wu and Zhang (2021: 4032) assert that cross-border research is still dominated by countries in the West.

Competencies needed by multinational team leaders include strong communication skills among others. Lu, Swaab and Galinsky (2021) have explored multinational team leadership effectiveness. They (2021: 2) argue that leaders with a high global identity are more likely to foster team-shared innovation goals and motivate team members to adopt communication inclusive behaviours. Similarly, Abadir et al. (2019: 4) state that a shared social identity results in success:

“When multi-cultural team members in global organisations share a mutual interest in accomplishing a team goal, they are driven to overcome cultural barriers and sustain positive relationships with each other” (Abadir et al., 2019: 4).

A number of authors have presented models of leadership for multi-national and multi-cultural teams. Rothacker and Hauer (2014: 227) posit a model of leadership for leading multi-national and multi-cultural teams. Figure 2.20 illustrates the model that motivates multi-cultural teams through a combination of the situational leadership framework as a foundation and the transformational leadership, authentic leadership,

ethical behaviour, and emotional intelligent behaviour styles combined for effective leadership within the multi-cultural and multi-national setting.

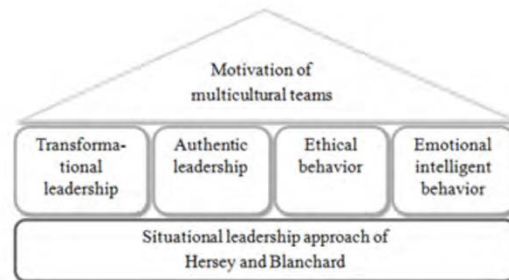


Figure 2.20: Leadership for Multi-cultural Teams
Source: Rothacker and Hauer (2014: 227)

Similarly, Abadir et al. (2019: 5) discuss the complex competencies required to lead in a cross-cultural setting. They (2019:5) argue that leadership competencies in this case include cognitive and behavioural abilities that are contingent, transactional, people orientated, dyadic and transformational. These competencies include cultural intelligence, crosscultural and intercultural abilities, and cross-cultural adaptabilities (Abadir et al. (2019: 5).

Moreover, Lu, Swaab and Galinsky (2021) drill down to the specific competencies needed in a leader within the context of multi-national and multi-cultural teams. They (2021: 8) highlight that effective leadership in the multi-cultural context is directly linked to intercultural and communication competencies. In summary, they (2021) contend that broad multi-cultural experiences prepare leaders for leading multi-national teams which are multi-cultural in nature as well. Leaders with broad multi-cultural experiences and communication competencies are more likely to display respect, patience and sensitivity towards others' needs while employing situationally appropriate words, vocal tones, body gestures and facial expressions. In addition, they are more equipped to deal with challenges related to differences in beliefs, values, and communication frames (Lu, Swaab and Galinsky, 2021: 5).

In their discussion on success strategies for multi-cultural teams, Zander and Butler (2010) argue that there is a great need for specific research on team leadership. They (2010: 259) state as traditional leadership theories tend to ignore the complexity and

dynamics of managing a team instead of a group of individuals. In line with the arguments made previously regarding the challenges in implementing western leadership theories in Africa, as well as the fact that intra-African partnerships are multi-national and multi-cultural in nature, leadership theories designed for team leadership in the context of Africa are necessary.

2.7 The Role as a Concept

As the research aims to understand how the research leader of intra-African academic collaborative research teams understand their leader roles, it is imperative also to explore the concept of the role in relation to the concept of intra-African academic collaborative research teams. Saha (2008: 1) in discussing the impact of role perception on the role, defines role perception as “the process by which individuals pick up, coordinate and translate the sensory stimulus into significant information relating to their work environment.” Fultcher and Scott (2011: 833) through their 4th edition Sociology book, further explain a role as the “normative expectations attached to particular social positions. These define the ways in which people are expected to behave. The normative expectations provide a “script” for appropriate social behaviour.”

Wendell's (2011) in his paper, *Three Concepts of Roles*, explain the concept of a role within a professional setting. They establish that role perceptions are influenced by macro and mesa factors. Wendell (2011: 547) describes the concept of roles by distinguishing between the standard concept, role obligations and expectations and role recourse. The standard concept of a role is described as the relationship between the rules of the role and integrity rules of the person and how the role is perceived. The perception of the role is informed by the rules of the role and personal integrity (Wendell.,2011: 549).

The second concept of the role presented by Wendell (2011: 550) is one that allows for the consideration of other roles by the role occupant when perceiving the role. A role is perceived as a set of obligations and expectations of that specific role. The role occupants are viewed alongside other roles, and they view their role as part of a set of roles with sets of obligations and within a hierarchy of priorities (Wendell, 2011: 550). The third concept of the role is role recourse. Wendell (2011: 552) explains this

concept of the role as constituted by the objectives prioritised over the rules of the role. The role is perceived as governed by directives to accomplish objectives, with the discretion to disobey the directives in order to meet the objectives of role.

In a journal article *From Role Playing to Role-Using*, Callero (1994) characterises a role as a resource. The role can be perceived as a resource that makes action possible as opposed to limiting or controlling action. This perception defines the role as imperative for agency to occur (Callero, 1994: 228). The traditional structural concept of a role is described as a role with behavioural expectations that emerge from identifiable positions within social structures. The interactionist concept of a role as another traditional concept is described as emanating from one's social structure. Both concepts assume the primacy of structural positions (Callero, 1994: 228). As a resource, a role reverses the direction and allows actors to create new positions and establish social structures (Callero, 1994: 229).

The two traditional opposing perspectives of a role is discussed by Callero (1994) as a structure, derived from the structural school of thought and the agent, from the interactionist school of thought. Callero (1994: 229) argues that though there has been a convergence of the two, the new definition of a role as a resource concept is more versatile and able to address the agency-structure duality.

Clarke, Thompson, Ushold and Porter (2000) in their work to understand role concepts, summarise it in terms of pragmatic and philosophical views. When perceiving a role as pragmatic, the role is an intuitive notion described as the way an object participates in a role. The perception of the role distinguishes between objects being able to take on a role and objects intended to play a role. The concept of a role takes form from the way roles are organised and represented in a knowledge base (Clarke, Thomson, Ushold and Porter, 2000: 2). The philosophical perception of a role is characterised as alternative due to changing times, changing objects, and resulting change in theories.

2.7.1 The Leadership Role

In a web article on roles that leaders should fulfil, Eikenberry (2019) submits that most leaders are not prepared for the leadership role and should understand the different roles under the umbrella leadership role in order to understand the role holistically. These include the following:

- Coach: Responsible for developing others to succeed in their roles and prepare for future roles.
- Facilitator: Makes things easier for others not only in a meeting or group situation, but also in terms of processes and ensuring the better flow of them to boost productivity.
- Strategist: Not only for the highest-level leaders. All leaders are required to think strategically with the directions and approaches needed in mind to reach the desired results.
- Visionary: Leaders must have a picture in mind of where they are heading and why this vision is important for themselves, their team and their organisation.
- Change Agent: Strategy and vision lead to an ever-present need for change. The leader must guide changes stemming from own vision and changes that are delegated to the leader.
- Decision Maker: Consultation will happen; however, decision-making falls on you. In this role, leaders must be ready to work with less than perfect information and be ready to make the not so popular decisions.
- Influencer: Leaders must constantly influence others in a positive way.
- Team player: Leaders must be ready to pass the bat and let others lead from time to time.
- Delegator: The best leaders delegate willingly and strategically train employees for bigger roles.
- Listener: Leaders must listen to the people they are leading (Eikenberry, 2019).

However, Reichie, Bird and Mendenhall (2016: 11) acknowledge the need to differentiate global leadership roles from traditional leadership roles, as they are qualitatively different (Reichie, Bird and Mandenhall, 2016: 1). Global Leadership roles are defined as follows:

“The process and actions through which an individual influences a range of internal and external constituents from multiple national cultures and jurisdictions in a context characterised by significant levels of task and relationship complexity” (Reichie, Bird and Mendenhall, 2016: 11).

Reichie, Bird and Mendenhall (2016) further present ideal-type global leadership roles through levels of task and relationship complexities and by differentiating between contexts. Reichie, Bird and Mendenhall (2016: 18) describe the incremental global leadership role as characterised by low levels of task and relationship complexity. The role involves responsibilities that are primarily technical in nature with a high degree of specialisation and require a limited number and scope of interactions. The operational global leadership role is discussed by Reichie, Bird and Mendenhall (2016: 20) as another ideal-type role involving high levels of task complexity and low levels of relationship complexity. The role includes high cognitive demands as a result of task complexity that stems from aspects such as substantial contextual differences.

Another global leadership role presented by Reichie, Bird and Mendenhall (2016: 22) is the connective global leadership role that includes low task complexity and high relationship complexity. Leaders may be operating within specialised task contexts; however, they will face high demands for social flexibility due to geographically distributed work and key constituents being culturally, linguistically, functionally and institutionally diverse.

In contracts, there are low levels of task complexity, due to the context of the team and the objectives including focused conditions and a low number of elements. The integrative global leadership role (Reichie, Bird and Mendenhall, 2016: 24) concludes involves high levels of both task and relationship complexity. This role faces intense demands that arise from a need to respond to multi-fold, variable and changing, task conditions, while also constantly adjusting to exchange relationships across a wide and dispersed range of relevant constituents.

Otara (2011: II I) in his paper on perception as a guide for managers and leaders, concludes that within organisations, perceptions of leaders, managers and employees shape the climate and effectiveness of the working environment. He states (2011: II I)

that “perception is the way we all interpret our experiences.” People are not necessarily successful by attempting to serve their values. People do not, in fact, do what serves their values. They do what they perceive will serve their values (Otara, 2011: II I).

Paterson (2006) conducted a study to evaluate the objectives of a role in relation to the perception of the role of course leaders in higher education. The findings of this research indicate that perceptions and tasks did not correlate with the objectives of the role. The study found that “if academic quality is to be assured, there must be a fuller appreciation of the role of the course leader and a review of the notion that instructional delivery and lecture time ought to be the only targets for efficiency gains” (Paterson, 2006: 97).

Similarly, Hiang Koh, Gurr and Drysdale (2011) discuss the leadership role of middle leaders in Singapore Primary Schools. The findings illustrate the perceptions of school leaders of their middle leaders regarding what it is they do, but also what the role should achieve. In this instance, school leaders have amalgamated what the middle leader role is with what it should be (Hiang, Koh, Gurr and Drusdale, 2011: 617). This issue establishes a need for the perception of the role of the leader to be understood fully. Furthermore, understanding how the perception is influenced is also necessary.

2.8 Key Influences on Leadership in Africa

An objective of this study is to understand the leader role for leaders of intra-Africa academic collaborative research teams and what influences this. This section seeks to outline literature covering key influences that drive the leader in their leader activities and how they view the leader role. The leadership of intra-African collaborative academic research teams occur within a complex context and is impacted by a number of variables that influence the leader’s decision-making processes. In this study, factors analysed when exploring the leader role are Globalisation, Africanisation and Internationalisation with a special focus on aspects such as the Brazil, Russia, India, China and South Africa (BRICS) network, and how such aspects influence higher education and research and the leadership thereof. At a mesa level, through exploration of specific teams, internationalisation policies and strategies of countries as well as universities are discussed.

Akanji et al. (2019: 4) state that key influences shape leadership in Africa including religion, commerce, globalisation, western education, social class/status, ethnicity and dictatorship. Research leaders in South Africa also work within the boundaries of institutional, national, regional, and international frameworks, policies, strategies and legislation. Akanji et al. (2019: 2) further argue that the macro context shapes organisational culture and state that cultural context is known to be an influencing factor in the choice of leadership styles.

In his work outlining higher education in context, Altbach (2019) contends that universities are subject to pressures and influences from external social forces. He (2019) argues these pressures are consequential of the importance of universities to society and the fact that university funds are sourced from the external social forces such as the governments and students. Altbach further (2019) maintains that higher education is subject to pressures of society largely because of its importance to knowledge-based economies and the large number of the college age population attending post-secondary institutions.

Altbach (2019) offers that there are two basic directions which inform the influences from external forces. The first includes broad societal factors such as economic trends, competition, demographic realities, religious factors, societal influences as well as governmental, political, and legal challenges and demographic factors. The second comes from the specific requirements of funding sources, government agencies and others to account for, as well as control, expenditure of funds, the nature and scope of research and other university activities (Altbach, 2019).

In the African context and more specifically, the South African context, the impacting influences are also shaped by the colonial and apartheid history and the transformational pathways of the present day. Adams et al. (2013: 547) speak of layers of internal clusters and external links that are explained not by monotypic global influences but by regional geography and, perhaps even more strongly, by history, culture and language.

Intra-African collaborative academic research takes place within the framework of internationalisation of higher education. Jowi, Knight and Sehoole (2013: 5) argue that

the phenomenon of globalisation has had a profound impact on internationalisation of higher education. Within the concept of globalisation impacting internationalisation is the unprecedented developments in information technology and social media; resulting trade agreements and economic liberalisation and increased flow of people, ideas, capital, values, services, goods, and technology across borders, all examples of the influence of globalisation. They (2013: 5) note that these are factors which higher education has had to keep up with. Jowi, Knight and Sehoole (2013: 5) also highlight the debates around whether globalisation is a catalyst for internationalisation, or on the other hand, if internationalisation of higher education has been a catalyst for globalisation. Either way, academics working in the higher education sector must be acutely aware of these factors and the complex and dynamic relationship between the two phenomena in their decision-making processes.

In line with the need for academic researchers to be aware of the impact of globalisation on their decision-making and activities, Adams et al. (2013:547) discuss the influence on all national and institutional outcomes by a global system developed through comprehensive global networks centred around a group of core countries and driven by socio-economic factors. They (2013: 555) argue that patterns of intra-African collaboration are unique, guided not by monotypic influences, but by a combination of regional geography, history, culture, and language. An example of this influence is the BRICS network, highlighted by Pouris and Ho (2013: 90), who indicate that a bibliometric study of the period between 2007 and 2011, shows a significant number of collaborations between BRICS countries.

The issue of the scientific core and the periphery is also a factor to consider when playing from the global south. Adams et al. (2013: 547) argue that global research networks have reinforced a core group of cooperative countries of leading economies that have strong national systems with supportive resources. The peripheral countries deal with the disadvantages that are compounded by the effects of history. Adams et al. (2013: 547) argue from the point of complex systems theory that the self-organising global system has influenced all lower systems. The resulting effects of history, culture and language continue to have a profound human influence on collaboration patterns that are mediated through personal preference rather than strategic logic (Adams et al., 2013: 547). Transformational efforts that are legislated or included in strategy and

policy frameworks aimed at addressing this challenge will affect leadership and leader activities in Africa.

Within Africa, it is also important to understand the power imbalances between South Africa and the rest of Africa within the context of global power imbalances as well. Iqbal (2019), in discussing Africa's higher education landscape, highlights the unevenness of the global paradigm for rapid expansion in the context of development. An article in *The Conversation* (Marsh, Atun and Maswime, 2020) conclude that in 2018, only one African country featured in the global top 50 list of research output. This country was South Africa at number 38. With South Africa as the leading research country in Africa, it is important to understand the influencing factors in leading research teams in Africa by focusing on the South African climate. This has been covered in section 2.5.

There are direct and indirect influences on leader activities within the context of Africa. For instance, the lack of resources, infrastructure, and support as a result of the political impact on certain countries that may be involved in research collaboration, can have an indirect impact on the leadership of teams. In a QS review of Africa's Higher Education Landscape, Iqbal (2019) highlights the sector in Ethiopia, and notes successes in development. Furthermore, he (2019) discusses failures that have been attributed to "political agendas, low quality provision and collapsing buildings" painting a less than positive general picture.

2.8.1 Influence of Governance on IRC in Africa

The geographical and societal context of Africa have been discussed together with Higher Education in Africa. Notably, macro and mesa influences that could be influential in developing the view of the leader role could be determined by focusing on the South African Higher Education sector, as SA is the leading research country in Africa. Current Acts directly governing and regulating Higher Education research according to CHE (2019) are the following:

- The Higher Education Act 101 of 1997; and
- The National Qualifications Framework Act 67 of 2008.

There are also a number of different governmental and non-governmental entities influencing higher education, and internationalisation of research in South Africa and Africa. These include: The Department of Higher Education and Training (DHET), The Council on Higher Education (CHE), The Department of Home Affairs (DHA), The Department of International Relations and Cooperation (DIRCO), the National Research Foundation (NRF), the South African Qualifications Authority (SAQA), the National Institute for Humanities and Social Sciences (NIHSS), IEASA and ANIE. These organisations have instituted policy frameworks to regulate and guide higher education and higher education internationalisation. An example of regulation is the policy framework for Internationalisation of Higher Education in South Africa (DHET, 2020).

Furthermore, the 2019 white paper on Science and Technology in South Africa set the long-term policy direction for the South African government to ensure a growing role for STI to help South Africa benefit from developments such as rapid technological advancements in a more prosperous and inclusive society (Luthuli, 2019: ii). Boshoff (2009: 482) notes that governments are increasingly using science policy mechanisms to mediate and steer scientific international collaborations to ensure socio-economic and political objectives including strengthening global inter-university and university-industry interaction and establishing regional integration, to ensure objectives are met.

The above instruments have been explored at a National South African level. However, regional, continental, and global instruments may also have an impact on the leader role in intra-African collaborative academic research teams. Prior to 2015, the MDGs aimed to meet the needs of the world's poorest (Un.org, 2015). Sachs and McArthur (2005: 351) in discussing the millennium project plan, speak of the need for efforts focusing on strengthening higher education institutions and directing R&D in order to meet these goals.

Following the MDGs, at the 2012 UN Conference on Sustainable Development, member states adopted the SDGs in a document called the "The Future We Want" to build upon the MDGs. At the core, 17 goals call urgently for action by all countries to end poverty, improve health and education, reduce inequality, and spur economic growth while tackling climate change and working to preserve oceans and forests

(Un.org, 2022). In an article on the relation between research and the SDG's, Fayomi, Okokpujie and Udo (2018: 7) argue that the role of research becomes extremely important in realising the reality of the SDG.

However, in the context of Africa, the Africa Agenda, 2063 is also an instrument to be considered. At the recent Conference of the Parties (COP) 26 Coalition held in November 2021, historian, Professor Vijay Prashad criticised the climate justice movement and the focus on the future. He reiterates that the concept of the future is relative:

“What future? Children in the African continent, in Asia, in Latin America. They don't have a future. They don't have a present. They are not worried about the future. They are worried about their present. Your slogan is we are worried about the future? What future? That's a middle class bourgeoisie western slogan. You have got to be worried about now! 2,7 Billion people can't eat now. And you are telling people, reduce your consumption? How does this sound to a child who hasn't eaten in days? This movement will have no legs in the third world” (COP26, 2021).

The AU Agenda 2063 is the continent's strategic framework which aims to deliver on its goal for inclusive and sustainable development and is a concrete manifestation of the pan-African drive for unity, self-determination, freedom, progress and collective prosperity. There are seven aspirations covered by the AU Agenda 2063 including:

- Prosperous Africa, based on inclusive growth and sustainable development;
- An integrated continent politically united and based on the ideals of Pan-Africanism and the vision of African Renaissance;
- An Africa of good governance, democracy, respect for human rights, justice and the rule of law;
- A peaceful and secure Africa;
- An Africa with a strong cultural identity, common heritage, values and ethics;

- An Africa whose development is people driven, relying on the potential offered by African people, especially its women and youth, and caring for children; and
- An Africa as a strong, united, resilient, and influential global player and partner (AU.int, 2022).

In understanding the Africa Agenda in the context of higher education internationalisation and in a broader global context, it is important to understand the nexus between the AU Agenda 2063, its aspirations and related goals and the goals of the SDGs. Table 2.9 highlights gaps within the SDGs that need to be addressed within the African context.

Table 2.9: Africa Agenda 2063 Goals compared to the SDGs

Agenda 2063 Goals	Agenda 2063 Priority Areas	UN Sustainable Development Goals
1. A high standard of living, quality of life and well-being for all citizens	<ul style="list-style-type: none"> • Incomes, jobs and decent work • Overcoming poverty, inequality and hunger • Social security and protection, including persons with disabilities • Modern, affordable and liveable habitats and quality basic services 	<ol style="list-style-type: none"> 1. End poverty in all its forms everywhere in the world 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture 8. Promote sustained, inclusive, and sustainable economic growth, full and productive employment and decent work for all 11. Make cities and human settlements inclusive, safe, resilient, and sustainable
2. Well educated citizens and skills revolution underpinned by science, technology, and innovation	<ul style="list-style-type: none"> • Education and science, technology, and innovation (STI) driven skills revolution 	<ol style="list-style-type: none"> 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
3. Healthy and well-nourished citizens	<ul style="list-style-type: none"> • Health and nutrition 	<ol style="list-style-type: none"> 3. Ensure healthy lives and promote well-being for all at all ages
4. Transformed economies	<ul style="list-style-type: none"> • Sustainable and inclusive economic growth • STI driven manufacturing, industrialisation, and value addition 	<ol style="list-style-type: none"> 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work

	<ul style="list-style-type: none"> • Economic diversification and resilience 	9. Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation
5. Modern agriculture for increased productivity and production	<ul style="list-style-type: none"> • Agricultural productivity and production 	2 End hunger, achieve food security and improved nutrition and promote sustainable agriculture
3 Blue/Ocean economy for accelerated economic growth	<ul style="list-style-type: none"> • Marine resources and energy • Port Operations and marine transport 	14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development 6. Ensure availability and sustainable management of water and sanitation for all
4 Environmentally sustainable and climate resilient economies and communities	<ul style="list-style-type: none"> • Biodiversity, conservation and sustainable natural resource management • Water security • Climate resilience and natural disasters preparedness 	7. Ensure access to affordable, reliable, sustainable, and modern energy for all. 13. Take urgent action to combat climate change and its impacts 15. Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
8. A united Africa (Federal or Confederate)	<ul style="list-style-type: none"> • Frameworks and institutions for a United Africa 	
9. Continental financial and monetary institutions established and functional	<ul style="list-style-type: none"> • Financial and monetary institutions 	
10. World class infrastructure, criss-crosses Africa	<ul style="list-style-type: none"> • Communications and infrastructure connectivity 	9. Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation
11. Democratic values, practices, universal principles of human rights	<ul style="list-style-type: none"> • Democracy and good governance • Human rights, justice, and the rule of law 	16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable, and inclusive institutions at all levels.
12. Capable institutions and transformative	<ul style="list-style-type: none"> • Institutions and leadership • Participatory development and local governance 	

leadership in place		
13. Peace, security, and stability is preserved	<ul style="list-style-type: none"> • Maintenance and preservation of peace and security 	
14. A stable and peaceful Africa	<ul style="list-style-type: none"> • Institutional structure for AU instruments on peace and security 	
15. A fully functional and operational Africa peace and security architecture (APSA)	<ul style="list-style-type: none"> • Fully operational and functional APSA all pillars 	
16. African cultural renaissance is pre-eminent.	<ul style="list-style-type: none"> • Values and ideals of Pan-Africanism • Cultural values and African Renaissance • Cultural heritage, creative arts and businesses 	
17. Full gender equality in all spheres of life.	<ul style="list-style-type: none"> • Women and girls empowerment • Violence and discrimination against women and girls 	5. Achieve gender equality and empower all women and girls
18. Engaged and empowered youth and children.	<ul style="list-style-type: none"> • Youth empowerment and children's rights 	<p>4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.</p> <p>5. Achieve gender equality and empower all women and girls</p>
19. Africa as a major partner in global affairs and peaceful co-existence.	<ul style="list-style-type: none"> • Africa's place in global affairs • Partnerships 	17. Strengthen the means of implementation and revitalise the global partnership for sustainable development.

<p>20. Africa takes full responsibility for financing her development Goals.</p>	<ul style="list-style-type: none"> • African capital markets • Fiscal systems and public sector revenue • Development assistance 	<p>10. Reduce inequality within and among countries</p> <p>17. Strengthen the means of implementation and revitalise the global partnership for sustainable development.</p>
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Source: AU.int, 2022)

The AU.int (2022) initiative has shown that the AU Agenda 2063 goals 8,9, 12, 13, 14, 15, and 16 are not covered in the SDGs. Thus, as it operates in Africa, AU Agenda 2063 may have further influence on public institutions such as universities.

In addition to the governance frameworks of influence outlined above, additional factors may have an impact on research collaboration or an influence on the leadership thereof. Mouton, Prozesky and Lutoniah (2018: 148) in their discussion on collaboration, list personal, scientific and technical factors as factors influencing research collaboration. Furthermore, demographic characteristics such as age, gender and nationality are also listed as influential factors. For example, Mouton, Prozesky and Lutoniah (2018: 184) argue that the assumption is that researchers who have the same demographic characteristics are more likely to collaborate with each other.

2.9 Chapter Summary

Chapter 2 has outlined key factors that influence research collaboration within the continent of Africa and the leadership thereof. The concept of IRC has been discussed within the context of higher education internationalisation. Furthermore, IRC has been explored in terms of the nature and extent of IRC within the continent, first focusing on South Africa's collaboration practices and then expanding into the rest of the continent. In this way, intra-African academic collaborative research teams have been described conceptually. In the discussion, the benefits, facilitators, and challenges have been included. The section has also contextualised the issue of leadership within Africa. Governing instruments at a national, regional, continental, and global level have also been discussed in the section. While including the description of the governance and

funding landscape, the opportunities for multi-national research collaboration within the continent have been explained.



CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

Social science research covers research on individuals, or groups of people, including firms, organisations, societies, or economies along with their individual and collective behaviours within those structures (Bhattacharjee, 2012). It aims to establish an understanding of the patterns of behaviour amongst these groups of people through the use of assumptions regarding the nature of societies and individuals. It is in this context that the study's methodology is formulated.

To substantiate the methodology employed in the study, the following needs to be noted. The discussion in the previous chapter describes and explores leadership as a concept and outlines the concept of roles in relation to the leader role. These two concepts will be used to understand leaders and their view of the role they fulfil within an intra-African collaborative academic research team. The previous chapter also discussed the landscapes of internationalisation, IRC and Africanisation with the aim of contextualising the topic within Africa and internationalisation of higher education.

This chapter will discuss the methodology of the study as well as how the study was operationalised. To begin with, the meta-theoretical schools of thought that underpin the epistemological frameworks of the study will be outlined. Thereafter, the research type and approach, research design, the sampling and data analysis will be clarified. How the data were collected and analysed in the preliminary phase and after the interview stage of the project will also be explained. How the findings were validated is also included. The section will conclude with the parameters of the research and the ethical considerations.

3.1.1 Metatheory/School of Thought

This section will discuss metatheory as a concept and describe the paradigm or metatheory that underpins my design of this research study. Dervin (2003) indicates that there is an order of precedence between metatheory, methodology and method.

“As a general principle, researchers should first clarify their metatheoretical assumptions and then consider methodological decisions, before selecting and developing methods.”

Lor (2017: 4) illustrates this hierarchy that has been argued by Dervin, Pickard, and Mouton in Table 3.1 below.

Table 3.1: Research Hierarchy according to Dervin, Pickard and Mouton

Dervin (1999)	Pickard (2007)	Mouton (1996)
Metatheory	Research paradigm	Epistemological and ontological assumptions
Methodology	Research methodology Research method (or strategy)	Methodological paradigm Research method
Method	Research technique Research instrument	Research technique

Source: Lor (2017: 4)

Earlier discussions explain that scientific theory predicts and explains observable events to account for positivistic experiences. Scientific theory could also deal with the structure of, and interrelations among physical objects (physicalism or realism) (Segal, 1987: 956).

At a philosophical level however, there are discussions by contemporary authors that are construed in terms of a “clash between positivism or post-positivism, on the one hand, and a broadly interpretivist approach, founded on such traditions as phenomenology, symbolic interactionism, and hermeneutics on the other” (Bryman, 2006: 112). There are arguments that suggest social science has general laws in relation to metatheory due to the fact that social science deals with intentional and interpretive concepts more than they deal with physical concepts. Individual beliefs, interpretations of events, awareness of social position, and other mental phenomena impact individuals in society and their actions (Segal, 1987: 956).

Bhattacharjee (2012) describes the interpretivist approach as a social product and therefore as being capable of being understood independently of social constructs. As it is argued in the current study that leader’s perceptions are created in terms of their narrative, the theoretical underpinning, or metatheory, is grounded in social constructionism. The latter encompasses an interpretivist or symbolic interactionist approach to obtaining scientific truth, specifically within the realm of microsociology. Dreher and Santos (2017: 385) explain phenomenology and thereby social constructionism, as having its roots in the works of Edmund, Shutz, Berger and Luckman. I will therefore draw on these expositions in my analysis.

In this regard, this research focuses on the phenomenological interpretivist experiences of individuals involved in the leadership of intra-Africa IRC within the South African academic research-intensive context.

3.1.2 The Interpretivist Approach of Social Constructionism

Chen, Shek and Bu (2011: 129) in their applications of interpretive and constructionist research methods article, discuss interpretivism as a paradigm differing from positivism; however, note the two are not mutually exclusive.

“Theoretically and methodologically, there are various traditions in interpretivism, all of which come to light from an intellectual position that takes human interpretation as the starting point for developing knowledge about the social world” (Chen, Shek and Bu, 2011: 129).

Researchers who operate with an interpretative approach, aim to understand how people feel, perceive, and experience the social world, in order to gain in-depth meanings and motivation for behaviour. Social scientists assert that it is necessary to understand how people’s subjective interpretations of reality affect the formation of their reality to understand social reality. Interpretivism is a position that argues against the idea of positivism that is passive, mechanistic and reactive (Chen, Shek and Bu, 2011: 130). In this research, the aim is to understand the view of staff at South African research-intensive of the leader role within intra-Africa academic collaborative research teams.

Social constructionism argues that the universal confirmation of true or false, good, or bad, right or wrong is not possible. Contrasting with the perspective of the constructivist, arguing that the mind of the individual represents a mirror of reality. Constructionism focuses on relations and defends the individual’s role in the social construction of realities as argued by Gablin (2014: 83) in an *Introduction to Social Constructionism*.

“Each of us creates our own worlds from our perceptions of the actual world. The social constructionism sees the language, the communication and the speech as having the central role of the interactive process through which we understand the world and ourselves” (Gablin, 2014: 82).

South African research-intensive university staff connected to leading roles of IRC that is cross border within the continent of nature impact the leadership of such teams through their concept of the role. Furthermore, influencing factors on the view of the role is explored.

Lumen Learning (2018) further argues that social constructionism highlights how cultural categories such as gender and race, are concepts that are created, but also changed and reproduced through historical processes within institutions and culture. Social constructionism argues that human beings construct categories based on certain bodily features, attach meanings to the created categories and place people into the categories. Contrary to the positivist positions, categories are not natural or fixed, with their boundaries able to shift and be contested or redefined in different contexts. The social constructionism perspective therefore involves the “meaning created through defining and categorising groups of people, experience, and reality in cultural contexts” (Lumen Learning, 2018). Social construction research is a type of effort to answer the questions of "what is constructed" and "how the construction process unfolds" (Chen, Shek and Bu, 2011: 131).

The appropriateness of this approach to the study is argued in terms of the following; namely that social constructionism aims to make sense of the social world and that knowledge is constructed as opposed to created. Furthermore, in terms of the view of Berger and Luckman (1991), society exists both as objective and subjective reality, with the former brought about through the interaction of people with the social world and the social world in turn influencing people resulting in routinisation and habituation (Andrews, 2012: 39).

3.2 Research Design

Mudkanna (2019) in discussing research design in social science, defines research design as encompassing the method and procedures employed to conduct scientific research.

“The design of a study defines the study type and sub-type, research question, hypotheses, independent and dependent variables, experimental design, and, if applicable, data collection methods” (Mudkanna, 2019: 2).

In exploring research methods and techniques, Kothari and Garg (2014: 2) indicate that a research design is a systematic plan to study a scientific problem and that the design of a study “defines the study type (descriptive, correlation, semi-experimental, experimental, review, meta-analytic), research question, hypotheses, independent and dependent variables, experimental design, and data collection methods and a statistical analysis plan” (Kothari and Garg, 2014: 2).

In addition, the research design must at least, contain a clear statement of the research problem, the procedure and technique to be used for gathering information, the population to be studied and the methods to be used in processing and analysing data (Mudkanna, 2019: 2). Through the research design, the researcher is able to organise her ideas, enabling her to see flows and inadequacies within the research (Mudkanna, 2019: 2).

In order for me to gather, interpret and analyse the data that will be studied, the design and planning of the research enquiry are important. The design of the research incorporates the appropriate epistemological and methodological approaches that aim to create new knowledge within the topic under discussion in the study. The latter is outlined below in Figure 3.1, which illustrates the research design.



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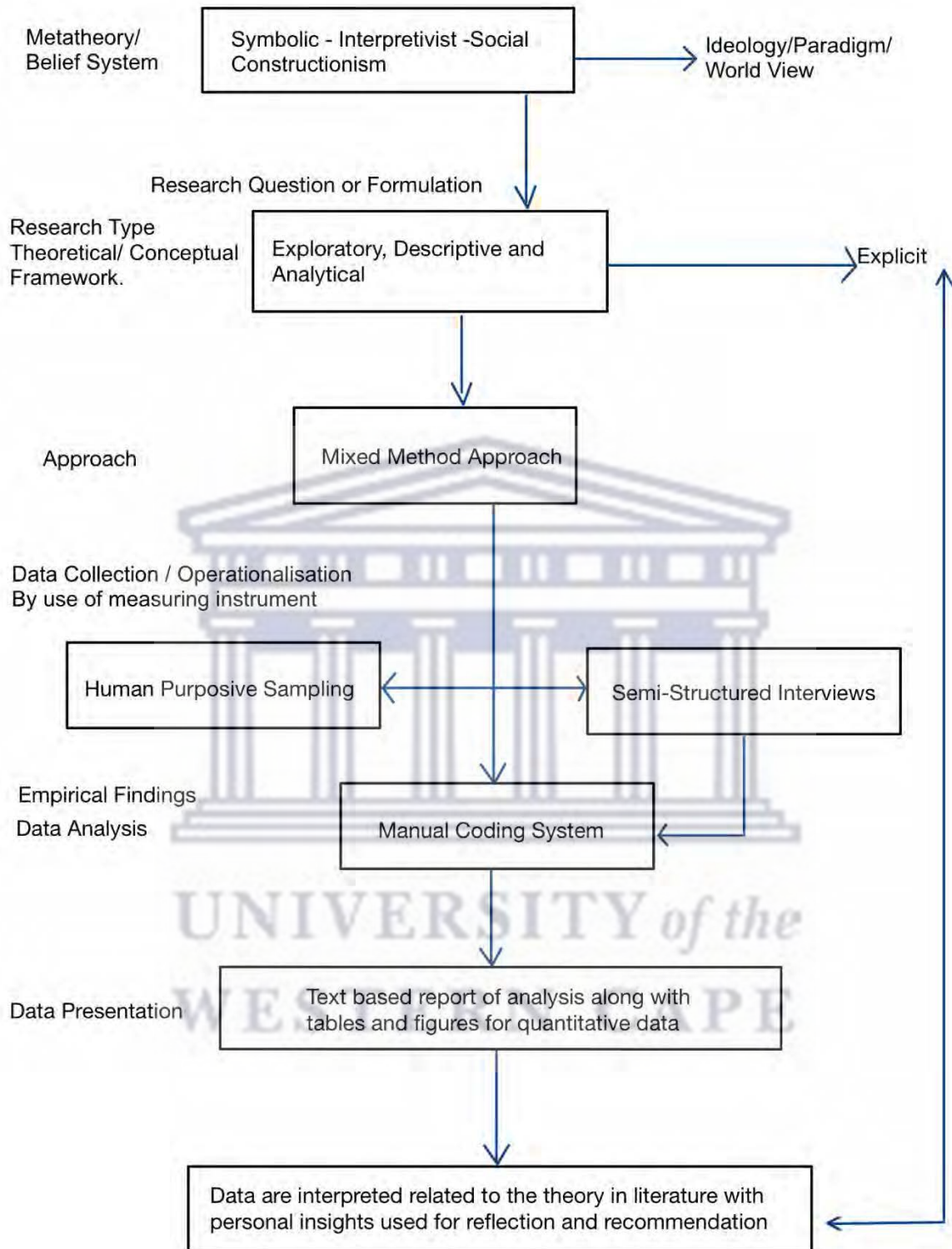


Figure 3.1: The Research Design Process
Source: (Cunningham, 2009)

The above Figure is further discussed below.

3.2.1 Research Type and Approach

Creswell (2014: 3) in the 3rd edition of *Research Design: Qualitative, Quantitative and Mixed Method Approached*, explains research approaches as the plans and the procedures for research that span the steps from broad assumptions to detailed methods of data collection, analysis and interpretation. This plan involves decisions that should be taken, in the order in which they make sense and the order of their presentation. Informing the overall decision of which approach should be taken is the philosophical assumptions, which have been discussed above, the procedures of enquiry and the specific research methods of data collection, analysis and interpretation to be employed. The approach is also informed by the nature of the issue, or concern, that is being addressed along with the researcher's personal experiences together with the audiences of the study.

Powoh (2016: II) in discussing the three types of methods, explains quantitative research methods as methods in which numbers are used to explain findings through experiments for statistical analysis. Contrary to the quantitative approach, qualitative research methods use descriptive procedures to generate meaning and understanding of phenomena. The mixed method approach to research is discussed by Powoh (2016: V) as a combination of quantitative and qualitative methods with the aim of gaining a full understating of the phenomenon of the study. The approach to this study is that of a mixed method, meaning an exposition of both qualitative and quantitative data which are analysed and theoretically interpreted. Denzin and Lincoln (2011: 418) however, infers that the designs available to the researcher have grown over the years as computer technology has advanced data analysis and the ability to analyse complex models, and as individuals have articulated new procedures for conducting social science research.

Jick (1979: 604) indicates that the value of mixed methods lies in the idea that all methods have bias and weaknesses; however, through mixed methods, the weaknesses are neutralised. This study is regarded as an exploratory descriptive analytical study grounded within the interpretivist social constructionist paradigm. The former is justified as there is a near absence of research into the role of leaders in academic cross border collaborative research teams. As discussed in the introductory section of this thesis (Chapter 1), the concept of the role of the leader of intra-African

collaborative academic research teams has been explored for the purposes of describing and analysing against leadership theory along with the principles of internationalisation of higher education.

Babbie (2013: 91) in the 13th edition of *The Practice of Social Research*, explains the three purposes of research that are the most common and useful as exploration, description and explanation. He (2013: 92) indicates that the exploratory approach occurs when a researcher examines a new interest or when the subject itself is relatively new. Exploratory studies are appropriate as well for persistent phenomena such as policies, requirements and processes. These types of studies are done typically for three purposes including satisfying the researcher's curiosity and desire for a better understanding, to test the feasibility of undertaking a more extensive study or to develop methods to be employed in any subsequent study (Babbie, 2013: 92).

Exploratory mixed method studies utilise a reverse sequence from the explanatory sequential design. In the exploratory sequential approach, the researcher first begins with a qualitative research phase and explores the views of participants. The data are then analysed, and the information used to build into a second, quantitative phase. The qualitative phase may be used to build an instrument that best fits the sample under study, to identify appropriate instruments to use in the follow-up quantitative phase, or to specify variables that need to go into a follow-up quantitative study. Particular challenges to this design reside in focusing on the appropriate qualitative findings to use and the sample selection for both phases of research (Berman, 2017:1).

3.2.2 Target Population

The following section outlines the process through which negotiated access to the research participants was gained. Babbie (2013: 202) defines "population" as the group, or the collection, a researcher is interested in generalising about. According to him (2013: 202), more formally, the term "population" can be defined as the theoretically specified aggregation of study elements.

Cox (2011: 875) defines the target population for a survey as the entire set of units for which the survey data are to be used to make inferences in a book chapter for *Encyclopedia of Survey Research Methods*. While the objectives of the study should

be one of the first steps in designing a survey, or interview, defining the target population should follow. Cox (2011:875) also indicates that it is important for the target population to be properly defined, because the true definition will determine if individuals or units included are eligible for participation. Usually, the description of the population and the common binding characteristic of its members are the same. For example, "Government officials" is a well-defined group of individuals which can be considered as a population and all the members of this population are indeed officials of the government.

A research population is known as a well-defined collection of individuals or objects known to have similar characteristics. Individuals or objects within a certain population usually have a common or binding characteristic or trait. The main function of the sample is to allow the researcher to conduct a study on individuals from the chosen population so that the results of the study can be used to derive conclusions that will apply to the entire population. The term target population refers to the entire group of individuals or objects about whom researchers are interested in generalising the conclusions. The target population usually has varying characteristics, and it is also known as the theoretical population (Explorable.com, 2009).

The target population of this study is the leaders of intra-African collaborative academic research teams. Leaders in the context of this study refer to academic research team leaders or primary investigators of an academic research project. A research team in the context of this study refers to academic research teams which comprise researchers who are located in different countries within the African continent, collaborating on a particular research project aiming to address or investigate a research problem, situation, subject or question with the purpose of creating new knowledge or a new understanding of existing information through the use of scientific principles.

Collaboration in this study refers to an equal partnership between two or more faculty members, or groups of faculty members, pursuing mutual outcomes through research. Hhs.gov (2021) describes contemporary collaboration as involving researchers of different statures, funding statuses, and types of organisations. For the context of this study, collaboration refers to academic staff in higher education institutions. The

research teams in the context of this study could consist of one or more principal investigators, as well as academic staff which includes post-doctoral research fellows as well as post-graduate students.

Because this research sought to explore the leader role of leaders of intra-African collaborative academic research teams, access to these team leaders was gained through academic institutions within my reach. Academic institutions in the public sector of South Africa comprise 26 public higher education institutions (see Table 3.2 below). Accessing these institutions constituted the initial phase of the multi-phase sampling process.

3.2.3 Sampling Process and Techniques

Sampling is an important step in the research process, as it informs the quality of inferences (or observations) made by the researcher. It stems from underlying findings. In qualitative and quantitative studies, the enquirer must decide on the sample size and the sample scheme (how to select the sample members) (Collins, Onwuegbuzie and Jiao, 2007: 281).

Collins, Onwuegbuzie and Jiao (2007: 281) infer that sampling decisions typically are more complicated in mixed methods research because sampling schemes must be designed for both the qualitative and quantitative research components of these studies. As discussed above, access to team leaders occurred through institutions. This process required a multistage sampling method. Collins (2015: 7) describes multistage purposeful sampling as choosing groups and/or individuals representing a sample in two or more stages. The figure below details the sampling process of the study which is narrated after the diagram below.

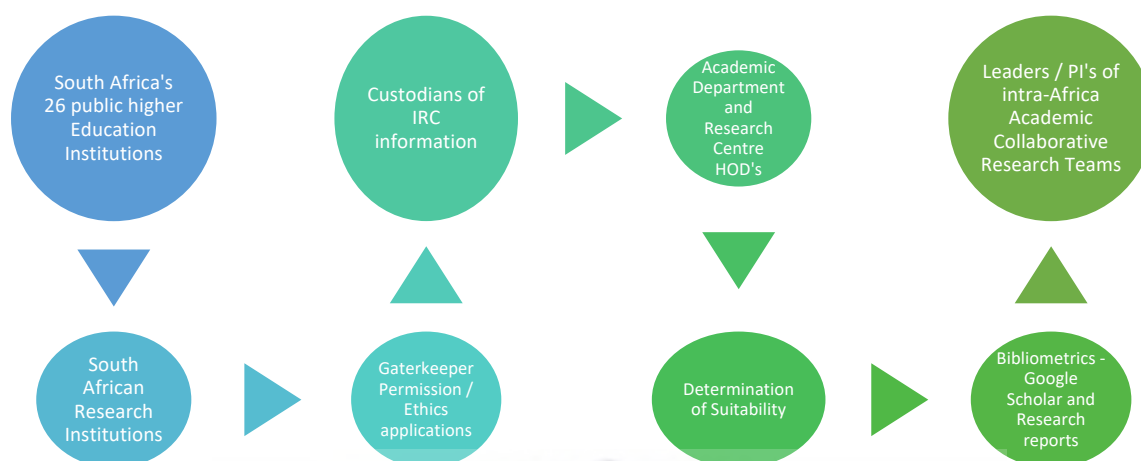


Figure 3.2: The Sampling Process

Source: Researcher's own construction (2022)

The sampling process of the research study consists of multiphase sampling stages. The purpose of this approach is to administer two instruments. In addition, the first phase of the sampling phase enabled the second phase as the second sample (leaders of intra-African collaborative academic research teams) could only be accessed through the sampling of directors of internationalisation or research at the selected South African universities.

The first phase of the sampling included nonprobability purposive sampling and began with a focus on all 26 public higher education institutions in South Africa to first determine the type of institution to be included in the study. To ensure a realistic timeline for this study, I chose to focus the study on research-intensive universities whose mandate is primarily research.

In the online *Expat Guide to South Africa*, Traditional Universities in South Africa generally offer more theoretically-based training (Expatica, 2021). The decision to focus on research-intensive universities is based on a higher rate of research output at such universities when compared to other types of universities. For example, the research output from research-intensive universities such as the University of Cape Town (UCT), Pretoria University (UP), the University of KwaZulu Natal (UKZN) and Stellenbosch University (SUN) was 52.1% of the total output in 2019 (UCT, 2019). By

evaluating the typology of all 26 institutions before determining the number of institutions included in the study, I have ensured the sample is equal and that all intra-African research teams used in the second phase of the sampling had an equal chance of being selected for the sample for this study.

Below is a list of public higher education institutions in South Africa (Table 3.2). These institutions are arranged according to their structure and purpose.

Table 3.2: South African University Typological List

Universities of Technology	
	Cape Peninsula University of Technology
	Central University of Technology
	Durban University of Technology
	Tshwane University of Technology
	Mangosuthu University of Technology
	Vaal University of Technology
Comprehensive Universities	
	Nelson Mandela University
	University of South Africa
	University of Johannesburg
	University of Venda
	University of Zululand
	Walter Sisulu University
	University of Mpumalanga
	Sefakgo Makgatho University
	Sol Plaatjie University
Research Universities	
	University of Cape Town
	University of Pretoria
	University of Fort Hare
	University of Kwa Zulu-Natal
	University of the Western Cape
	Rhodes University

	University of the Witwatersrand
	University of the Free State
	North-West University
	University of Limpopo
	Stellenbosch University

Source: Adapted from Fish (2017: 13)

The 11 research institutions were selected for the sampling process of this study.

Table 3.3 below indicates the coded system that is referred to throughout the rest of the thesis.

Table 3.3: 11 Research Intensive University Codes

University Light Blue
University Green
University Yellow
University Orange
University Red
University Pink
University Brown
University Grey
University Purple
University White
University Blue

Prior to accessing the study's samples, I had to follow ethics, or gatekeeper protocols, for each of the selected universities. The following outline presents the ethics process required for each of the selected universities that I had to follow and achieve clearance before conducting research at any of the sites.

Table 3.4: Research Ethics Application Procedures

University Light Blue	Research Ethics and Gatekeeper Permission Applications
University Green	Research Ethics and Gatekeeper Permission Applications
University Yellow	Gatekeeper Permission by means of letter to Research Office and/ HR requesting permission
University Orange	Gatekeeper Permission by means of letter to Research Office and/ HR requesting permission
University Red	Research Ethics Application
University Pink	Research Ethics and Gatekeeper Permission Applications
University Brown	Gatekeeper Permission by means of letter to Research Office and/ HR requesting permission
University Grey	Research Ethics and Gatekeeper Permission Applications
University Purple	Gatekeeper Permission by means of letter to Research Office and/ HR requesting permission
University White	Gatekeeper Permission by means of letter to Research Office and/ HR requesting permission
University Blue	Research Ethics Application

To eventually gain access to intra-African collaborative research teams and in particular, their leaders (or PIs) as the second phase, purposive sampling was adopted to sample the university staff members who would be more likely to have knowledge of the nature and extent of intra-African collaborative academic research projects within these selected institutions. Purposive sampling is a "type of nonprobability sampling in which the units to be observed are selected on the basis of the researcher's judgment about which ones will be the most useful or representative" (Babbie, 2013: 200). During this stage of the sampling I focused on Directors of Internationalisation, Directors of Research, or staff who are responsible for internationalisation and/or research within the South African institutions primarily focusing or mandated for research.

Criteria for inclusion in this first phase of the sampling included staff who direct internationalisation or research, or who are knowledgeable about internationalisation or research, at their respective universities. Access to these participants was gained

through the IEASA website and through specific university websites. A total of 11 Directors of International or Research was sampled representing all of the South African higher education research institutions. All directors participated in the first phase of the data collection process as well. A total of 11 participants (1 representing each institution) participated in this stage of the study.

Once access was gained to the Directors of Internationalisation or Research, an invitation to participate in the research was extended to this sample for the administration of the first instrument that was designed to determine the nature and extent of intra-African collaborative academic research at each of these selected institutions. In addition, this sample was also asked to disseminate a letter to participate in the research to their institution's academic staff, inviting them to participate in this research as the leaders or PIs of intra-African collaborative academic research teams, initiating the second phase of the sampling process. This letter asks suitable participants to contact me indicating their willingness to participate in the research.

Suitability in this second phase was determined based on whether or not academic staff are the leaders or PIs of intra-African academic research teams as defined above. The strategy used is in line with the regulations set out in the Protection of Personal Information Act (POPIA) that came into effect as of 1 July 2021. Milton's Law (2013) in providing a summary of POPIA, denotes that "personal information can only be processed with the consent of the data subject."

An additional step in the research protocol to confirm suitability of participants was also implemented. This step was to emphasise and confirm the inclusion and exclusion criteria for participation in the study. Inclusion and exclusion criteria define who can be included and excluded from the study sample (Garg, 2016: 642). Patino and Ferreira (2018: 84) argue that establishing inclusion and exclusion criteria for study participants is a standard, required practice when designing high quality research protocols. The suitability test for this study aimed to determine whether or not the inclusion criteria for participation in the study were met. The inclusion criteria required that participants were research leaders, or primary investigators (PIs) of academic cross-border research teams comprising researchers located in different

countries within the African continent. Figure 3.3 outlines the suitability criteria for participation in this research and the definition of intra-Africa academic research collaboration within the context of this research.

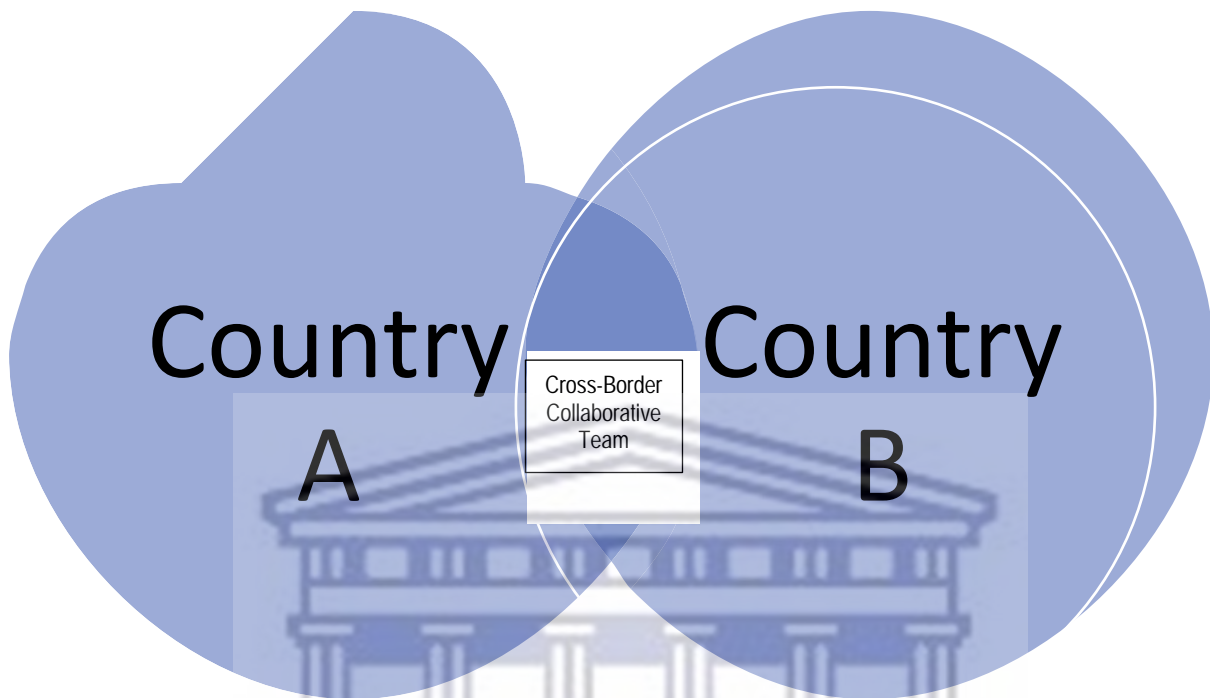


Figure 3.3: Cross-border collaboration within Africa for intra-Africa academic collaborative research suitability

The suitability test included replying to academic staff who responded to the invite to participate in the study and asking them to confirm suitability by completing Appendix D. The sampling process also included the administration of the first phase of the data collection through the use of an online survey, detailed in the next section.

The following discussion outlines how the intra-African collaborative academic research team leaders were sampled.

Through purposive sampling of the research or internationalisation directors, or other staff with relevant information on intra-African research collaboration within the institutions, the following numbers of team leaders were sampled:

Table 3.5: Results from Communication with International and Research Offices

University	Number of responses	Number of suitable participants – after suitability test	Final number of participants
University Light Blue	0	0	0
University Green	3	0	0
University Yellow	2	0	0
University Orange	1	0	0
University Red	8	1	1
University Pink	3	2	2
University Brown	2	2	0
University Grey	4	3	3
University Purple	0	0	0
University White	1	0	0
University Blue	7	1	1
Total	31	9	7

Through communication with research and internationalisation directors at University Light Blue, there were zero responses from academic staff indicating their suitability and willingness to participate. However, the response from the university's research and internationalisation offices did indicate the areas in which intra-African research collaboration is taking place. This data is indicated in the Chapter 4, presenting the data findings.

Three responses were received after the enquiry with University Green's research and internationalisation directors. However, after the suitability test, one of the respondents declined to participate in the research due to an overloaded workload. Another respondent indicated s/he was involved in an intra-African research collaboration, but not as the leader or the PI of the project. The third respondent, after three follow up emails, did not complete the suitability test. University Yellow had two respondents, one of whom did not meet the criteria to participate after the suitability test and another who did not respond to the suitability test enquiry.

University Orange had one respondent after communication with the directors of research and internationalisation. However, this respondent was also not able to participate once the suitability test was administered, due to the fact that the respondent was not leading an intra-African research team, but rather participating as a team member as well.

University Red responded with eight possible participants after the communication with the research and internationalisation directors. However, after administering the suitability test, one respondent met the criteria to participate and chose to participate in the study. From the research and internationalisation director communication, three respondents were received from University Pink. However, after communication around criteria and suitability, only two confirmed suitability and agreed to participate in this study.

The communication with University Brown resulted in two possible participants who both confirmed suitability. However, when trying to confirm the scheduling of the participation in this study from University Brown, the potential respondents did not cooperate after communication with research and internationalisation directors.

Moreover, after communication with the research and internationalisation directors at University Grey, there were four respondents, three of which confirmed meeting the criteria and suitability and agreed to participate in the research. The fourth respondent also confirmed suitability. However, after further communication, it was determined that the nature of the collaboration was actually intra-South African research collaboration and not cross border collaboration within the continent.

Communication with the research and internationalisation directors at University Purple did not result in any respondents and the same communication with University White resulted in only one potential respondent; however, this respondent did not fill in the suitability test and was discarded.

The communication with internationalisation and research directors at University Blue resulted in seven potential participants responding to the invitation to participate. However, after administering the suitability test, only one of the respondents was able

to participate in the research, with the others determining that they do not meet the criteria due to the fact that even though they are involved in intra-African collaboration, they are not the team leaders or PIs, while others indicated that due to an overwhelming workload, they were not able to participate, and the rest did not respond to the suitability test communication.

Further to, when the required information pertaining to which academic staff members are participating in, or leading, intra-African research collaboration, was not located in the international or research directorates of the universities, further attempts were made to reach participants from the population by communicating with academic and research centre heads of departments (HODs) and requesting that the letter of invitation to participate in the research study be shared with all academic or research staff within their directorates. Access to academic department and research centre HODs was gained through institutional websites. Where HOD information was not available, I communicated with deans of faculties, deputy deans of internationalisation and / or research as well as Deputy Vice-Chancellors (DVC) of internationalisation and / or research where necessary.

The following outlines the sampling of the leaders (Research team leaders / PIs) of intra-African collaborative academic research teams through the communication with academic and research centre HODs or Deans and DVCs of internationalisation and / or research at each institution. Table 3.6 outlines the areas of enquiry for this research.

Table 3.6: HOD Communication and Results at University Light Blue

University Light Blue	
Faculty	Department
Commerce	College of Accounting
	Department of Finance and Taxation
	School of Economics
	Education Development Trust
	Department of Information Systems
	Department of Actuarial Science
	Department of Applied Management
	Department of Marketing

	Professional Communication Unit
	Department of Organisational Psychology
	African Institute of Financial Markets and Risk Management
	The Nelson Mandela School of Public Governance
Engineering and the Built Environment	Chemical Engineering
Research Centres	Catalysis Institute
	Centre for Minerals Research
	Centre for Bioprocess Engineering Research
	Crystallisation and Precipitation Unit
	Energy and Industrial Systems Research Group
	Minerals to Metals
	Architecture and Planning
	Geomatics
	Zimani Project
	Civil Engineering
	Centre for Transport Studies
	Computational Continuum Mechanics Research Group
	Concrete Material & Structural Integrity Research Unit
	Geotechnical Engineering Research Group
	Structural Engineering and Mechanics Research Group
	Urban Management
	Water Distribution Systems Research Group
	Construction Economics and Management
	Electrical Engineering
	Radio Frequency and Microwave Engineering
	Signal Processing and Inverse Problems
	Control Engineering
	Soft Computing
	Image Processing and Vision Systems Instrumentation
	Software Defined Radio Group
	Power Systems Engineering
	Machines and Power Electronics
	Radar Remote Sensing
	Robotics
	Telecommunications
	Mechanical Engineering
Health Science	Anaesthesia & Perioperative Medicine
	Health Science Education
	Health & Rehabilitation Sciences

	Human Biology
	Integrative Biomedical Science
	Medicine
	Obstetrics and Gynaecology
	Paediatrics & Child Health
	Pathology
	Public Health and Family Medicine
	Psychiatry and Mental health
	Radiation Medicine
	Surgery
Humanities	African Studies
	Anthropology
	Centre for African Studies
	Centre for Film and Media Studies
	Centre for Theatre, Dance and Performance Studies
	Department of Knowledge and Information Stewardship
	English Language and Literature
	Gender Studies
	Historical Studies
	Language and Literature
	Linguistics
	Michaelis School of Fine Art
	Philosophy
	Political Studies
	Psychology
	School of Education
	School of Development Sociology
	South African College of Music
	Study of Religions
	Research Centres/Groupings
	Christianity & Society in Africa
	Comparative Religion in Southern Africa
	Centre for Contemporary Islam
	Institute for Humanities in Africa
	Isaac and Jessie Kaplan Centre for Jewish Studies and Research
	Lucy Lloyd Archive and Resource Exhibition Centre
	Centre for Social Science Research
Law	Commercial Law
	Private Law
	Public Law
	Research Groupings
	Centre for Comparative Law

	Centre for Rhetoric Studies
	Centre for Criminology
	Democratic Governance and Rights Unit
	Intellectual Property Unit
	Centre for Law and Society
	Institute of Marine and Environmental Law
	Labour, Development and Governance Research Unit
	Land and Accountability Research Centre
	Refugee Rights Unit
	Shipping Law
	Chair in Customary Law
Science	Archaeology
	Astronomy
	Biological Sciences
	Chemistry
	Environmental and Geographical Science
	Geological Sciences
	Mathematics and Applied Mathematics
	Molecular and Cell Biology
	Oceanography
	Physics
	Information Technology
	Statistical Sciences
	Research Groupings
	Animal Demography
	Biopharming
	Drug Discovery and Development
	The Human Evolution Research Centre
	Centre for Information and Communication Technology for Development
	Climate Systems Analysis
	Institute for Communities and Wildlife in Africa
	Marine Research Institute
	Metrological and Applied Sciences University Research Unit
	Nansen-Tutu Centre for Marine Environmental Research
	Percy Fitzpatrick Institute of African Ornithology
	DTS/NRF Centre of Excellence: Birds as Key to biodiversity change
	Plant Conservation Unit
	Centre for Supramolecular Chemistry Research
	Scientific Computing Research Unit
	Centre for Theoretical and Mathematical Physics
	UCT-CERN Research Centre

Graduate School of Business	
Centre for Higher Education Development	

University	Number of responses	Number of suitable participants – after suitability test	Final number of participants
University Light Blue	4	2	2

Out of the 131 enquiries sent to University Light Blue academic department and research centre HODs or Deans, and DVCs of internationalisation and / or research, a total of 18 responses were received after three follow ups. All 18 responses indicated receipt of correspondence and confirmation of dissemination of the invitation to participate in the research letter to all academic and research centre staff. After the dissemination of this letter, four responses were received from potential participants. After the administration of the suitability test, two participants were able to participate in the research.

Table 3.7: HOD Communication and Results at University Green

University Green	
Faculty	Department
Economic and Management Sciences	Accounting
	Auditing
	Business Management
	Communication Management
	Economics
	Financial Management
	Human Resource Management
	Marketing Management
	Public Management and Administration
	Taxation
	Tourism Management

Education	Humanities Education
	Science, Mathematics and Technology Education
	Education Management and Policy
	Education Psychology
	Early Childhood Education
	Centres and Units
	Lesson Study
	Unit for Distance Education
	Centre for Evaluation and Assessment
	Interuniversity Education Law and Education Policy
	Living Lab for Innovative Teaching
	Centre for Diversity and Social Cohesion
Engineering, Built Environment and IT	School of Engineering
	Chemical Engineering
	Industrial and Systems Engineering
	Civil Engineering
	Mining Engineering
	Electrical, Electronic and Computer Engineering
	Materials Science and Metallurgical Engineering
	Mechanical & Aeronautical Engineering
	School of the Built Environment
	Architecture
	Construction Economics
	Town and Regional Planning
	School of Information Technology
	Computer Science
	Informatics
	Information Science
	Centres and Units
	Centre for Pyrometallurgy
	Asset Integrity Management
	Centre of New Energy Systems (CNES)
	Harmony Gold Chair in Rock Engineering and Numerical Modelling
	Water Utilisation
	SENTECH Chair in Broadband Wireless Multimedia Communication
	Chair in Shopping Centre Studies founded at UP
	York Timbers Chair
	African Centre of Excellence for Information Ethics

	Carl Emily Fuchs Institute for Microelectronics (CEFIM)
	Centre for Transport Development
	Chair in Fluoro-materials Science and Process Integration
	Industrial Minerals and Metals Research Institute (IMMRI)
	SAIW Centre for Welding Engineering
	Institute for Technological Innovation
	Mining resilience Research Centre
	SARChi Chair in Advanced Senior networks
	SARChi Chair in Artificial Intelligence
Health Science	School of Dentistry
	School of Health Care Sciences
	School of Health Systems and Public Health
	School of Medicine
	Institutes, Centres and Units
	Centre for Ethics & Philosophy of Health Sciences
	Centre for Maternal, Foetal, New-born & Child Health Care Strategies
	Centre for Neuroendocrinology
	Centre for Viral Zoonoses
	Environmental Chemical Pollution and Health (ECPH) Research Unit
	Forensic Anthropology Research Centre
	Institute for Cellular & Molecular Medicine
	Pan African Cancer Research Institute
	Sport, Exercise Medicine & Lifestyle Institute
	Community Oriented Primary Care
	Institute for Sustainable Malaria Control
Humanities	School of Arts
	Afrikaans
	African Languages
	Historical and Heritage Studies
	Ancient Modern Languages Cultures
	Anthropology and Archaeology
	English
	Philosophy
	Political Sciences
	Psychology
	Sociology
	Social Work and Criminology
	Speech Language Pathology and Audiology
	Centres, Institutes and Units
	Centre for Augmentative and Alternative Communication

	Centre for Mediation in Africa
	Centre for Sexualities, AIDS and Gender
	Centre for the Study of Governance Innovation
	Unit for Academic Literacy
	Unit for Creative Writing
	Itsoseng Clinic
	Emerging Scholars Initiative
Law	Centre for Human Rights
	Jurisprudence
	Mercantile Law
	Private Law
	Procedural Law
	Public Law
	Centres, Institutes and Units
	Centre for Child Law
	Centre for Intellectual Property Law
	Centre for Law and Medicine
	Extractive Industry Law in Africa Unit
	Institute for International and Comparative Law in Africa
	International Development Law Unit
	Sports Law Centre
Faculty of Natural and Agricultural Sciences	
	Actuarial Sciences
	Agricultural Economics, Extension and Rural Development
	Animal Science
	Biochemistry, Genetics and Microbiology
	Chemistry
	Consumer and Food Science
	Geography, Geoinformatics and Meteorology
	Geology
	Mathematics and Applied Mathematics
	Physics
	Plant and Soil Sciences
	Statistics
	Zoology and Entomology
	Institutes
	Forestry and Agricultural Biotechnology Institute
	Genomics Research Institute
	Institute of Applied Materials
	Institute for Food Nutrition and Well-being
	Mammal Research Institute

	UP Water Institute
	Centres
	African Centre for Gene Technology
	Centre for Bioinformatics and Computational Biology
	Centre for Environmental Economics and Policy in Africa
	Centre for Environmental Studies
	Centre for Geoinformation Science
	Centre for Microbial Ecology and Genomics
	Centre for Wildlife Management
	Centre for Sustainable Malaria Control
	Joint Centre for Mathematics and Technology Education
	UP Natural Hazard Centr, Africa
	Units
	Biomath Forum
	Conservation Ecology Research Unit
	Experimental Farms
	STATOMET (Bureau for Statistical and Survey Methodology)
Theology and Religion	Old Testament and Hebrew Scripture
	New Testament and Related Literature
	Practical Theology and Mission Studies
	Religion Studies
	Systematic and Historical Theology
	Centres
	Centre for Faith and Community
Veterinary Science	Anatomy and Physiology
	Companion Animal Clinical Studies
	Paraclinical Sciences
	Production Animal Studies
	Veterinary Tropical Diseases
	Centres
	Centre for Veterinary Wildlife Studies
	Equine Research Centre
	Exotic Leather Research Centre
	Onderstepoort Veterinary Genetics Laboratory
	Clinical Pathology
Gordon Institute of Business Science	African Management and Markets
	Business Ethics

	Entrepreneurship Development Academy
	Leadership and Dialogue
	Personnel and Applied Learning
	Responsible Finance Initiative

University	Number of responses	Number of suitable participants – after suitability test	Final number of participants
University Green	17	2	1

Out of the 172 enquiries sent to University Green academic department and research centre HODs or Deans and DVCs of internationalisation and / or research, a total of 18 responses were received after three follow ups. All 26 responses indicated receipt of correspondence in the form of a letter to all academic and research centre staff and confirmation of dissemination of the invitation to participate in the research. From the dissemination of this letter, 17 responses were received from potential participants. After the administration of the suitability test, only one participant was able to participate in the research, with the majority not responding to the request to participate after the suitability enquiry and the rest determining they were not suitable to participate after completing the suitability test. Even though two participants confirmed suitability, only one responded to requests for participant consent.

Table 3.8: HOD communication and Results at University Yellow

University Yellow	
Faculty	Department
Research Centres	Centre for Transdisciplinary Studies
	Theology and Religion
	Mandela Institute
	Early Childhood Development Centre of Excellence
	Nedbank Chair and Deputy dean: Research
Science and Agriculture	Agricultural and Rural Research Institute
Management and Commerce	Accounting
	Economics
	Development Studies
	Business Management
	Information Systems

	Public Administration
Education	Deputy Dean
Social Science and Humanities	African Languages
	Communication
	Criminology
	English Studies and Comprehensive Literature
	Public Education and Advocacy
	Fine Arts
	History
	Library and Information Science
	Music
	Philosophy
	Psychology
	Sociology and Anthropology
	Political Science and International Relations
	Social Work and Development
	African Languages
Nelson Mandela School of Law	Dean
Health Science	Dean

University	Number of responses	Number of suitable participants – after suitability test	Final number of participants
University Yellow	5	0	0

University Yellow does not have academic department and research centre HOD contact details on their website. In this case, for faculties, departments or centres that did not have these contact details available, the Faculty Dean was contacted. In all, 29 enquiries were sent and five responses were received after three follow up enquiries. The responses indicated a range of feedback including informing me that no intra-African research collaboration was taking place within the specific department. Others indicated there could be activity occurring and encouraged academic staff or researchers to contact me. Of the academic staff and researchers who did contact me, all determined they were not able to participate in the research after completing the suitability test for inclusion or exclusion in the study.

Table 3.9: HOD Communication and Results at University Orange

University Orange	
Faculty	Department
College of Humanities	School of Applied Human Sciences
	School of Arts
	School of the Built Environment and Development Studies
	School of Education
	School of Religion, Philosophy and Classics
	School of Social Science
	College of Agriculture, Engineering and Science
School of Chemistry and Physics	
School of Engineering	
School of Life Sciences	
School of Mathematics, Statistics and Computer Science	
Research Centres	
African Centre for Crop Improvement	
African Centre for Food Security	
Centre for Water Resources Research (CWRR)	
Farmer Support Group	
Plant Breeding MSC Programme for Africa	
Astrophysics and Cosmology Research Unit	
Catalysis Research Group	
Centre for Quantum Technology	
National Institute for Theoretical Physics	
Nanotechnology platform	
NASSO at	
ASReG - Aerospace Systems Research Group	
Energy, Food and Water Engineering Research Group	
Environmental Fluids Mechanics Lab (EFML)	
Eskom Centre of Excellence in HVDC Engineering	
Group for Solar Energy Thermodynamics (GSET)	
Particle Technology Group (PTG)	
Structural Engineering & Computational Mechanics Group	
Thermodynamics Research Unit	
Water, Sanitation & Hygiene Research & Development Centre (WASH R&D Centre)	
Astrophysics Research Centre	

	Aquatic Ecosystem Research Programme
	Cape Parrot Working Group (CPWG)
	MACE Lab
	Microscopy & Microanalysis Unit
College of Health Science	School of Clinical Medicine
	School of Health Sciences
	School of Laboratory Medicine and Medical Sciences
	School of Nursing and Public Health
	Dean of Research
	Research Centres
	Systems Biology of HIV/AIDS
	Nursing and Public Health
	Pharmaceutical Sciences
College of Law and Management	Graduate School of Business and Leadership
	School of Law
	School of Accounting, Economics and Finance
	School of Management, IT and Governance

University	Number of responses	Number of suitable participants – after suitability test	Final number of participants
University Orange	0	0	0

At University Orange, Deans and HODs who received the 49 enquiries, indicated they disseminated the letter to participate in the research; however, after three follow up enquiries, no responses were received from academic staff indicating possible suitability or willingness to participate.

Table 3.10 Hod communication and results at University Red

University Red	
Faculty	Department
Arts and Humanities	African Languages Studies
	Afrikaans and Nederlands
	Anthropology
	English
	Foreign Languages

	Geography, Environmental Studies and Tourism
	History
	Library and Information Science
	Linguistics
	Philosophy
	Religion and Theology
	Sociology
	Women's and Gender Studies
Faculty of Community and Health Science	Social Work
	Dietetics and Nutrition
	Occupational Therapy
	Physiotherapy
	Psychology
	Sport, Recreation and Exercise Science
Dentistry	Deputy Dean of Research
	Oral Hygiene
	Maxillofacial and Oral Pathology
	Orthodontics
	Paediatric Dentistry
	Conservative Dentistry
	Prosthetic Dentistry
	Craniofacial Biology
	MFOS ad Anaesthesiology & Sedation
	Oral Medicine and Periodontology
	Anaesthesiology and Sedation
	Community Oral Health
	Oral and Maxillofacial Radiology
Economic and Management Science	Accounting
	Economics
	Industrial Psychology
	Information Systems
	Political Studies
	Centre of Excellence in Food Security
	The African Centre for Citizenship and Democracy
	Institute for Poverty, Land and Agrarian Studies
	Institute for Social Development
	School of Business and Finance

	School of Government
Education	Educational Psychology
	Educational Studies
	Language Education
	Centre for African Language Teaching
	Science Learning Centre for Africa
	Institute for Post-School Studies
	School of Science and Mathematics Education
Law	Criminal Justice and Procedure
	Mercantile and Labour Law
	Private Law
	Public Law and Jurisprudence
	The Dullah Omar Institute for Constitutional Law, Governance and Human Rights (DOI)
	The Centre for Legal Integration in Africa (CLIA)
	The Centre for Transformative Regulation of Work (Centrow), which includes the Social Law Project (SLP)
	The African Centre for Transnational Criminal Justice
	the Global Environmental Law Centre (GELC)
	Children's Rights and Family Law in the African Context
Natural Sciences	Biodiversity and Conservation Biology
	Biotechnology
	Chemistry
	Computer Science
	Earth Science
	Mathematics and Applied Mathematics
	Medical Bioscience
	Physics and Astrophysics
	Statistics and Population Studies
	Institute for Microbial Biotechnology and Metagenomics
	Institute for Water Studies
	South African Institute for Advanced Materials Chemistry
	South African National Bioinformatics Institute
	The Inter-University Institute for Data Intensive Astronomy
	School of Pharmacy
	Nature Reserve Unit
	Proteomics Unit
	UNESCO Chair

University	Number of responses	Number of suitable participants – after suitability test	Final number of participants
University Red	6	3	3

Out of the 77 enquiry emails sent to academic HODs, six responses were received indicating possible participation in the study. After the administration of the suitability test to confirm participants' meet the criteria for inclusion, three respondents were able to participant and confirmed willingness to participate in the study.

Table 3.11: HOD Communication and Results at University Pink

University Pink	
Faculty	Department
Faculty of Humanities	English
	Anthropology
	Drama
	English Language and Linguistics
	Fine Art
	History
	Music
	Political and International Studies
	Psychology
	Sociology
	Philosophy
	School of Languages
	School of Journalism
	Allan Grey Centre for Leadership Ethics
Commerce	Accounting
	Economics
	Information Systems
	Management
	Business School
Education	Education Department
	Professional Development Centre
	Maths Education Chair
	South African Numeracy Chair
Law	
Pharmacy	Pharmaceutics

	Pharmaceutical Chemistry
	Pharmacy Practice
	Pharmacology
Science	Biochemistry and Microbiology
	Biotechnology Innovation Centre
	Botany
	Chemistry
	Computer Science
	Environmental Science
	Geography
	Geology
	Human Kinetics and Ergonomics
	Ichthyology and Fisheries Science
	Mathematics
	Physics and Electronics
	Statistics
	Zoology and Entomology
	Centres and Institutes:
	Centre for Biological Control
	Centre for Chemico- and Bio medicinal Research (CCBR)
	The South African Reserve Bank Centre for Economics Journalism
	Centre for Higher Education Research, Teaching and Learning
	Centre for Social Development
	Dictionary Unit for South African English
	DST/Mintek Nanotechnology Innovation Centre (NIC) for Sensors
	Environmental Learning Research Centre
	Highway Africa Centre
	Environmental Biotechnology, Rhodes University
	Institute for Nontechnology
	Institute of Social and Economic Research
	ISEA
	Institute for Water Research
	International Library of African Music
	Neil Aggett Labour Studies Unit
	Research Unit on Iron and Manganese Ore Deposits
	Research Unit in Bioinformatics
	Sol Plaatje Media Leadership Institute
	Southern Ocean Group
	Telkom Centre of Excellence in Distributed Multimedia
	Unit of Zimbabwean Studies

University	Number of responses	Number of suitable participants – after suitability test	Final number of participants
University Pink	3	1	1

From the 65 enquiries sent to the HODs of the above departments and research centres, three responses were received indicating participation in intra-African academic research. However, after administering the suitability test, only one of these participants met the criteria to participate in the research.

Table 3.12: HOD Communication and Results at University Brown

University Brown	
Faculty	Department
Commerce, Law and Management	Accountancy
	Business Sciences
	Economics and Finance
	Law
	Business School
	School of Governance
Engineering and the Built Environment	Architecture and Planning
	Civil and Environmental Engineering
	Chemical and Metallurgical Engineering
	Chemical and Metallurgical Engineering
	Construction Economics and Management
	Electrical Information Engineering
	Mechanical, Industrial, Aeronautical Engineering
	Mining and Engineering
	Health Sciences
Clinical Medicine	
Oral Health Sciences	
Pathology	
Physiology	
Public Health	
Humanities	Therapeutic Sciences
	School of Arts
	School of Education
	Human and Community Development
Literature, Language and Media	

	Social Sciences
Science	Animal, Plant and Environmental Science
	Chemistry
	Computer Science and Applied Mathematics
	Geosciences
	Geography, Archaeology and Environmental Studies
	Mathematics
	Molecular and Cell Biology
	Physics
	Statistics and Actuarial Science

University	Number of responses	Number of suitable participants – after suitability test	Final number of participants
University Brown	16	3	2

From the 34 enquiries sent to the above academic and research departmental HODs, 16 responses were received from potential participants. However, after the administration of the suitability test, three respondents met the criteria for inclusion and two of the three respondents agreed to participate in the research. Following ability test, one opted out of participation due to an overwhelming workload.

Table 3.13: HOD Communication and Results at University Grey

University Grey	
Faculty	Department
	DVC Research
	Dean of Humanities
Faculty of Economic and Management Science	Business Management
	Industrial Psychology
	Economics and Finance
	Public Administration and Management
	School of Accountancy
	Business School
	Centre for Development Support
	Centre for Business Dynamics
Education	Social Sciences and Language Education

	School of Education Studies
	School of Mathematics, Natural Science and Technology Education
Health Science	Research Directorate
	School of Health and Rehabilitation Science
	School of Biomedical Sciences
	School of Clinical Medicine
	School of Nursing
	School of Pathology
The Humanities	African Languages
	Afrikaans en Nederlands, Duits en Frans
	Anthropology
	Art History and Image Studies
	Centre for Gender and Africa Studies
	Centre for Health Systems R&D
	Communication Science
	Criminology
	Drama and Theatre Arts
	English
	Fine Arts
	Greek, Latin and Classical Studies
	Hebrew
	History
	Linguistics and Language Practice
	Odeion School of Music
	Philosophy
	Political Studies and Governance
	Psychology
	Social Work
	South African Sign Language and Deaf Studies
	Unit for Professional Training and Service in the Behavioural Science
Law	Mercantile Law
	Private Law
	Public Law
	Law Clinic
	Free State Centre for Human Rights
	School of Financial Planning Law
Natural and Agricultural Sciences	Centre for Microscopy
	Centre for Environmental Management

	Chemistry
	Computer Science and Informatics
	Disaster Management Training and Education Centre for Africa
	Genetics
	Geography
	Geology
	Institute for Groundwater Studies
	Mathematics and Applied Mathematics
	Mathematical Statistics and Actuarial Science
	Microbiology and Biochemistry
	Physics
	Plant Sciences
	Zoology and Entomology
	Agricultural Economics
	Animal Science
	Soil, Crop and Climate Science
	Sustainable Food Systems and Development
	Architecture
	Quantity Surveying and Construction Management
	Urban and Regional Planning
	Electronic
Open Distance Learning	Research Unit
Theology and Religion	Historical and Constructive Theology
	Practical and Missional Theology
	Old and New Testament Studies
	Religion Studies

From the 76 enquiries sent to the above academic department and research centre HODs of University Grey, no responses were received after three follow up enquiries.

Table 3.14: HOD Communication and Results at University Purple

University Purple	
Faculty	Department
Economic and Management Sciences	Accounting Sciences
	Economic Sciences
	Industrial Psychology and Human Resource Management
	Management Sciences
	Tourism

	Business School
	Research Centres:
	Management Cybernetics
	TRADE
	Applied Risk Management
	bhive Enterprise Development Centre
	Optentia
	TELT-SA
	Tourism Research in Economics, Environs and Society - TREES
	Work-Well
Education	Language Education
	Psycho-Social Education
	Commerce and Social Science in education
	Foundation Phase Education
	Mathematics, Science and Technology Education
	Professional Studies in Education
	Research Centres
	Self-Directed Learning
	Education and Human Rights in Diversity
	Edu-LEAD
	Community-Based Educational Research
	UNESCO Chair on Multimodal Learning and OER
Engineering	Chemical Engineering
	Electrical, Electronic and Computer Engineering
	Mechanical Engineering
	Industrial Engineering
	Electromechanical Engineering
	Mechatronic Engineering
	Nuclear Engineering
	Research Centres
	Centre of Excellence in Carbon based Fuels
	Unit for Energy and Technology Systems
	Multi-Lingual Speech Technologies
	Chair in Nuclear Engineering
	Hydrogen South Africa
	Centre of Research and Continued Engineering Development
	EPPEI Specialisation Centre for Emissions Control
	Medical Device Development and Commercialisation Platform

	Research Chair in Biofuels and Other Clean Alternative Fuels
	Research Group on Intelligent Systems
	Research Chair in Coal Research
	Research Chare in McTronx
	Research Chair in Thermal Fluids
	Telenet
Health Science	Human Movement Science
	Psychosocial Health
	Pharmacy
	Physiology
	Consumer Sciences
	Nutrition
	Occupational Hygiene
	Nursing
	Research Centres
	Centre of Excellence for Nutrition
	Pharmacem
	Supporting Nutrition Research and education in Africa
	AUTHeR
	PhASRec
	HART
	NuMIQ
	COMPRES
	MUSA
	OHHRI
	Centre for Health Professions Education
Humanities	School of Communication
	Government Studies
	Languages
	Music
	Philosophy
	Social Sciences
	Research Centre
	Visual Narratives and Creative Outputs (VINCO)
	Understanding and Processing Language in Complex Settings
	Social Transformation
	The South African Centre for Digital Language Resources
	Population and Health
	Indigenous Language Media in Africa

	Centre for Text Technology
Law	Acting Deputy Dean and Research Director
Natural and Agricultural Sciences	
	Physical and Chemical Sciences
	School of Biological Sciences
	Geo and Spatial Sciences
	Agricultural Sciences
	Mathematical and Statistical Sciences
	Computer Science and Information Systems
	Business Mathematics and Informatics
	Indigenous Knowledge Systems
	Research Centres
	African Amphibian Conservation Research Group
	Water Research Group
	Pure and Applied Analytics
	Unit for Business Mathematics and Informatics
	Unit for Environmental Sciences and Management
	Chemical Resource Beneficiation
	Materia Science Innovation and Modelling
	Human Metabolomics
	Niche area for Food Security and Safety
	Centre for Space Research
	African Centre for Disaster Studies
	Centre for Applied Radiation Science and Technology
	Centre for Water Sciences and Management
	Science Centre
Theology	Christian Ministry and Leadership
	Ancient Language and Text studies
	Research Centres
	Ancient Texts: Text, Context, and Reception
	Unit for Reformational Theology and the Development of the SA Society

Similarly, out of the 113 enquiries sent, there were no responses received after three follow up enquiries with academic departments and research centre HODs from University Purple.

Table 3.15: HOD communication and results at University White

University White	
Faculty	Department

Health Science	Nursing
	Human Nutrition
	Health Promotion Unit
	Optometry
	Pharmacy
	Medical Sciences
	School of Medicine
Humanities	School of Education
	School of Languages and Communication Studies
	School of Social Sciences
Science and Agriculture	School of Agricultural and Environmental Science
	School of Mathematical and Computer Science
	School of Molecular and Life Science
	School of Physical and Mineral Science
Management and Law	School Economics and Management
	School of Law
School of Accountancy	Department of Auditing
	Department of Financial Accounting
	Department of Financial Management
	Department of Taxation
	ACSAM

As with University Grey and University Purple, no responses were received after 21 enquiries and three follow ups to academic department and research centre HODs at University White.

Table 3.16: HOD Communication and Results at University Blue

University Blue	
Faculty	Department
Agrisciences	Agricultural Economics
	Agronomy
	Animal Science
	Conservation Ecology and Entomology
	Food Science
	Forest and Wood Science
	Genetics
	Horticultural Science
	Plant Pathology
	Soil Science

	Viticulture Oenology
	Institutes
	Institute for Plant Biotechnology
	South African Grape and Wine Research Institute
	Centre for Food Safety
	African Wildlife Economy Institute
	Southern Africa Food Lab
Arts and Social Science	
	Drama
	Music
	Visual Arts
	Ancient Studies
	English
	General Linguistics
	Geography and Environmental Studies
	History
	Information Science
	Journalism
	Psychology
	Social Work
	Sociology and Social Anthropology
	Institutes
	Africa Open Institute
	Centre for Bible Interpretation and Translation in Africa
	Centre for Geographical Analysis
	Centre for international and Comparative Politics
	Centre for Research on Evaluation, Science and Technology
	Centre for Regional and Urban Innovation and Statistical Exploration
	DSI-NRF Centre of Excellence in Scientometrics and Science, Technology and Innovation Policy
	Research Alliance for Disaster and Risk Reduction
Economic and Management Sciences	Departments
	Accountancy
	Business Management
	Economics
	Industrial Psychology
	Logistics
	Statistics and Actuarial Science
	School of Public Management
	Business School
	Centres and Institutes

	Africa Centre for HIV/AIDS Management
	Africa Centre for Dispute Settlement
	Bureau for Economic Research
	Centre for Corporate Governance
Education	Departments
	Curriculum Studies
	Education Policy studies
	Educational Psychology
	Centre for Higher and Adult Education
	Centre for Pedagogy
Engineering	Vice Dean (Research and Industry Liaison)
Law	Mercantile Law
	Private Law
	Public Law
Medicine	Anaesthesiology and Critical Care
	Biomedical Sciences
	Centre for Health Professions Education
	Family and Emergency Medicine
	Global Health
	Health and Rehabilitation Sciences
	Medical Imaging and Clinical Oncology
	Medicine
	Nursing and Midwifery
	Obstetrics and Gynaecology
	Paediatrics and Child Health
	Pathology
	Psychiatry
	Sport Science
	Surgical Sciences
Military Science	Schools
	Human Resource Development
	Department of Languages and Culture
	Department of Industrial Psychology
	Department of Mercantile and Public Law
	Security and Africa Studies
	Department of Military Strategy
	Department of Political Science
	Department of Military History
	School for Science and Technology
	Department of Aeronautical Science
	Department of Mathematics
	Department of Military Technology Staff

	Department of Nautical Science
	Department of Physics
	School of Geospatial Studies and Information Systems
	Department of Computer and Information Systems
	Department of Educational Technology
	Department of Military Geography
	School of Organisation and Resource Management
	Department of Accounting and Auditing
	Department of Economics
	Department of Management
	Department of Public and Development Management
Science	Biochemistry
	Botany and Zoology
	Chemistry and Polymer Science
	Earth Science
	Mathematical Science
	Microbiology
	Physics
	Physiological Sciences
	Centres:
	African Institute for Mathematical Sciences (AIMS)
	Bureau for Industrial Mathematics at SU
	Centre for Bioinformatics and Computational Biology
	Centre for Experimental Mathematics
	Centre for Human Performance Sciences
	DST-NRF Centre of Excellence for Invasion Biology (CIB)
	Institute of Applied Computer Science
	Laser Research Institute
	National Institute for Theoretical Physics (NITheP)
	South African Centre for Epidemiological Modelling and Analysis (SACEMA)
	Stellenbosch University Water Institute
Theology	Dean

University	Number of responses	Number of suitable participants – after suitability test	Final number of participants
University Blue	19	2	1

From the 120 enquiries sent to the above academic department or research centre HODs or Deans at University Blue, 19 responses were received from possible participants responding to the letter of invitation to participate in the research. Once the suitability test was administered to these respondents, only two respondents met the criteria to participate in the research. Even though two participants met the criteria and consented to participate in the research, only one responded to communication sent to schedule the administration of the instrument, leaving one participant.

To summarise, a total of 874 enquiries were sent out to academic and research departmental HODs Or Deans and DVCs of research or internationalisation with three follow up emails to those who did not respond within a week of the initial enquiry. Including follow-ups, a total of 2347 emails were sent with the aim of reaching the leaders or PIs of intra-African collaborative academic research teams.

From these enquiries, a total of 82 responses were received from academic staff, or researchers, indicating an interest in participating in the research. However, in applying the suitability test to assess if these potential participants meet the criteria for inclusion, it was determined that only 13 participants were suitable to participate. From these participants, 10 agreed to participate in the research.

To further obtain the 'leader' component through the sampling process, a modified form, in line with POPIA, of the non-probability sampling method, snowball sampling was also used. The modified form of snowball sampling for this purpose will be referred to as Referral Sampling (Cunningham, 2021). I asked the initial participants accessed through the first phase of the purposive sampling method to share the letter of invitation to participate in the research with other possible participants. The sample selection was consigned only to the research team leaders who are based at South Africa academic research institutions.

Through referral sampling, a number of respondents were reached. However, once the suitability test to ensure participants meet the inclusion criteria was administered, only one participant was sampled. This process is detailed in the table below:

Table 3.17: Results from Referral Sampling

University	Number of Respondents	Number of Suitable Participants	Final Number of Participants
University Red	5	0	0
University Purple	1	1	1
University Pink	5	0	0
University Green	2	0	0
University Blue	2	0	0
University Brown	1	0	0

It is important to note here that the one referral sample received through this method was from a different university to the one the participant represents. Through Referral Sampling, one of the participants at University Grey referred me to a possible participant at University Purple. The possible participant was also mentioned by another participant at University Red. After the suitability test, the participant at University Purple chose to participate in the research.

In addition, specific research ethics protocols included assistance in disseminating the invitation to participate in the study to all academic staff at each South African research-intensive university. The assistance included an invitation to those who are suitable to participate in the study. However, in these cases, no responses indicating interest in participating in the research, were received.

The following summarises the sampling process that was implemented to achieve saturation of the population representing the leader component of intra-African collaborative academic research teams.

Table 3.18: Summary of Sampling Process

Sampling Type	Participant numbers
Non-Probability Purposive Sampling – Phase 1: – Directors of Research and Internationalisation	7
Non-Probability Purposive Sampling – Phase 2: Academic Department / Research Centre HOD / Deans/ Directors/ DVCs	10

Referral Sampling	1
Total	18

Guest, Namey and Chen, (2020: 9) discuss data saturation as the most commonly employed concept to estimate sample sizes in qualitative research. It is difficult to have full confidence in concluding whether or not saturation has been reached or not, due to the differences in approaches (Guest, Namey and Chen, 2020: 14).

Palinkas, Horwitz, Green, Wisdom, Duan and Hoagwood (2013: 537) in exploring purposeful sampling, argue that achieving theoretical saturation may be achieved by providing as much detail as possible to ensure all aspects of the phenomenon are included in the exploration. In the case of this study, I included as much detail of the phenomenon as possible, by providing definitions of all aspects of the phenomenon in all communication aimed at reaching a sample, including all introductory email enquiries, letters of invitation to participate (Appendix C), the suitability test (Appendix D) and the semi-structured interview schedules (Appendices A and B).

Vasileio, Barnett, Thorpe and Young (2018: 4) argue that sample size justification is not contingent on the number of interviews, but rather that sample size should be supported by the principles of saturation. Saunders et al. (2017: 1895) define data saturation as an indication that data that has been collected and analysed shows that further data collection and analysis are unnecessary. However, they (2017: 1885) argue that there is uncertainty of how saturation should be conceptualised and present approaches to determining data saturation.

The first approach defines saturation as:

“the criterion for judging when to stop sampling the different groups pertinent to a category is the categories’ theoretical situation. Saturation means that no additional data are being found whereby the sociologist can develop properties of the category. As he sees similar instances over and over again, the researcher becomes empirically confident that a category is saturated. He goes out of his way to look for groups that stretch diversity of data as far as possible, just to make certain that saturation is based on the widest possible range of data on the category” (Saunders et al., 2017: 1895).

In the case of this research, the sample for the first phase of the data collection process as well as the sample for the second phase are of homogenous populations. The first target population is directors of international or research offices at South African research-intensive universities. In this case, it is possible to determine the number within this population, as there are 11 research-intensive universities. As shown above, all 11 institutions participated in this phase of data collection. However, for the second phase of the data collection, even though the population is also a homogenous group, it is not possible to determine the number that makes up the population.

In this second phase of the data collection, I observed similar themes from leaders presenting their view of the role. This is also in line with another perspective presented by Saunders et al. (2017: 1900), where this approach includes reviewing the data and when nothing new is apparent and information is becoming redundant, it is recommended that the researcher stop collecting data and start analysing what has been collected.

Saunders et al. (2017: 1901) also present theoretical saturation as an approach to determine if data saturation has been achieved. Saturation occurs when the complete range of constructs that make up the theory is fully represented by the data. An additional saturation approach says that saturation operates not at the level of the dataset, but in relation to the data provided by an individual participant, arguing that probing in an interview must continue until researchers feel that they have a full understanding of the participants' perspectives. In the case of this research, I ensured that all concepts contributing to the conceptual and theoretical frameworks of intra-African academic collaborative research teams and the leadership thereof is represented in the instrument exploring the leader component. In the preliminary analysis of the qualitative data, I observed that the perspectives of all 18 of the research leaders encompassed each concept.

The research design, sampling process and data collection aimed to ensure saturation through a combination of these saturation approaches. Qualitative research experts argue that there is no straightforward answer to the question of how many interviews are needed and that a sample size is contingent on a number of factors relating to

epistemological, methodological and practical issues. Qualitative sizes should be large enough to allow the unfolding of a “new and richly textured understanding” of the phenomenon under study, but small enough so that the “deep case-orientated analysis” of qualitative data is not precluded (Vasileio et al., 2018: 2).

The following are the codes used for the intra-African collaborative research team leaders or PIs

Table 3.19: Intra-Africa Academic Collaborative Research Team Leader Codes

Collaborative Research Team Leader Codes					
University	University Code	RL1	RL2	RL3	RL4
University Green	UGN	UGNRL1			
University Brown	UBN	UBRNL1	UBNRL 2		
University Red	UR	URRL1	URRL2	URRL3	URRL4
University Grey	UGY	UGYRL1	UGYRL2	UGYRL3	
University Light Blue	ULB	ULBRL1	ULBRL2		
University Blue	UB	UBRL1	UBRL2		
University Purple	UP	UPRL1			
University Pink	UPK	UPKRL1	UPKRL2	UPKRL3	
University Yellow	UY	0			
University Orange	UO	0			
University White	UW	0			

3.2.4

Data Instruments and Collection Procedure

The data collection processes in this study are guided by the mixed method paradigm due to the research project aiming to understand the number of intra-African projects South African research institutions are collaborating in, as well as to understand

leadership of the intra-African research teams. The discussion to follow includes the different data collection methods and instruments used for the research. In this section, the discussion focuses on how the data was collected and the instruments used; namely an online survey and a semi-structured interview schedule.

The data in the study was collected in two phases. Firstly, out of all of the 26 public higher education institutions the researcher focused on all research-intensive institutions to determine whether or not there are intra-African research projects within the academic arena of the institution. This process was executed using Appendix A. The information collected during this process provides an indication of the depth (nature and extent) of intra-African research within the higher education sector of South Africa. Data collection in this phase was done by means of an electronic questionnaire or survey (Appendix A). In addition, this instrument allowed for the exploration of institutional structural leadership of intra-African academic collaborative research. Secondary research was also conducted through literature with the aim of reviewing the concept of intra-African research within the sector. These reviews enabled me to become familiar with the different concepts in order to refine the electronic questionnaire or survey.

In their guide for online surveys, Regmi, Waithaka, Paudyal, Simkhada and Van Teijlingen (2016: 640) claim that collecting research data through traditional approaches including face-to-face, postal or telephone surveys, can be costly and time consuming. They (2016: 641) indicate that the emerging internet-based approach is relatively cost effective and can collect large amounts of data from participants in a short time frame. While discussing innovation in data collection, Robertson (2017) argues that online / web surveys are a data collection method that has developed more rapidly over the past 10 years and in developed countries, online surveys are the primary tool for data collection. However, Lupu and Michelitch (2018: 207) caution that in developing countries there may be challenges in collecting data using this method. As all 26 higher education institutions in South Africa have access to the internet and high-quality bandwidth, this method is effective for this study.

The leaders of research teams operating within Africa were used in the next phase. For this phase, data was obtained using semi-structured interviews (Appendix B). The use of a semi-structured interview schedule has been chosen as it allows for more

depth of responses. DeJonckheere and Vaughn (2019: 1) describe semi-structured interviews as allowing the researcher to collect open-ended data, to explore participants' thoughts, feelings and beliefs about a certain topic and to delve deeply into personal and sensitive issues. The semi-structured interviews allowed for intelligible qualitative data through the provision of narratives of the dynamics of the leader role.

Longhurst (2003: 143) adds that semi-structured interviews are verbal interchanges the interviewer attempts to elicit information from another person by asking questions.

“Although the interviewer prepares a list of predetermined questions, semi-structured interviews unfold in a conversational manner offering participants the chance to explore issues they feel are important” (Longhurst, 2003: 143).

Adams (2015: 493) recommends that semi-structured interviews should only be conducted conversationally with one respondent at a time. Semi-structured interviews can also be useful for the following:

- If you need to conduct in-depth reconnaissance before designing a large-scale survey, configuring a focus group agenda, or constructing an overall research strategy;
- If, after drafting a standardised survey questionnaire, you discover that important questions cannot be effectively addressed without more open-ended questions and extended probing; or
- If you want to explore “puzzles” that emerge (or remain) after you have analysed survey, or even focus group, findings Adams (2015: 494).

The study interviews were conducted virtually via a video-call method on platforms such as Skype, Zoom or Microsoft (MS) Teams. The use of video-call also allowed for a larger geographical spread of respondents. AlKhateeb (2018: 2253) supports the use of video-call technology such as Skype, as a method of conducting research interviews. She (2018: 2253) points out that face-to face interviewing offers the advantages of rapport and visual cues that are recommended over telephone interviews that are more useful for quantitative data collection because of the lack of visual cues and rapport.

The use of video call technology is increasingly used in research due to its advantages that suit a variety of situations. All interviews were recorded using an audio voice recorder for the researcher to have a full recording of interviews that are conducted for the analysis stage of the research. Nevertheless, it is acknowledged that the use of Skype or similar video-call platforms in Africa may present problems due to poor Internet structures.

Persichitte (1997: 279) sets out to provide guidelines for using technology for data collection as a method and concludes that the use of email and technology for data collection assist in overcoming inherent difficulties connected to face-to-face interviews.

“In face-to-face interviews, researchers must decide whether to make hand-written notes or use videotape or audiotape. Email interviews allow for the interview and the recording to be simultaneous.” Persichitte (1997: 279)

Persichitte (1997: 279) argues that the use of technological interviewing in data collection and the process for data analysis would be streamlined with responses thoroughly and accurately collected. Similarly, the use of virtual tools to conduct interviews today, such as Skype, MS Teams, Zoom, etcetera, provides the functionality to record interviews on the same platform. However, these tools allow for the face-to-face aspects for interviews as well.

Over more than a decade, videoconferencing has been popular as a means of communicating via distance using technology. Adobe Connect, Apple’s Facetime, Wimba, Google Chat, and Skype are examples of options available for face-to-face communication in real time through technology. Researchers still refer to in-person, face-to-face, interviews as the optimal means of data collection, whereas interviews via technology have a perceived inferiority (Nehls, Smith and Schneider, 2015: 140).

Nehls, Smith and Schneider (2015: 141) consider the online interview and state that it should “be treated as a viable option to the researcher rather than just as an alternative or secondary choice when face-to-face interviews cannot be achieved.” Online video conferencing overcomes the barrier of geography and provides access to a larger

sample of individuals. Participants tend to feel more comfortable when they participate online at a location of their choosing.

“Online video-conferencing also affords the ability to pick up on non-verbal, sensory and emotional cues, similar to in-person interviews” (Nehls, Smith and Schneider, 2015: 141).

Nehls, Smith and Schneider (2015: 146) also claim that the fullest and richest data can be obtained from the online interviews. Other advantages of online interviews include low cost and convenience with efficiency studies confirming online videoconferencing is indeed a cost-effective means of conducting research. (Nehls, Smith and Schneider, 2015: 146). There is also an added advantage, or convenience, of online interviews in the form of logistical ease of arranging compatible interview times among multiple individuals.

Human qualities that are important for interview communications are experienced differently online, requiring the researcher to take note of the online medium and the visual and verbal exchanges that are allowed (Salmons, 2014: 2). A number of important non-verbal communication aspects are required for research interviews:

- Chronemic communication describes the use of pacing and timing of speech and length of silence before responses in conversations;
- Paralinguistic or paralinguistic communication describes variations in volume, pitch, and quality of voice;
- Kinesic communication includes eye contact and gaze, facial expressions, body movements, gestures, and postures; and
- Proxemic communication is the use of interpersonal space to communicate attitudes (Salmons, 2014: 2).

Salmons (2014: 3) motivates for the use of video conference tools over other mediums through the table below:

Table 3.20: Text Based vs Videoconferencing for Online Data Collection

<p>Text Based</p> <ul style="list-style-type: none"> • Communicate through typed words, limited use of images through emoticons or exchange of pictures. • Connect on phone, mobile device, or computer. 	<p>Videoconferencing or Video Call</p> <ul style="list-style-type: none"> • Communicate through audio and video. • Connect in videoconference facility, computer, or mobile device.
<p>Synchronous Communication Types for Online Interviews</p>	
<p>Multichannel Meeting</p> <ul style="list-style-type: none"> • Communicate through audio, video, text, and/or shared applications. • Connect by computer or mobile device. 	<p>Immersive 3-D Environment</p> <ul style="list-style-type: none"> • Communicate through audio or text, and visual exchange. • Connect by computer or mobile device.

Source: Salmon (2014: 3).

However, Kumumwe (2021) discusses different challenges that can be experienced in Africa when having to use technology for online meetings. Power, or electricity, is not constant in certain African countries, which means that for several hours in a day, electricity, may not be available. Internet connectivity is also listed as a challenge by Kumumwe (2021) who indicates that the quality of internet access may differ in different areas or countries. To enable this method, a stable internet connection was used.

The online survey and semi-structured interview schedule for this study were piloted to assess the clarity of the questions, and to formulate the thematic breakdown the answers could possibly provide. Following the pilot process, instruments were updated based on the feedback drawn from the pilot process and administered to Directors or International / Research Offices at South African Research institutions and the intra-African collaborative academic research team leaders. The pilot process allowed me to test the analysis procedure for this study. The participants in the pilot process were selected based on the following criteria:

- Appendix A: Directors / Managers of International / Research Offices at South African Research Institutions;
- Appendix B: Research leaders or Primary Investigators of current intra-African collaborative academic research teams based at any higher education institution across Africa.

3.2.5 Data Analysis and Presentation

This section will include a discussion on how the data from the first and second phases of the data collection process were analysed. Data analysis is central to qualitative research and shows the researcher's ability to understand, describe and interpret experiences and perceptions to uncover meaning in particular contexts (Maguire and Delahunt, 2017: 3351).

The data from the first phase of this study's sampling process that aimed to discover the nature and extent of intra-African research projects within the South African higher education sector, was written up as a review of the South African research public higher education sector through the lens of Internationalisation of research and the scope of intra-African research. This review is structured to indicate through narrative and figures, the number of intra-African academic collaborative research projects. Furthermore, the areas and fields of study where the research is taking place is reported. To address the extent of the research, figure 4.6 illustrates the interdisciplinarity of the research, while figure 4.5 illustrates the countries involved in the collaborations.

The data collection and sampling process was transcribed and thematically analysed against the theories of leadership and the internationalisation conceptual framework included in Chapter 2. This phase seeks to understand the concept of the leader role through the view of leaders of intra-African collaborative academic research teams. It is important for me to understand how the leadership roles are informed and influenced by institutional, national, regional and global structures. In turn I was able to explore how these are (inter)-related to comprehend the reality of the 'what' and the 'how' of leading intra-African collaborative academic research teams.

Thematic Analysis is the process of identifying patterns or themes within qualitative data. The goal is to identify patterns in the data that are important. These themes are used to address the research by interpreting the data (Maguire and Delahunt, 2017: 3353). This approach is also mirrored by O'Connor and Gibson (2017: 64 - 65), who state that once data is collected, information should be organised and thought about to provide meaning. The analysis process should begin by "getting to know your data" by listening to the interviews through transcription and reading.

O'Connor and Gibson (2017: 65) illustrate the formal systems for analysis of qualitative data that have been developed to help researchers analyse data in an easier manner. These systems include:

- Coding techniques for finding and marking the underlying ideas in the data;
- Grouping similar kinds of information together in categories; and
- Relating different ideas and themes to one another (O'Connor and Gibson, 2017: 65).

This process allowed this researcher to analyse the data from the interviews into themes and trends. Using a colour coding system to denote universities, as well as colour coding for the emerging themes, I coded and grouped the information from the data collection. Information was then organised around the areas of particular interest and research objectives to address the research question.

In terms of the reliability of the research, Drost (2011: 106) explains reliability as "the consistence of measurement." Reliability is the extent to which measurements are repeatable, such as when different persons perform measurements, on different occasions, under different conditions, with instruments which supposedly measure the same thing. For this research, the semi-structured interviews were conducted repeatedly among a number of team leaders of intra-African collaborative academic research teams, however with a consistent method of conduct. In addition, the online surveys conducted among international, or research office, directors were conducted repeatedly with a representative from each of the 11 research-intensive universities. Mohajan (2017: 70) describes validity in social research as the extent to which an instrument measures what it asserts it measures. The online survey conducted amongst international, or research office, directors is required to explore the nature

and extent of intra-African academic research at South Africa research-intensive universities. In addition, it aims to explore the structural roles related to collaborative research in Africa at different levels of the institution. The semi-structured interview for this research is required to correctly explore the role of the leader of Intra-African collaborative academic research teams. Because the nature of the target populations may not be known to all international office directors or directors of research, the use of the modified version of snowball sampling, referral sampling (Cunningham, 2021) ensured validity through identifying a substantial number of team leaders.

3.3 Parameters of this Research and Possible Limitations to the Study

Buskirk (2011: 2) describes a parameter as a numerical quantity, or attribute, of a population that is estimated using data collected from the population. In order to achieve the objectives of this research, out of the 26 Public Higher Education institutions in South Africa, only those that specifically focus on research as their core business were identified. Here I, by means of a series of questions (Appendix A), determined which of these universities are practicing intra-African research through their collaborative research projects. With the data received from this step of the data collection procedure, I then limited the sample to the research teams which are intra-African of nature that emerged from the first questionnaire.

From the teams that emerged from the initial sampling process, an in-depth semi-structured interview schedule (Appendix B) was distributed among these team members with the objective of exploring the leadership that is occurring within each team. Then the leader role through the view of the team leaders was then explored.

3.4 Ethical Considerations and Confidentiality

Throughout the research process, researcher independence and impartiality are maintained. I aimed to uphold the highest standards of quality and integrity so that the findings in this research can be used to improve the field of intra-African research. In order uphold standards, the following ethical issues were considered for this study. Prior to beginning this research and obtaining data, ethical approval was sought and achieved from the University of the Western Cape.

The issue of informed consent was addressed through the provision of information sheets and participation consent forms for the respondents. Further to these activities,

during each interview, I also verbally communicated the objectives of the research. In order for to guarantee informed consent for this study, I signed and distributed participation consent forms to all participants. The participation consent forms included the intention of the research, the role of the participant, voluntary participation and a statement of confidentiality and anonymity.

Prior to participation and also included as a statement in the participation consent form, participants were informed that it is my intention to publish an academic journal article from the data derived from the interviews for this study. Participants were also then informed that no individual participant would be named, or identified, in any published work.

As an ethical consideration, I paid attention to and ensured the participants' right to privacy, confidentiality and anonymity. I obtained personal details of the participants such as their names, surnames and positions held within their institutions. However, to ensure participant and institutional anonymity in the thesis a mixture of letters of the alphabet and numbers are used to denote participants and colours to refer to institutions as a research coding system.

Participation in this study was on a voluntary basis. In order to ensure this step, I communicated the voluntary status at initial enquiry level, at acceptance of participation level and at the interview level. At every stage of participation, respondents were reminded that they are able to withdraw participation should they wish to do so.

3.5 Chapter Summary

This chapter included the necessary epistemological frameworks providing the foundation for the study's methodology. The study through the interpretivist social constructionism paradigm assumes an exploratory, descriptive, and analytical approach to the research. These approaches reflect the mixed method design of the research. In the next chapter, the data collected as part of the research process will be analysed and presented through the thematic presentation.



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CHAPTER 4: ANALYSIS AND DISCUSSION

4.1 Introduction

This chapter focuses on the presentation and analysis of the data obtained during the study. An online survey was conducted with international, or research office directors at the 11 research intensive universities in South Africa and a semi-structured interview conducted amongst intra-African collaborative academic research team leaders sampled from the 11 research-intensive universities in South Africa. Themes emanating from the data collection are presented descriptively and are related to theoretical and conceptual frameworks presented in the previous chapters. The study's main objective is to understand the structural dynamics of intra-African collaborative academic research teams. A number of secondary objectives were developed to unpack the concepts within the study's main objective. They are:

- To describe intra-African academic collaborative research teams conceptually;
- To outline the nature and extent of intra-African academic collaborative research teams within the context of South African research-intensive institutions;
- To discuss the benefits, facilitators and challenges for research leaders in leading intra-African academic collaborative research teams;
- To identify the opportunities for multi-national research collaboration within the African continent;
- To analyse the leader's concept of the leadership role when leading intra-African academic collaborative research teams.

In order to substantiate and realise the above objectives, the discussion of the data has been ordered as follows. The first section of this chapter discusses the nature and extent of intra-African academic research teams. The nature and extent include the quantity of projects as well as the fields in which the collaboration is occurring. Furthermore, this section details the structures of the teams collaborating as well as the countries that are involved.

The section also details how intra-African collaborative academic research team leaders perceive the concept of intra-African academic research collaboration in relation to internationalisation. In addition, the leaders rationale for choosing to collaborate in Africa is explored. Thereafter, the perceptions of the leader regarding the challenges, facilitators and benefits of intra-African academic research collaboration is presented.

The opportunities for multi-national research collaboration within the continent is then detailed by providing insights from the intra-African collaborative academic research team leaders around the funding institutions that have enabled the research collaboration. Furthermore the structural leadership of these types of teams at an institutional level is described, detailing the leadership roles at different levels of the university. The section also details the influence of institutional (meso), and regional, national, and international (macro) policies, strategies and legal frameworks on the leadership of these teams.

Finally, the chapter describes which theoretical leadership frameworks detailed in Chapter 2 are evident in each of the sampled teams. The section describes the leader activities in relation to the leadership theories that have been presented as well as new and emerging leadership styles detailed by the research leaders in the interviews. The section also describes the

perception of the leaders of their role as the leader, specific to leading multi-national and multi-cultural teams within the context of Africa.

4.2 Theme 1: the Nature and Extent of intra-African Collaborative Academic Research Teams

To outline the nature and extent of intra-African collaborative academic research teams, the first part of the section summarises the extent of collaborative projects within the continent that are related to the objectives of the study. This extent includes a presentation of the number of the projects that were reported by South African research-intensive universities.

Data from the online survey completed by directors of international, or research, offices is presented. The final part of the section includes an overview of the nature of the collaborative research that is being pursued. The research fields are described and the extent of interdisciplinarity is identified. Furthermore, a description of the team structures is included to understand the nature of the team collaboration.

4.2.1 Sub Theme 1: The Extent of intra-African Academic Research Collaboration across the African Continent

The data presented in this section was obtained through an online survey completed by directors of international and research offices of the 11 research universities in SA. The number of intra-Africa academic collaborative research projects at each institution is also presented. Figure 4.1 shows that the majority of the universities have less than 15 collaborative projects that are intra-African in nature.

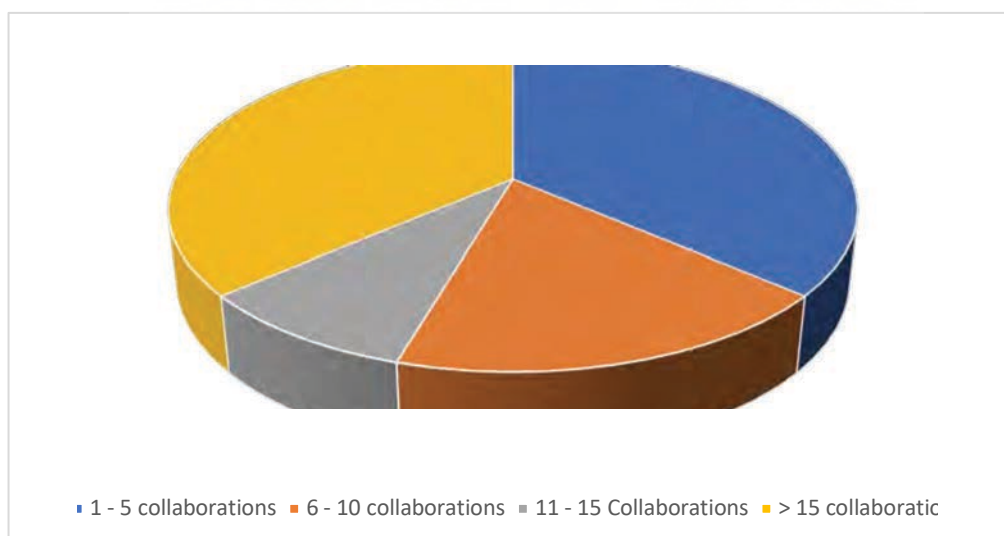


Figure 4.1: Number of Intra-African Collaborative Academic Research Projects
Source: Researcher's own Construction (2022)

In response to the question on how many collaborative research projects the institution is involved in, the following responses were received. The responses are presented graphically in Figure 4.1. Four institutions indicated they have between one and five projects, while two indicated that they have between six and 10 projects. One of the institutions indicated that they have between 11 and 15 projects and the remaining four universities indicated they have more than 15 projects.

Although there is limited current reported research data available regarding research collaboration with institutions in other African countries by South African institutions, the above findings show that the extent of collaboration is low. This finding is consistent with the conclusions made by various authors, including Jacobs (2013), Sooryamoorthy (2009), Onyancha (2011), Boshoff (2010) and Adams et al. (2013).

More contemporary research also supports this finding. Mouton and Blackenberg (2018: 22) illustrate the rate of collaboration within Africa as well as other types of collaboration including national collaboration. As outlined in Figure 4.2, collaboration with countries outside of Africa is taking centre stage. The figure shows that collaboration between countries within the African continent is minimal.

Mouton and Blackenberg (2018: 21) also conclude that collaboration between countries on the continent is negligible. In this regard, they state that the vast majority of co-authored papers are either collaborations within the same country or “collaboration between Africa and the rest of the world (international collaboration, which comprises approximately 50% of all papers).”

Even though Figure 2.9 labels collaboration with countries outside of Africa as the prominent type of collaboration, Mouton, Prozesky and Lutomiah (2018: 152) in Figure 4.2 show that the type of collaboration that occurs mainly within the South African higher education sector is that of intra-institutional academic research collaboration. However, national and international collaboration outside of the African continent is significantly higher than intra-continental research collaboration.

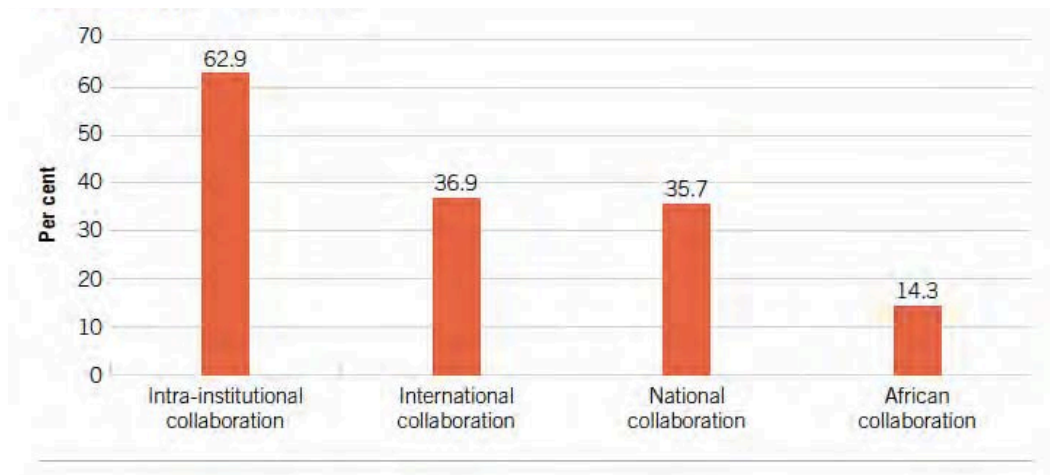


Figure 4.2: Type of Collaboration at South African Higher Education institutions
 Source: Mouton, Prozesky and Lutomiah (2018: 152)

Through their recent article *The Integration of African countries in International Research Networks*, Vieira and Cardeira (2022: 20 – 21) conclude that during the period of 1990 – 2018, most African countries participating in collaborative research resulting in co-authored publications, partnered with researchers from outside of the continent. The rate far exceeds those of collaborations within the continent of Africa. Vieira and Cardeira (2022: 21) also highlight the lack of intra-African academic and scientific networks, presenting evidence of the networks that exist and they emphasise that stronger collaborative networks are necessary within the African continent.

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In Figure 4.3 Vieira and Cerdiera (2022: 13) illustrate the number of collaborations between countries in Africa along with collaborations with countries external to the African continent. The figures on the left-hand side indicate the intra-African collaborations and those on the right indicate the number of collaborations with countries outside of the continent.

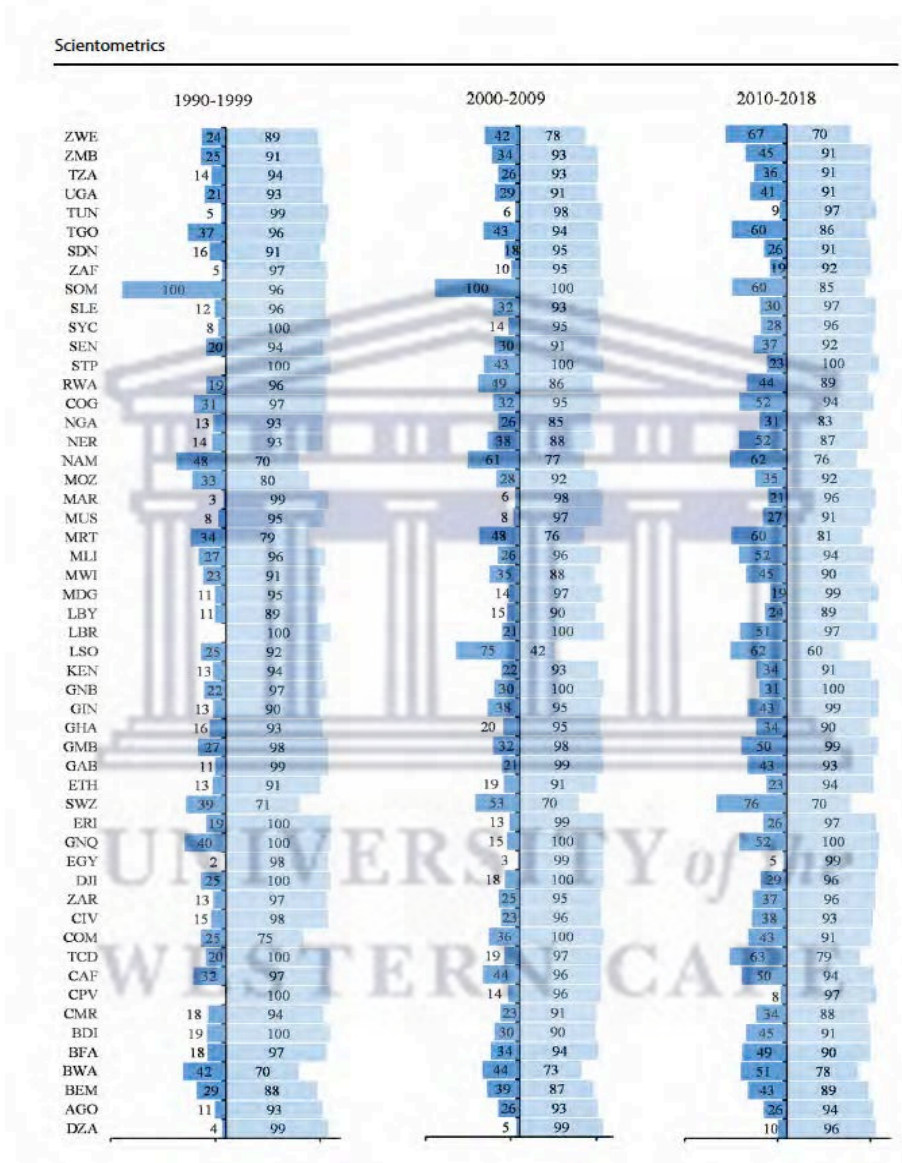


Figure 4.3: Percentage of Publications of each Country with at least two African Countries.

Source: Vieira and Cerdiera (2022: 13)

In 2018, South Africa scored 37% regarding intra-African collaborative projects with at least two countries in Africa that resulted in publication as opposed to 96% with external collaborators.

4.2.2 Sub Theme 2: The Nature of intra-African Collaborative Academic Research

The next section of this chapter explores and discusses the nature of intra-African collaborative academic research. Data from the online survey is displayed to illustrate the areas and academic fields in which the research is occurring. This nature is also further illustrated by a discussion on the areas of research from the interviews with project leaders. The nature of the interdisciplinary projects is also described below. Despite the indication from research and international offices that these collaborations are occurring, only 18 project leaders were sampled during this study, showing the low rate of leadership by South African higher education research-intensive institutions of intra-African collaborative research projects.

Figure 4.4 below illustrates the areas in which intra-African academic research collaborations have been taking place within the South African research-intensive institutions as reported by research or international office directors. Notably, a large number of collaborative projects are taking place in the field of science, some of which are interdisciplinary in nature.

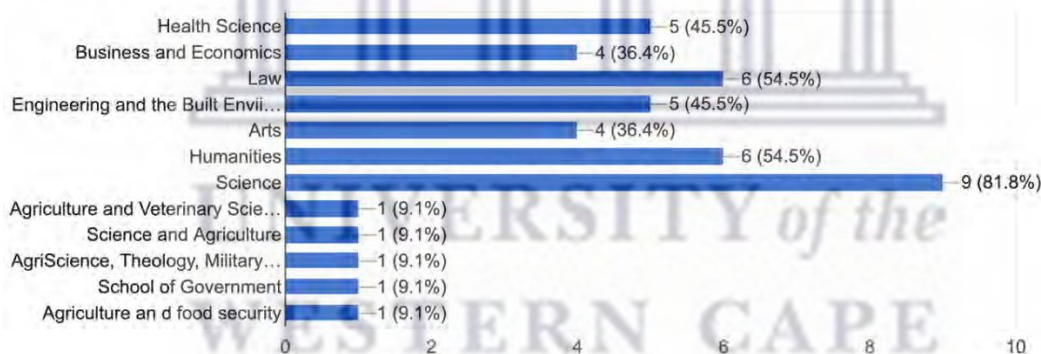
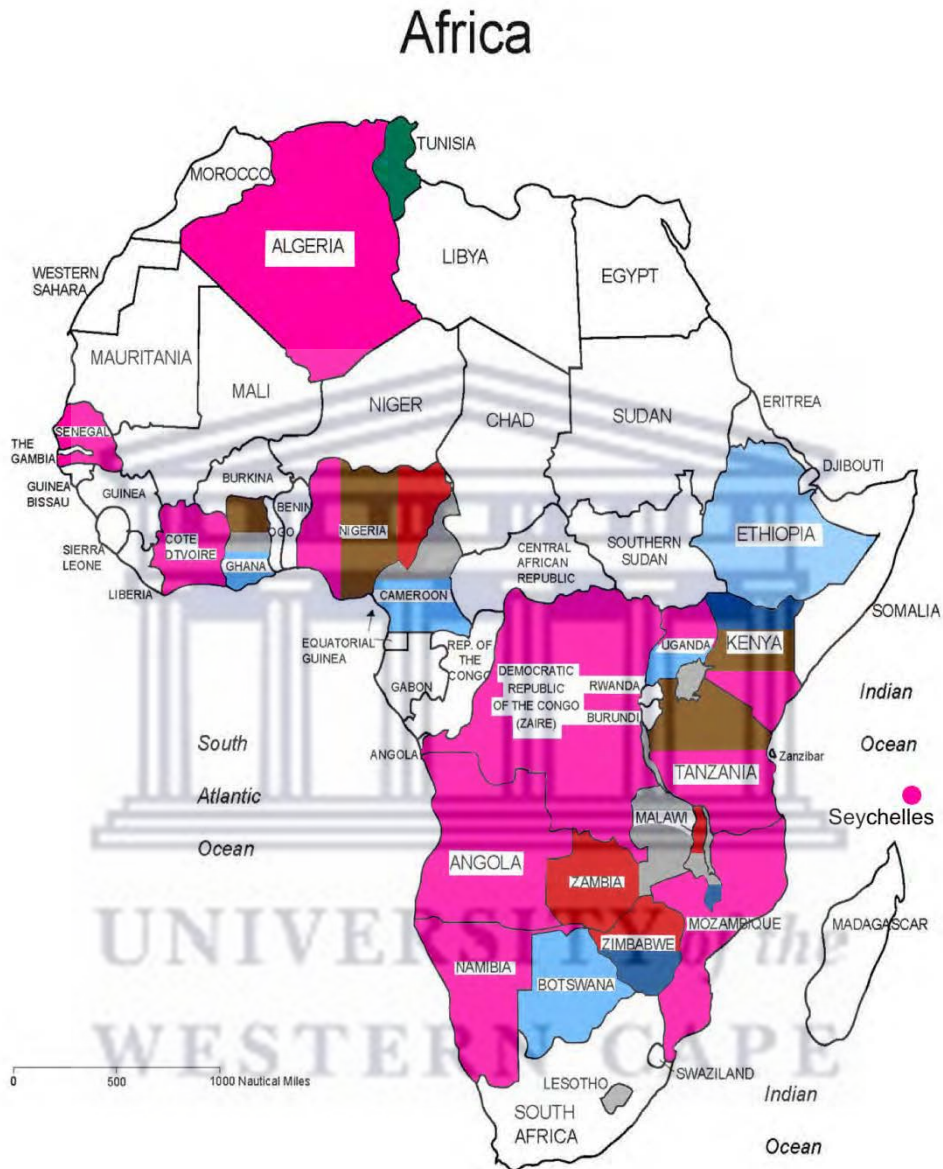


Figure 4.4: Academic Fields of Research
Source: Researcher's own Construction (2022)

The 18 projects described by the project leaders are detailed below and Figure 4.5 illustrates the countries South African higher education research-intensive universities are collaborating with. Notably, University Pink has collaborated with more countries in Africa than the other research-intensive universities in South Africa. In three projects, University Pink is leading collaborative research projects with researchers in

Algeria, Angola, Cote D'Ivoire, Democratic Republic of Congo, Ghana, Namibia, Nigeria, Malawi, Mozambique, Senegal, Tanzania and Uganda.



University Green	University Brown	University Red	University Grey	University Light Blue	University Blue	University Purple	University Pink

Figure 4.5: Countries Collaborating with South African Research-Intensive Universities
 Source: Researcher's own Construction (2022)

University Green revealed one intra-African collaborative academic research project. Collaborators in South Africa and Tunisia are partnered in research in the area of Engineering. This project focuses on wind turbines in different contexts using data derived within each country and the sharing of resources to analyse the data. The collaboration is taking place at the point of developing test set-ups using machinery and resources available at University Green only. Data from running test machinery to destruction over a long period of time has been contributed by each country in this project; thus the collaborative aspect. The purpose of this particular research is to understand the durability of test machinery for wind turbines in different country contexts. Data from running the machines in different contexts is analysed comparatively in order to understand the different contextual perspectives that result in different algorithms and different mathematical formulas that can be compared and understood with the aim of new techniques to monitor wind turbines. The output of this research is international collaborative book chapters and journal articles.

At University Brown, two intra-African collaborative academic research projects were sampled. In the area of Business and Economics and more specifically, marketing and marketing management, the first project aims to use the theory of the seven-dimensional construct to evaluate shopping orientations of consumers in South Africa and Nigeria.

The second project is in the field of science in the area of materials energy and nanotechnology. The collaboration is taking place between academics in South Africa, Kenya, Uganda, Nigeria, Ghana, Tanzania, and the UK. This project along with others includes one country outside of Africa. This phenomenon is usually a result of funding circumstances. The inclusion of external team members as a result of external funding will be further unpacked later in this chapter.

The collaboration in the second project includes the sharing of specialised machine resources to build capacity in this area across the continent. The research project covers a number of different themes including energy materials biomass, waste to energy, recycling of waste, CO² environmental pollution remediation, materials construction, structural materials for a sustainable future, improving the effectiveness and efficiency of materials and how society is affected by materials.

Machines that are unique to each country are shared through virtual or physical mobility opportunities between the countries involved in this project. The purpose of the project is to develop a greater understanding of the use of certain types of machinery as well as different and/or common techniques in using the equipment to ascertain unique and common contextual perspectives for the use of the machines. The project aims to collaborate in order to provide a contextual understanding of how and what the machinery can be used for in academic research. In addition to eventual publications, training videos are made to inform users of the machinery of the different ways in which the machinery can be used in different geographical contexts across the continent. This project is interdisciplinary in nature, combining a number of science and engineering sub-fields with social science.

The sampling process at University Red unveiled four intra-African collaborative academic research project leaders. The research areas range from Law to Education and Science. In the first project, a team led by a Law PI at University Red, is focusing on Customary Law and indigenous values in South Africa, more specifically, the indigenous values of African laws in South Africa. The project is also extended to include social scientists from the partner countries, resulting in a multidisciplinary project between Law and Social Science. The partner countries included in this project include Zimbabwe, Malawi and Nigeria.

The second project at University Red is a project taking place between collaborators in South Africa and Nigeria. The discipline in which this project is taking place is Science and more specifically, Applied Geology. Two team members are located in Nigeria with three at University Red. The team aims to evaluate reservoir evolution for offshore South African businesses and as an output, the team aims to publish at least two academic journal articles from this collaboration. Also, in the area of science, there is a third project in Astrophysics at University Red. This project is still in the team development phase due to a number of delays as a result of the COVID-19 pandemic.

In the areas of Health Science and Education, a project is taking place between collaborators in South Africa and in Zambia. The purpose of the project is to work with teachers in Zambia to implement a life-skills programme focusing on substance abuse,

sexual risk behaviour in adolescence and the promotion of a constructive use of leisure time for the prevention of boredom in young people. The collaboration is taking place in the design of this programme in addition to the research on the impact of such programmes on young people between the ages of 13 and 15. The project is interdisciplinary between health science and social sciences.

At University Grey, three PIs, or research leaders, were sampled. The first project focuses on an authentic understanding of the student experience of adult educators when studying through distance education programmes. More specifically, the study aims to understand the experiences of adult educators studying in rural communities through distance education. The study is exploring student learning experiences, their experience of well-being as well as their technological and online experiences.

The project is taking place between South Africa and Lesotho and is multidisciplinary in nature. There are four team members altogether. Two are in the field of education, including the PI, or leader, of the team. The remaining two team members are in the fields of informatics and health science.

The second project is in the area of science and focuses on climate change and the effect on rural livelihoods. This project is taking place between collaborators in South Africa and Zimbabwe. This project is ongoing and was initiated in 2010. It is occurring in three phases, with the first phase beginning as an informal collaboration around the impact of climate change in rural areas of South Africa and Zimbabwe and culminated in the joint supervision of a doctoral student. The second and third phases of the project are extending this research into the impact of climate change on tourism in the rural mountainous environments of Zimbabwe and South Africa.

The third project in the area of health science includes collaborative research on medical virology in South Africa, Malawi, Cameroon and Ghana. Focusing on African Enteric Virus Genomes, the collaborators are exploring certain genotypes of rotaviruses incorporated into vaccine formulas. This research aims to understand the differences in strains prior to and after vaccination and especially the changes that have occurred after mass vaccinations of children. The research involves genome sequencing of enteric pathogens and mostly rotaviruses to monitor the effectiveness

of vaccines in different countries. The collaborators in this project are all within the same discipline.

The sampling at University Light Blue resulted in interviewing PIs, or research team leaders, of two intra-African collaborative academic research projects. The first of the two projects is in the area of health science and more specifically focuses on mental health in Africa and Sub-Saharan Africa in particular. The purpose of research collaboration was to narrow the treatment gap for mental health problems in Sub-Saharan Africa. The collaboration happened by running randomised controlled trials in South Africa and Ethiopia and included using a shared testing model in different contexts to enhance evidence-based treatment, or care. The extent of the collaboration includes only one discipline.

The second intra-African collaborative academic project explored at University Light Blue is taking place between collaborators in South Africa, Botswana and Cameroon. The research focuses on the return of individual genetic research results in African genomics research. The PI indicated that the research arose as a response to one of the most pressing ethical challenges in the context of African genomics research. It relates to what should be done when conducting research relevant to the health of an individual and an important piece of information is found, but there is no plan to return the results to research participants. The project is interdisciplinary and includes geneticists and ethicists in the different countries involved.

University Blue's sampling also revealed two projects; thus, semi-structured interviews were conducted with the research team leaders, or PIs. The first of the two is a project between collaborators in South Africa and Kenya. However, through funding, this project is also connected to an organisation in Vienna. The nature of the research collaboration includes atomic energy in the field of Engineering. More specifically, the focus is on sediment transport modelling and tracings. The research focused on the problem of sedimentation that fills shipping channels such as harbours, rivers or course ways. The research aims to explore environmentally friendly natural radioactivity within the different channels related to each of the participatory countries. The collaborators are working together to develop instruments to map the sea floor for natural radioactivity.

In the areas of health science, the second project sampled from University Blue focuses on the impact of disability research on policy and practice. The collaboration is taking place between academic researchers in South Africa, Malawi, Zimbabwe and Ghana. However, there are also collaborators from Ireland, the UK, Norway and Belgium. These collaborators contribute in terms of skills development and supervision. The skills development will be unpacked in a later theme. The PI for this research highlighted that, even though there are collaborators from outside of the continent, this research focuses on contexts within the African continent and specifically within the above-mentioned countries within the continent. The collaborators are all researchers within the discipline of health sciences and disability studies.

The sampling process at University Pink yielded three intra-African collaborative academic research projects and gave rise to the opportunity to interview the research team leaders, or PIs. The first of the projects is in the field of science, focusing on research on sustainable water resource management. The collaboration is taking place between researchers in South Africa, Nigeria, Uganda, the Democratic Republic of Congo, Algeria, Ghana, Senegal and Cote d'Ivoire. The research aims to identify gaps in the water sector and in the ways in which water resources are managed in Africa. The research also aims to develop more systematic ways of managing water resources as well as to identify internal capacity and capability gaps related to water resource management. The research project is interdisciplinary in nature and includes ecologists, hydrologists, geologists, chemistry experts, a zoologist and a hydrobiologist.

The second of the projects is within the area of the arts and focuses on popular culture literature on the African continent. The academic research collaborators are located in South Africa, Ghana, Uganda, Tanzania and Nigeria. Through the funding agency, another silent partner is located in the UK. Themes addressing funding and the impact of funding agencies on the leadership of intra-African collaborative academic research teams is further explored later in this chapter. The research collaborators are from different disciplines including literary studies, media and visual culture studies, translation studies, conflict studies and folk music studies in Africa. The research collaboration is focused on a range of literary, cultural, visual, aural, sociological,

anthropological and historical material to create sustained collaborative engagement at various national and intra-continental levels.

The research aims to contribute to creating knowledge systems within these fields embedded in local conditions by drawing on popular arts and culture in Africa and interrogating the transient nature of popular forms of cultural production, its connections, encounters and entanglements locally and globally. The collaborative research is exploring how cultural ideas engage with socio-political issues in the different countries involved in the collaboration.

The third project, also in the field of science, focuses on the fisheries sector, specifically on tuna in the south-west Indian Ocean area, exploring themes of fishing, climate change and governance as well as challenges associated with conflict related to governance and fishing communities. The countries included in this research are South Africa, Namibia, Mozambique, Angola and the Seychelles. This specific project is interdisciplinary and involves social scientists, climate change experts, governance experts and researchers within the fisheries area.

The original sampling process at University Purple yielded no intra-African collaborative academic research projects. However, through the modified version of snowball sampling, referral sampling (Cunningham. 2021), a participant from University Grey connected me with a research lead from University Purple for an ongoing intra-African collaborative academic research project. The research collaboration focuses on the history and comparisons of higher education within the realm of international higher education on the African continent. This specific project is unique as in it is an ongoing project with the outputs ranging from journal articles to collaborative books. The ongoing nature of the project also allows for a number of different collaborators at different points in the ongoing research. At any point the research collaboration includes collaborators from different countries in Southern and East Africa. The projects always include collaboration with South Africa, as the PI is located at a South African research university. The collaboration also includes a collaborator from different disciplines, making this a multi-disciplinary project. Due to the format of the project being ongoing, it has not been possible to map these partnerships in figure 4.5.

In 2013, Adams (2013: 550) noted that collaborations which included collaboration in Africa, were in the STEM fields. These fields include Biomedical Research, Biology, Earth and Space Science, and Physics. However, Adams (2013: 551) also notes that most of this collaboration takes place with global north partners, with principal collaborators found mainly in the USA.

In this research, the intra-Africa academic collaboration explored were in more fields and also included interdisciplinarity within the collaboration. Figure 4.6 illustrates the areas in which most of the collaboration discussed above is occurring as well as the interdisciplinary projects that are evident. The image depicts the fields in which the research occurs. The arrows aim to show the interdisciplinary collaboration taking place in the data found.

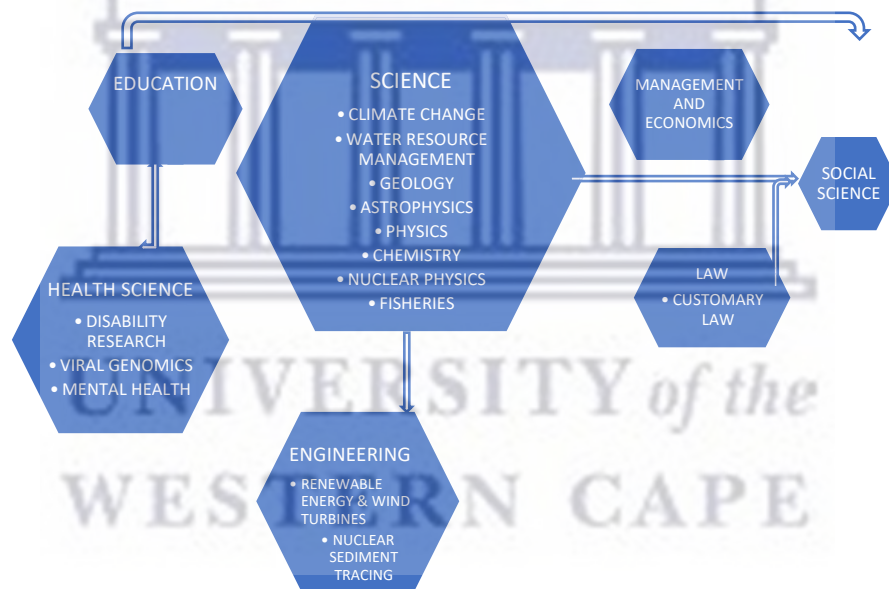


Figure 4.6: Areas of Collaboration and Interdisciplinary Projects
Source: Researcher's own Construction (2022)

Exploring the nature and extent of intra-Africa academic collaborative research teams requires an understanding of the team structure and make up. These aspects are described in the next section.

4.2.3 Sub Theme 3: Types of Teams and Team Structures

The next section of the chapter outlines the team structure and make-up, in order to outline the nature and extent of the teams. The section outlines the make-up of the teams.

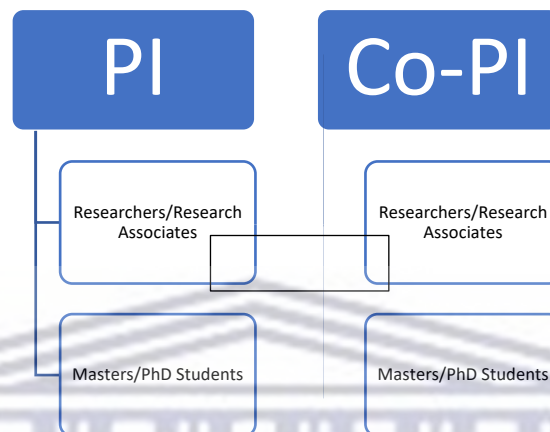


Figure 4.7: Team Structure 1

Source: Researcher's own Construction (2022)

This team structure is the more common type of intra-Africa academic collaborative research team.



Figure 4.8: Team Structure 2

Source: Researcher's own Construction (2022)

This structure represents teams where all researchers are at a PI or Co-PI level. Where there are more than two universities involved, the number of the PI's and Co-PI's can vary.

Figures 4.9 and 4.10 below depict the third and fourth collaborative team formats.

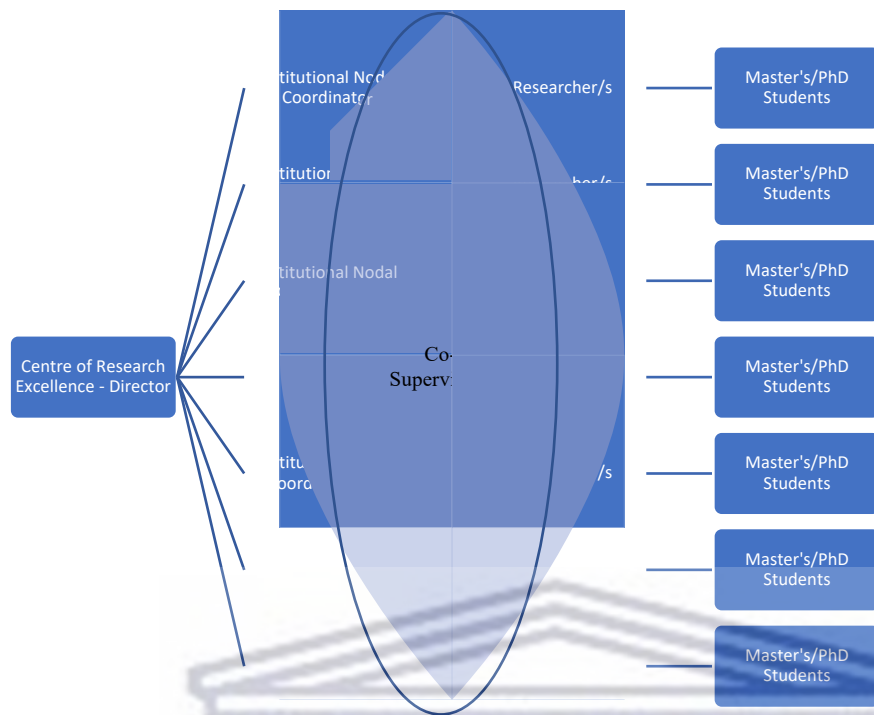


Figure 4.9: Team Structure 3
 Source: Researcher's own Construction (2022)

Where funding allows, the team size can vary. However, where proposed capacity building has been included in funding proposals, usually, teams are strengthened and increased through the inclusion of early career researchers at a post-doc, or post-graduate, level.

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Figure 4.10: Team Structure 4
Source: Researcher's own Construction (2022)

As discussed in section 4.2.2 of this chapter, six teams include collaborators from outside of the continent. In the teams that have been explored, these collaborators usually fill a supervisory role to the team and consequently this provides capacity building for early career researchers at a post-doc level and for post-graduate students. Chapter two of this research includes sections on the challenges of conducting research in the developing world and specifically within Africa. One of the challenges detailed is the issue of an ageing cohort of experienced supervisors, resulting in a reliance on external capacity.

However, in other instances, research leaders have indicated that the external contributions have been as a result of external funding. This aspect will be further detailed in a later section covering the theme of funding, specifically the impact of external funding, on the leadership of intra-African collaborative academic research teams.

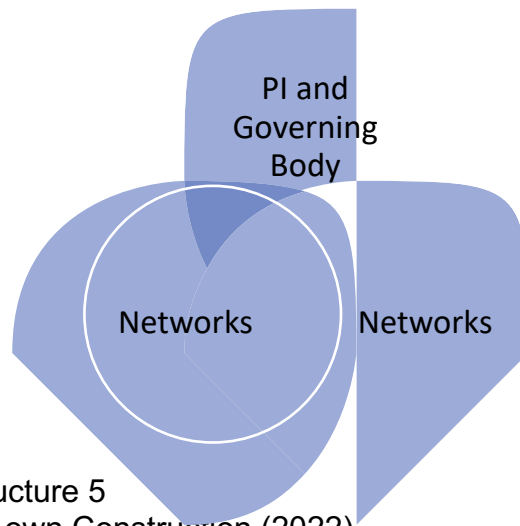


Figure 4.11 Team Structure 5
Source: Researcher's own Construction (2022)

One of the intra-African collaborative academic research teams at University Blue is structured in such a way that the collaborators are part of a growing network led by a governing body, which is in turn led by the PI. This project is also an ongoing project with continuous publications on the topic of disability research. Collaboration is facilitated through membership conferences and workshops. A similar structure is used in the research project at University Purple.

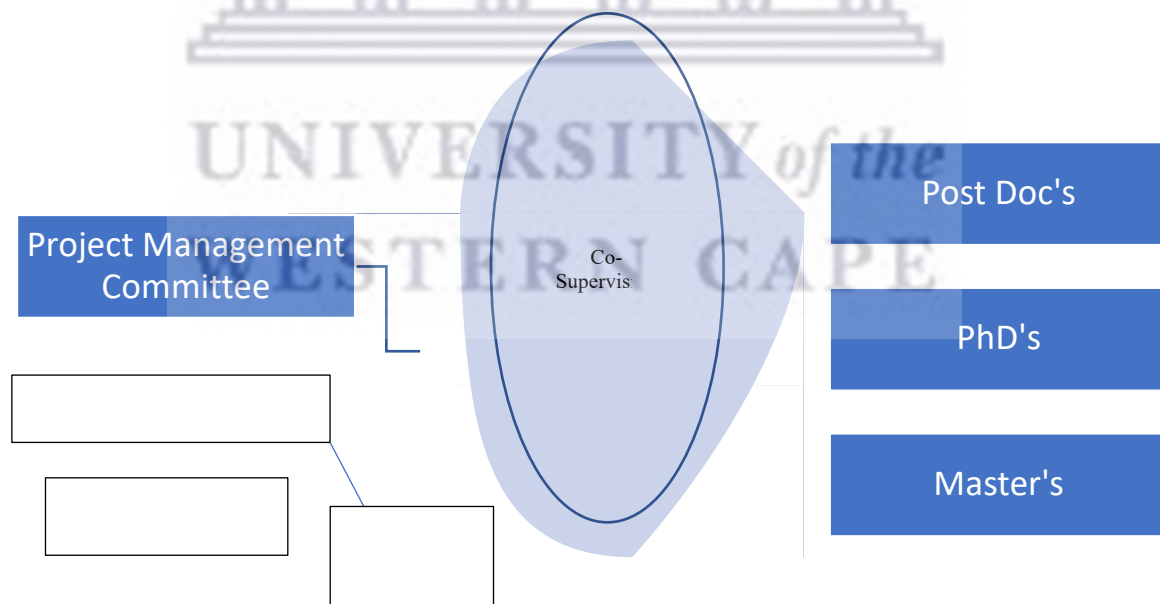


Figure 4.12: Team Structure 6
Source: Researcher's own Construction (2022)

This project model is one that is used by University of the Western Cape on its project focusing on Water Resource Management. The aim is to have a flat structure; however, the collaboration is managed by a Project Management Committee (PMC). The PMC comprises the PIs and co-PIs from the different participating institutions. At each institution, there is also a local project management committee (LPMC). The decision-making that results in policy guidelines for the collaborative research occurs at this level and is reported back to the higher committee. The LPMC also decides on the post-graduate student selections. Non-academic staff also form part of the LPMCs to navigate systems and processes at each institution.

All research leaders or PI's have indicated that there is no intended hierarchal structure for the team. The teams are mainly flat; however, where there is an element of capacity building, structures have been put in place to develop early career researchers and post-graduate students. The structures that include capacity building is further covered in the section 4.7.2 that deals with the types of leadership of such teams.

4.3 Theme 2: Perception of intra-Africa Academic Collaboration as a Concept

The section that follows delineates the qualitative data that relates to how intra-Africa academic collaborative research team leaders perceive and interpret intra-African collaborative academic research as a concept. Firstly, the perception of the concept in the context of internationalisation of higher education is described. Thereafter, the rationale for collaborating within the continent is outlined.

4.3.1 Sub Theme 1: Perception of intra-African Collaboration in the Context of Internationalisation

Within global networks and in relation to globalisation, Africa is considered as a region as reported by UNESCO (2015) on their online article *Study Regions*. Other regions defined by UNESCO include Asia, Australia and Oceania, Europe, Latin America and the Caribbean, North America, Middle East, and South America. However, Yao (2021: 107) defines international collaborative research as involving cross-country teams that share research interests, conduct research, and promote research results to advance knowledge and promote positive shifts in practice. Chapter two of this research also outlined the diversity of the African continent and the contribution of intra-African

collaborative academic research to the internationalisation of higher education in Africa.

Respondent UGNRL1 indicates that s/he perceives the concept of intra-African academic research collaboration to be collaboration that occurs inside of Africa. However, the participant also indicated that in certain engagements, the concept of which countries are considered to be African has been contended. For example, countries in northern Africa are not considered to be part of Africa by certain collaborators.

“Sometimes the northern parts of Africa are somewhat excluded from that understanding. However, for the purpose for this project, I would certainly consider North Africa as part of Africa and the country of Tunisia to be part of the African continent” (UGNRL1).

The participant expressed that s/he absolutely considered the project to be international in nature. In addition to the nature of the research being cross border, the participants also indicated that collaboration with world leaders in a different country within the field, allows for the research to become internationalised through the inclusion of different perspectives.

“This was a group and a project which right from the outset had the intent to make a difference on the world scene” (UGNRL1).

Respondent UBNRL1 expressed that s/he perceives the concept of intra-African collaborative academic research to be research conducted by academics, or researchers, in Africa collaborating with academics, or researchers, in other African countries. They also explained that this type of collaboration can be classified as international, because it involves collaborators outside of South Africa. UBNRL2 indicated similar sentiments in the perception of the concept as including collaboration between researchers in different countries and institutions in Africa; moreover, because of the fact that it is cross border collaboration, it is international of nature.

At University Red, URRL1 also perceived intra-African to mean different collaborators from different countries within the African continent working together on a research

project. Also, because Africa is not a country in itself, collaboration between African countries can be classified as international.

“Africa is a continent with diverse countries. So even if the researchers all come from the same language zone, or geopolitical zone, for example, Francophone, Anglophone, or Lusophone Africa, if the collaborators are from different countries, it is still international” (URRL1).

URRL2’s understanding of intra-African academic research collaboration is African researchers coming together to collaborate to advance research. Because they are collaborators in different countries, it is international in nature. However, URRL3, explained that it is difficult to have purely intra-African collaborations, because these are mediated or dominated by a western collaborator contributing the funding. URRL4 perceives intra-African collaborative academic research as predominantly partnerships between academic universities, or research institutions, within Africa and between different African countries. Because the collaboration occurs between different countries, it is international in nature.

Similarly, at University Grey, UGYRL1 believes that intra-African academic research collaboration is when researchers, or academics, collaborate with people from other parts of Africa. Because the type of research includes different dynamics and diversity, it is international in nature. UGYRL2 adds that intra-African collaboration involves working together with academics in other parts of Africa, to achieve common goals. UGYRL2 also views this type of collaboration to be international in nature for the benefit of access to international resources as a result of cross border collaboration.

UGYRL4 views intra-African academic research collaboration as definitely international in nature. Furthermore, anything involving crossing the borders, whether between South Africa and Swaziland or Lesotho, other neighbouring countries, or countries in Europe or America, can be considered international. UGYRL4 elaborates on the concept of intra-African as meaning within the African continent, but if there are different countries, it is international. Moreover, if the output is in an international journal within the continent, it is still international, as it does not need to appear in a European journal, or a journal outside of the continent, to be international in nature.

ULBRL1 defines intra-African collaborative academic research teams as research that involves collaboration between academic institutions in African countries with a strong element of mutual capacity building and exchange. It includes a combination of research and capacity building with the aim of influencing policy for the continent. ULBRL1 also believes intra-African academic research collaboration is international in nature.

ULBRL2 defines intra-African collaborative academic research as international when it involves more than one country. However, s/he sees the definition of 'intra' as if one is collaborating within one country. This Research Leader ponders whether research being done within one country but still within the borders of the African continent, is also considered intra-African research collaboration. If the collaboration involves more than one country in Africa, it is international in nature.

UBRL1 defines intra-African academic research collaboration as collaboration with other African institutions and other African academics where knowledge transfer is taking place. UBRL1 also confirms the perception of intra-African collaborative academic research as being international in nature. Furthermore, UBRL1 says that internationalisation is an opportunity to transfer knowledge from South Africa into the rest of Africa. UBRL2 presents a unique take on the concept of intra-African academic collaborative research, describing it as a research movement rotating around the region with the aim of enhancing the region's various research activities through the use of evidence and funding.

UPKRL1 describes intra-African academic research collaboration as cross border research within the boundaries of the continent of Africa and because it is cross border, it is international in nature. Furthermore, similar to ULBRL1, this research leader believes that intra-Africa collaboration is a process of enhancing the voice of the continent on the international stage.

UPKRL1 believes that intra-African collaborative academic research allows for African academics and researchers to work with each other for the benefit of the continent. This type of collaboration is considered to be international in nature, as it occurs across jurisdictions. However, this Research Leader argues that the research must centre

around Africa to strengthen the African voice within the sphere of research that collaborates with the rest of the globe.

“We cannot be pretending to be internationalising only in relation to the global north to the exclusion or marginalisation of ourselves as Africans” (UPKRL1)

UPKRL1 elaborates on the readiness of Africans to work together, stating categorically that researchers in Africa are not ready to work together for a number of reasons. This leader cites limitations on the free movement of intellectual and material resources caused by visa and border control issues between different countries in Africa. Other issues include a lack of governmental financial support for research or research collaboration. This Research Leader further indicates that in South Africa where there is funding for research collaboration, the funding is not used for collaboration with colleagues in the rest of Africa. Rather s/he argues that where intra-African collaboration is occurring, it is externally funded.

“The NRF funds research collaboration mostly between South Africa and the north, not within Africa” (UPKRL1).

Similar to many of the other respondents in this research, UPKRL2 also describes intra-African collaborative academic research as academic institutions, or researchers within institutions or research organisations, collaborating between different African countries. Thus, anything across borders is international in nature. UPKRL3 also has a similar perception of the concept of intra-African academic research collaboration, stating that it is research collaboration that occurs within the borders of the African continent. The concept is understood to be international in nature, but it is different from international collaboration with countries outside of Africa, as intra-African research aims to solve problems in Africa. It is research for Africa by Africa.

4.3.2 Sub Theme 2: Rationale for intra-African Collaborative Academic Research

Chapter 2 of this study outlined the reasons for, and impacts of, IRC as well as the benefits of collaborating within the continent. The data from the semi-structured interviews with the Research Leaders of intra-African collaborative academic research teams also outlined the different reasons for approaching research collaboration beyond the South African borders.

At University Green, UGNRL1 outlines the rationale for the intra-African collaborative approach to research as addressing the need for South Africans to interact with the rest of the world. This Research Leader argues that it is important for early career researchers to have opportunities that develop their collaborative skills, and it is important for them to understand the necessity to collaborate within the continent. A comparison is made with Europe and the mobility of students and staff of higher education institutions between European countries which has contributed to the internationalisation of their research. Løvdal, Van Droogenbroeck, Erdogdu, Alonso de Mezquia, Demir and Istanbulu (2020) while exploring research collaboration successes and failures, detail how research collaboration between European Union (EU) member states is made possible. This research collaboration is mainly enabled through EU funding. Similarly, respondent UPRL1 calls for governments in Africa and the AU to assimilate the funding model of the EU for research and research collaboration in Africa.

UGNRL1 presents the rationale for pursuing research collaboration, arguing that their research topic and research on the topic is limited within South Africa. The intra-African collaboration allows the team to work at an international level and to understand that different academic groups work differently, have different priorities and dynamics, and bring different perspectives.

UBNRL1 indicates that their rationale for pursuing research collaboration with other countries in Africa is that they have collaborated only with academic researchers in countries outside of Africa and decided it is time to look within the continent. Also noteworthy is that their funder required collaboration between researchers in different countries in Africa. Furthermore, this Research Leader explains that their rationale included wanting to publish in international journals and that journals give preference to collaborative projects.

UBNRL2 highlights the need for research skills development in South Africa and in Africa. Furthermore, this Research Leader argues that international collaboration brings more funding which is necessary for research. Additionally, collaboration

provides access to increased networks for furthering research and skills development in research on the continent.

At University Red, URRL1 chose to collaborate within the borders of the African continent due to the fact that the foundational values of indigenous laws are fairly similar across the continent. For the purpose of their research, collaboration to understand the indigenous practices across the continent and present this research through publication and presentation to the rest of the global research community via conferences, contributes to the rationale behind this type of collaboration.

This rationale also speaks to the nexus between internationalisation and Africanisation as well as particular definitions of decolonisation, calling for broader internationalisation and the inclusion of voices and perspectives that have traditionally been excluded from global curricula and research. As highlighted in Chapter 2 of this study, Africanisation is generally understood to involve institutional transformation and decolonisation of higher education through the process of inclusion rather than exclusion. It is the process of defining, or interpreting, an African identity and culture and affirming it in the world community (Makgoba, 1997: 199).

URRL2 describes the rationale to collaborate in Africa as the opportunity to share expert knowledge and resources that may not be available in the country that one is working in. Aside from the expertise and resources that are shared, the international interdisciplinary nature of the project allows for different perspectives of concepts, problems and knowledge related to the research. Consequently, this allows for the growth of the entire research team. This benefit is mirrored in Chapter 2 of thesis, where IRC is described as enabling researchers to share their knowledge and combine their perspectives to solve complex issues that are interdisciplinary in nature (Wai-Chan, 2017: 61).

Similar to URRL1, URRL3 also refers to the continent's diversity and commonalities. Using this factor to develop the African voice in the global research arena is one of the driving factors in pursuing collaboration within the continent. This Research Leader believes that other geographic identities have influenced research agendas globally and that it is important to strengthen the African voice along with the continent's

regional and country specific voices through this process. In chapter 2 of this thesis, Section 2.4.3 details the lack of participation in research and the limited contribution to global research from the African continent. Kamanzi and Damen (2016: 2) argue that even though knowledge generation is increasing in the African region, Africa contributes a mere 6% of the journals listed in the DOAJ.

URRL3 further highlights that contextual understanding is necessary for research to be relevant in a global context. The example given is the SDGs and the different tensions between the different goals in different contexts.

“So you can’t for example, guarantee infinite supplies of portable water for everyone while preserving water resources, because preserving water resources requires using less water, but how do you use less water if you want to give water to more people” (URRL3)?

This Research Leader indicates that the aim of intra-African collaboration is to bring scientific thinking and understanding to these tensions. A second comment from the URRL3 deals with the power that South Africa holds in terms of funding resulting from collaborating with the global north. This Research Leader believes that researchers in South Africa are in a fairly privileged position and should use the networks brought about from the international activities with the global north to strengthen collaborations with the global south and in particular with other countries on the African continent. The aim is to use networks and resources to strengthen this project. This Research Leader further indicates that this type of collaboration has contributed to the bigger picture of science for development.

URRL4 also attributes the research networking privileges in South Africa and the potential to share this benefit with the rest of Africa to the rationale of collaborating with academic researchers in another African country.

“I think our higher education system is very well developed in comparison with some other countries in Africa and we can use that to work with our equally well-trained counterparts in countries across the continent” (URRL4).

At University Grey, UGYRL1 presents the aim of furthering African scholarship and methodology as the reason for pursuing collaboration within the borders of the African continent.

“I see the advancement of African epistemology as part and parcel of what projects such as this could advance” (UGYRL1).

This Research Leader argues that the decision to collaborate in Africa is driven by the need to enhance research methodology and finding authentic ways of understanding plurality while developing theories that are not imported from the west.

“Instead we aim to crystalise from within the continent” (UGYRL1).

Similar to other research leaders, UGYRL2 cites the acquisition and sharing of skills and knowledge between people who are scientific leaders in their field across the continent, as the main reason for their collaboration. UGYRL3 also presents similar sentiments.

“We must appreciate the group as a small village needing different ideas from different groups to enable the richness of the research” (UGYRL3).

UGYRL3 also argues that there is much to be gained by having diversity within a research team along with diversity of ideas and disciplines as the value of the research increases tremendously. Furthermore, this Research Leader also cites access to research funding, arguing that through research collaboration, it is easier to access a number of different funding sources. Thirdly, the rationale is that when collaborating across borders, researchers are more likely to find solutions to global issues. UGYRL3 further argues that the rationale for collaborating in Africa relates to needing to address historical issues for the continent:

“For example, when we address viruses in Africa, if you don’t control them holistically, they will come back to your population. So, we need to control them holistically. If you vaccinate, it cannot be just at a regional level. If you only control the virus in one region, when migration from other region occurs and there is no holistic vaccination, there will be recurrence. Most African countries face the same problems, and we need to address them as one unit” (UGYRL3).

Notably, the rationale for collaborating within the borders of the African continent for ULBRL1 is that this type of collaboration allows for mutual capacity building. In addition, with the increase in perspective, and the strengthening of knowledge through the exchange, it is possible to influence policy for the continent.

Similar to UGYRL1, ULBRL2 highlights the need to address epistemology through research collaboration. Furthermore, ULBRL2 indicates that epistemic injustice is an issue that must be addressed by collaborating with colleagues within different countries in Africa. Consequently, through this practice, opportunities are created to diversify voices and enable different kinds of scholarship to emerge. This Research Leader also indicates that similar research collaboration has enlightened them about inappropriate methods used in this research field for data collection in vulnerable communities across the continent. The rationale for research collaboration is the fact that collaboration on the importance of empowerment and emancipation of data populations that is integral to qualitative research design, adds to the quality of the outcomes. This Research Leader argues that the rationale for collaborating within Africa is located within southern theory and decolonisation debates.

“The charge is to all of us to actually be innovative in how we respond to a history of educational and knowledge deprivation to ensure that explicit discrimination be removed through collaboration on research methods and knowledge creation and exchange” (ULBRL2).

UBRL1 specifies the fact that funding was made available for research that included collaboration between countries in Africa. Furthermore, this Research Leader indicates that the research collaboration came about because of an invitation from the funder who is external to Africa. In addition, the proximity of the different collaborating countries minimising travel, was also a contributing factor for the inclusion of collaborators from other African countries. Further to this factor, this Research Leader believes that there are also political incentives for collaborating within Africa and that it is important for South Africans to collaborate with other colleagues on the continent.

UBRL2 attributes the reason for collaborating with colleagues in other African countries to attempts to enhance the African voice and collective perspective in global research initiatives. University Purple’s Research Leader also cites international

perspectives as contributing to the research, along with knowledge exchange across Africa within the field of Higher Education as the rationale for intra-African academic research collaboration.

At University Park, UPKRL1 argues that researchers in Africa understand the challenges and problems to be solved in Africa better than those external to the continent.

“Because we live with the challenges, through sharing of experiences of what is happening across the continent and how it is being experienced, we can do more to solve the challenges” (UPKRL1).

UPKRL2 mirrors the sentiments of URRL4 in that it is the responsibility of South Africa as the research centre to enhance research on the continent through collaboration.

“Most of our colleagues on the continent do not get these kinds of opportunities to do research, and we do not know what is happening within the rest of the continent. In addition, the outlook from South Africa towards to the rest of Africa is always negative and not considered international. For this reason, we must encourage more research collaboration between countries in Africa” (UPKRL2).

A second rationale presented by UPKRL2 is that the research that has occurred in Africa has mainly been influenced by the west to benefit the countries within the west.

“We have the capacity within our continent to do research on Africa for Africa by Africa” (UPKRL2).

UPKRL3 presents a rationale similar to other research leaders such as UGYRL1, URRL1 and URNRL2 saying that the motivation is to enhance a collective African voice.

4.4 Theme 3: The Perceived Benefits, Challenges and Facilitators of intra-African Collaborative Academic Research

For the discussion around the benefits, challenges and facilitators for leading intra-African collaborative academic research teams, the qualitative data collected from international or research office directors as well as research team leaders/PI's are presented. The benefits as presented by each of the team leaders is described first. The benefits are followed by illustrations and details of the challenges associated with

leading intra-African collaborative academic research and conducting research collaboratively in Africa. Finally, the qualitative data related to how specific challenges have either been mitigated or overcome along with ways in which the type of research collaboration can be facilitated according to the team research leaders/PI's is outlined.

4.4.1 Sub Theme 1: Perceived Benefits

Chapter 2 of the research outlined the benefits of IRC as well as the benefits of collaborating within the continent. Figure 4.12 below shows that the majority of the research or international office directors believe the benefit of intra-African collaborative academic research is increased perspectives through international dimensions.

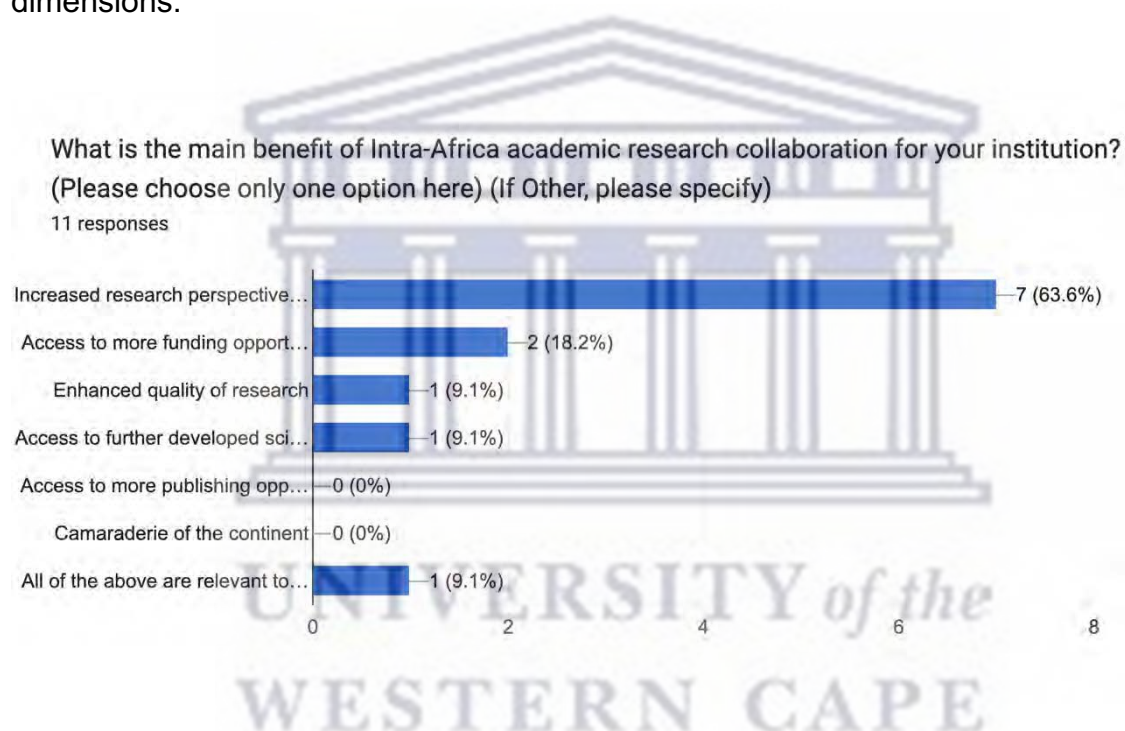


Figure 4.12: Benefits of intra-African Research Collaboration
Source; Researcher's own construction (2022)

The data from the semi-structured interviews with the Research Leaders of intra-African academic collaborative research teams also outlines the different reasons for approaching research collaboration beyond the South African borders. The majority of the research leaders have described benefits of the intra-African academic research collaboration that also relate to the benefits of broad IRC.

At University Green, UGNRL1 states that there are numerous benefits specifically related to intra-African academic research collaboration. Firstly, exposure to

institutions, research organisations, the private sector and governmental organisations for the purpose of mutual cooperation is a benefit of pursuing research collaboration within the continent of Africa. The researcher also believes that the benefits are at the level of the institution, the departments or faculties that the researchers are located in and the individual researcher.

UBNRL1 also lists networking and the enhancement of these networks both for the individual researchers and for the institutions as benefits of IRC in Africa. Networking is further enhanced through collaboration through the access to other networks that are linked to the collaborators in the team. The expansion of networks also contributes to the capacity building of post-graduate and early career researchers. UBNRL2 further cites the enhancement and expansion of networks for both individual researchers and the institutions they are working in, which has also been linked by UBNRL2 to the impact on capacity building that addresses the challenge of an aging cohort of experienced researchers on the continent.

At University Red, URRL1 describes the benefits of intra-African collaborative academic research as the opportunity to exchange knowledge with international researchers, enhancing local knowledge creation. URRL2 lists the opportunity to share resources, facilities and infrastructure between countries that have these aspects needed for research as benefits:

“There is a gap in terms of access to research facilities, so coming together we can harness the little resources and facilities we have together and contribute to knowledge together. Our partners in this collaboration do not have the equipment that we have, but they do have the knowledge and skills that we lack at our university. Through combining these strengths, we are able to contribute to knowledge” (URRL2).

URRL3 mentions the benefit of exchanging ideas providing opportunities for contextualising the research so that it is relevant in different settings. Similar to URRL2, URRL4 speaks of the opportunity for South Africa as a leader of the scientific community in Africa, to share resources, facilities and knowledge with countries in Africa where these research necessities are lacking.

“There is a need for resources, capacity building, empowerment, development and finding throughout the continent. I could work in the global north; however I do not see the point of this, because the contexts are different and the people in Africa would not benefit. The benefits are for the community first and for the development of the continent” (URRL4).

This comment by URRL4 is in line with the argument outlined in Chapter 2 of this research, that people of African descent encounter similar challenges, pointing to the need for integration to realise the full benefit of African diversity (Appiah, Arko-Achemfuor and Adeyeye, 2018: 1). However, Makgoba (1997:199) and Boshoff (2009: 500) require the process of Africanisation also to work as a way to address global marginality challenges through the strengthening of the African voice and perspective, thereby contributing to global knowledge production while collaborating within the continent as well as with those external to Africa.

Furthermore, URRL4 at University Red sees the development of post-graduate and early career research across the continent as another benefit of research collaboration within the continent. In addition, this Research Leader lists access to increased research funding along with the ease of access because of close proximity when travel is necessary, as benefits as well.

UGYRL1 at University Grey discusses the difference in power dynamics when collaborating within Africa and when collaborating with partners from the global north, or with partners within South Africa. This research Leader prefers working with collaborators outside of South Africa, because:

“other African colleagues have less issues than South Africans. They are not obsessed with issues of race. They are not as angry as South Africans and I find getting rid of South African politics to be beneficial” (UGYRL1).

Compared to working with collaborators from the global north, this Research Leader argues that collaborators from the North can be quite territorial in terms of theory and methodology and less trusting, requiring one to always check what and how one communicates.

“There is comfort working in Africa because there is more of a common understanding of the collective. This comfort allows one to engage and grapple with the research issue at hand rather than diplomacy” (UGYRL1).

UGYRL1 also cites feeling more connected to African colleagues as well as creating a greater understanding of the diverse issues on the continent as benefits of working within the continent. Furthermore, such collaboration is humbling as a South African.

“It cuts you down to size in terms of the arrogance that comes with being South African. You learn about what people are doing in different contexts with much less than what we have” (UGYRL1).

This Research Leader also comments on the rich understanding of concepts within the research owing to the perspectives beyond that of just South Africa.

“I think it would have been far less rich in terms of thinking and in terms of findings” (UGYRL1).

Finally, UGYRL1 further cites the benefit of research skills development and capacity building.

“The intra-Africa collaborative space is a nurturing growing space to be. It is not competitive and more importantly, it is a supportive space” (UGYRL1).

UGYRL2 highlights the benefit of diversity of strength, or expertise, across the continent.

“It creates a basket of skills from which we can draw and feed” (UGYRL2).

Similar to UGYRL1, the benefit of skills development and research capacity building has also been cited by UGYRL2:

“I would not have managed to supervise the doctoral student in our team without the partner colleague who was highly skilled in terms of the technical requirements of our project. The colleague had studied in Russia, Japan and Italy. He was very well equipped and through this collaboration, I am now skilled in these areas as well” (UGYRL2).

This perception is supported by Cheruvelil et al. (2014:32), who argue that research team diversity increases the research quality and through the sharing of knowledge, complex issues that are interdisciplinary in nature, are solved. Furthermore, Cahill (2015: 1) notes that IRC has sizable social, cultural and economic impacts with benefits extending beyond academia. In addition, Teferra (2020: 245) argues for the strengthening of supervisory capacity in South Africa through research collaboration at a post-graduate level, arguing that the practice provides quality supervision and in turn produces quality graduates. Further to this argument, the specific type of research collaboration that occurs when collaborating within the continent is supported by Boshoff (2009: 500), highlighting the pockets of strength that exists on the continent and in particular within the SADC region.

UGYRL3 describes the benefits of intra-Africa academic collaborative research as enabling the expansion of research scope. In addition, this Research Leader presents greater access to research grants as a benefit. Similar to the other two research leaders at University Grey, the benefit of knowledge exchange that results in finding consensus solutions for the continent, is cited. In line with UGYRL2's argument that IRC has an impact beyond the academic sphere, UGYRL3 also argues that this type of research may impact and influence policy. Furthermore, skills development and capacity building are further benefits:

"I believe this practice allows for the training of researchers for the continent to be able to handle its own problems. Sure, when we collaborate outside of Africa, we may have access to more resources. However, collaborating in Africa allows us to empower our own capacities. We are embracing African problems to offer solutions for Africa. I am not saying it is bad to collaborate with European, American or Oceania countries, but I think in addition, we should be working with each other to solve our own problems. Where we cannot, we should reach out to the rest of the globe" (UUGYRL3).

ULBRL1 at university Light Blue discusses the benefits at an individual researcher level, citing increased exposure to ways of working internationally. This Research Leader also aligns this exposure to the benefit of capacity building and skills development that occurs through this collaboration.

“If I think of the three PhD students we had attached to this project, they all grew enormously through their experience in terms of technical experience in the field” (ULBRL1).

This researcher further identified benefits at an institutional level, citing the strengthening of institutional capacity.

“During this project, we were able to consolidate our Masters’ programme and were also able to provide fellowships, strengthening the institutional research capacity in the area of mental health. As a result, we were able to establish a centre of excellence, which has really consolidated our role as one of the leading institutions on the African continent working in the area of Mental Health” (ULBRL1).

Further to the benefit of IRC in Africa at an institutional level, ULBRL1 argues that research collaboration enhances networking opportunities. Consequently, this results in future research collaborations that are also of an international nature.

ULBRL2 selects diversity, epistemic justice as well as capacity building as central benefits of intra-African academic research collaboration. Also, in the area of health science, this Research Leader argues that it allows for diverse data which draws from different health systems and different cultures and enriches the understanding of the research problem through the contextual nuancing that occurs through collaboration. ULBRL2 also perceives the collaborative practice as a way to address epistemic injustice caused by white supremacy within the higher education systems in South Africa.

“In a culture of epistemic injustice, we have an obligation to promote justice and should use our skills and knowledge to diversify voices, create more opportunities and promote diversity of scholarship that empowers different types of knowledge across the continent” (ULBRL2).

UBRL1 at University Blue does not believe there would have been negative impacts on the research had there not been any collaboration in Africa. Surprisingly, this Research Leader posits there is no difference between collaborating in Africa and collaborating with other countries outside of the African continent. UBRL2 disagrees

and lists access to specialised scholarship available on the African continent as a benefit.

“African researchers may not have the resources, but they hold the scholarship. They hold the interpretation of the scholarship, and this form of collaboration allows them to see themselves in rooted within the scholarship of disability” (UBRL2).

At University Purple, UPR1 indicates that research collaboration has contributed to overcoming the issues of parochialism, and incomplete, or lack of, knowledge about Africa for South African researchers. Consequently, this allows for scholars to learn from those who are skilled and knowledgeable in other countries on the continent.

Similar to ULBRL1, UPKRL1 at University Pink also highlights the benefits of intra-African collaborative academic research at an institutional level, explaining that the personal benefit of enhanced research skills development, contributes to increasing research capacity at an academic institution. UPKRL2 mirrors the sentiments from University Purple’s Research Leader, indicating that another benefit includes being able to learn from other colleagues across the continent.

UPKRL3 at University Pink indicates that the benefits are numerous when collaborating in Africa while conducting research. These include enhanced networking opportunities, as well as enhancing interdisciplinary work that addresses common challenges across the continent.

As part of the semi-structured interviews, the respondents were asked about specific benefits related to intra-African collaborative academic research. Specifically, the respondents were asked if the type of collaboration impacts the growth and transformation of research team members, the research methodology as well as the research topics and / or knowledge innovation on the continent. The following table details the responses.

Table 4.1: Benefits of intra-Africa Research Collaboration

	Individual member development	Team development	Research Methods	Knowledge Innovation of the Research Topic
Strongly Agree	6		5	6
Agree	12		12	12
Neutral			1	
Disagree				
Strongly Disagree				

The options of Neutral, Disagree and Strongly Disagree were also available to respondents, however none of the respondents chose these options.

4.4.2 Sub Theme 2: Perceived Challenges

The next sub-section details the challenges pertaining to conducting research and research collaboration in Africa. This sub-section has been divided into sub themes, related to challenges that are mentioned by most of the respondents. The section also presents unique challenges that are evident. The below figure illustrates the major challenges both to conducting research and research collaboration experienced by research team leaders.

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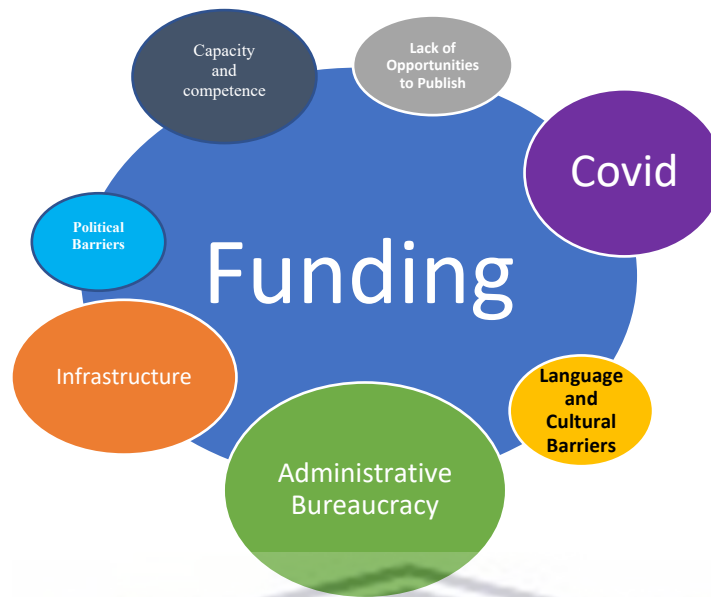


Figure 4.13: Challenges faced by intra-Africa Academic Collaborative Research Team Leaders
 Source: Researcher’s own Construction (2022)

4.4.2.1 Funding and Administration Challenges

The most prominent challenge presented by the majority of the participants is that of funding. The responses from international and research office directors as well as the responses from collaborative research team leaders has shown that funding is a significant challenge experienced during intra-African collaborative academic research, as Figure 4.14 also shows.

What is the main challenge to intra-Africa academic research collaboration at your institution?
 (Please choose only one option here) (If Other, please specify)

11 responses

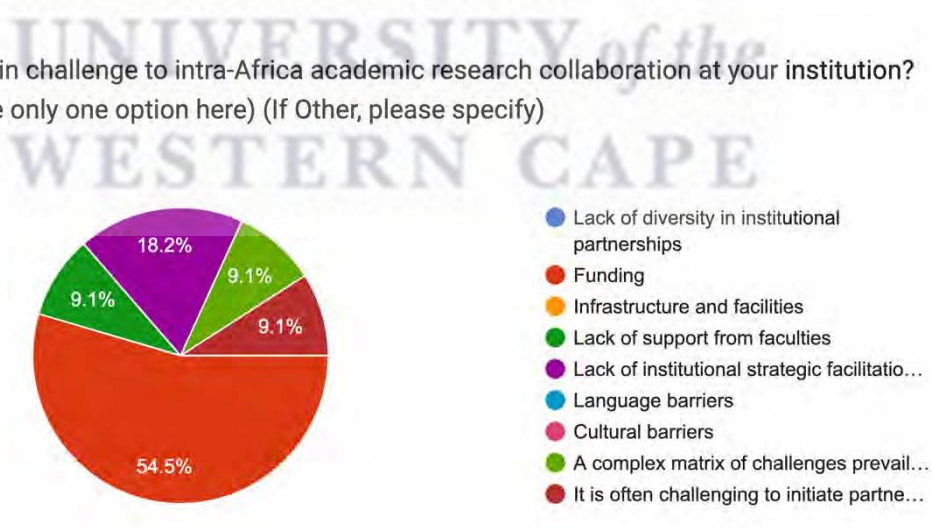


Figure 4.14: Main Challenges Reported by South African Research-Intensive International/Research Directors
 Source: Researcher’s own Construction (2022)

Out of the 18 respondents, 15 discussed funding as a challenge. UGNRL1 spoke of how funding is managed, as opposed to others who spoke of the lack of funding required for countries in Africa to work together. In their project, the funding was provided by the governments of each participating country. However, each country, has different timescales for the delivery of funding. This challenge negatively impacts the research:

“The timescales of the release of the funding were out of sync. When there is a two-year project with a difference of a year between approvals on either side, it is problematic. The partner institution approved the project long before the NRF did. However, when the NRF did approve the project and release the funding, the partner then had a delay in having the funds released by their government entity. This delayed the project considerably” (UGNRL1).

The research leader believes the lack of communication between the two countries' funding agencies squanders opportunities for collaboration, and results in wastage of funds available. Comments by this research leader reflects that this specific challenge lies not only at an institutional level, but also at a national level.

UBNRL2 at University Brown spoke of the lack of funding for the university's project, despite being awarded a centre of excellence status from ARUA. The proposal developed for the Centre of Excellence Award required a budget, resulting in the research leader believing that the award included funding. However, when the award was received, it excluded funding. The research leader was then required to apply for funding to fund the research and the resulting funding that was received was from a funder external to the continent.

URRL1 at University Red speaks of the splitting of the funding between the participating institutions.

“So, splitting money or getting funds released is usually an administrative nightmare” (URRL1).

URRL4 also speaks of funding but of the challenge of the complete lack of funding. In order for collaboration to occur, this Research Leader funded the collaboration from research funds accumulated at their own institution. Even though the research was

self-funded, the research leader still experienced administrative challenges when trying to send funding to the partner institution:

“To get the money from my university to the partner colleagues is an administrative nightmare. It is virtually impossible on both sides. The difficulties that administration brings makes me not want to work with other African countries. It is too difficult to try and send money to an account of the partner institution from an account at my university. The partner has to report on exactly how the money is being used, in addition to a financial spreadsheet that details everything the money has been spent on. Our partners are not in the position to provide this detail. There are capacity issues and limitations in terms of resources that impact the possibility of adhering to the administrative requirements of my university. So administrative bureaucracy is a nightmare”.
(URRL4).

However, this Research Leader does highlight that this challenge is not unique to Africa. Rather administrative bureaucracy is also an issue when working with countries in the global north.

“Sometimes these processes require institutions in South Africa to apply for loans and overdrafts in order to exchange money for research. These processes have taken up to 15 months at times, delaying the collaboration”
(URRL4).

This Research Leader further argues that the administrative bureaucracy related to funding and exchanging of funds between partner institutions is off putting and deters researchers from future international collaborations. URRL4 also highlights the fact that at universities like theirs, there is a lack of capacity and resources such as research offices with administrative assistance. As a result, the administrative burden at University Red falls on the individual researchers.

UGYRL1 is also funding the collaboration through personal research funds. However, UGYRL1 comments that personally funding the project has been easy, as the administrative bureaucracy that comes with external funding complicates collaborative research and delays processes.

“Because we are working without funding, its actually easy to just do what we want to do, because you don’t have to stick to protocols put in place by big funders” (UGYRL1).

ULBRL1 at University Light Blue speaks of the lack of understanding of context by funders. This funder had standard monitoring protocols that had to be implemented at each research site.

“This is good, because standards need to be upheld, but it felt at times that the funder did not really understand the context in which we were conducting the research” (ULBRL1).

This Research Leader felt that because the funder was external to Africa, there was a need for extended negotiation with the funder regarding the monitoring processes and protocols. ULBRL2 also comments on the issue of funding; however, s/he links this challenge to the issue of corruption on the continent and similar to URRL4, spoke of the challenge of distributing funding between partners:

“Endemic corruption proved to be a real problem, as the administrative bureaucracy at the partner institution required the team to find innovative ways for moving money across. We couldn’t have a contract with the partner university because the money would never reach the research team member. We had to send the money to him in a unique way so that he would be able to use it for the research” (ULBRL2).

Similar to the sentiments expressed by URRL4, UBRL1 at University Blue presents administrative bureaucracy as the primary challenge to research collaboration.

“When dealing with funding for research, you always have to go through bureaucrats that run funds, and there are always administrative stumbling blocks that require allot of energy when there is no capacity at your institution” (UBRL1).

UPRL1 at University Purple also lists the lack of financial resources and support as a major challenge to research collaboration. Additionally, UPKRL3 at University Pink mentions the administrative challenges that are present when dealing with funding.

“The issue is not that there is a lack of money, but the administration and logistics that are required to make use of the money. The challenges are not really related to people working with each other, but rather with the institutional administration” (UPKRL3).

Other challenges highlighted by the responses include infrastructural challenges, the COVID-19 pandemic, lack of publishing opportunities and language and cultural barriers. In addition, research leaders mentioned capacity and competence issues along with political barriers. UPKRL3 further highlighted the administrative barriers for applying for publishing work in international journals and for applying for research funding.

“We need assistance to be able to successfully fill in an application and fully understand what funders are looking for to have a chance at receiving any funding for research or research collaboration” (UPKRL3).

The challenge of funding has been discussed by Woodiwiss (2012) in her critique of the South African NFF, arguing a decrease in subsidies through research collaboration. Jowi, Knight and Sehoole have also cited inadequate funding as one of the answers to the low rate of collaboration within the continent.

4.4.2.2 Infrastructural Challenges

UBNRL1 at University Brown speaks of the infrastructural challenges in the country of the partner researcher. The research leader relied mainly on travelling to the partner university to collaborate. UBNRL1 comments on issues of transportation required to get to the university campus as well as the state of the roads in the country of the partner institution. These challenges have resulted in delays in the collaboration, due to the length of time it takes to get to the partner institution.

URRL4 at University Red also blames delays in collaboration on a lack of infrastructure, access to equipment and as a result, limited organisation from the partner institution. At University Grey, UGYRL1 selects the lack of bandwidth in the partner’s country.

“We chose to work on Zoom and many times our partner could not connect and would then send us a WhatsApp to say she has lost connectivity, so infrastructure in Africa is a huge challenge” (UGYRL1).

The lack of infrastructure has also been highlighted by Jowi (2012) in his description of challenges to research collaboration in Africa.

4.4.2.3 Challenges Experienced as a Result of the COVID-19 Pandemic

The COVID-19 pandemic also posed challenges to the projects, mainly causing delays in the timelines for projects that required physical mobility for research to occur. UGNRL1 at University Green refers to the pandemic when discussing the barriers specific to collaboration.

“In our case, we made two visits to our partners; however due to COVID-19, they were unable to come to South Africa” (UGNRL1).

UBNRL2 at University Brown also refers to COVID-19 when discussing the disruptions to their project. The specific disruptions occurred due to a number of impacts from the pandemic. For this project, the pandemic impacted the team in terms of human capacity. Team members lost their lives and the partner institutions also cut back on staff.

“It is incredibly difficult, because we have lost contact with people in the partnering countries and now, we have to try and re-network and rebuild the teams” (UBNRL2).

Furthermore, the capacity building aspect of this project was impacted by the pandemic due to the lack of opportunity for post-graduate students to access resources and equipment on campus:

“Students need to get in the labs, because there is only so much you can do online. How do I show students what I am seeing through a microscope online? How do I teach students how to conduct an experiment online? If I show them online, they do not get the practical experience they would receive in a lab. We are trying to get better with the online work, but people are also so overwhelmed

with the online work, so it is incredibly difficult to continue, but we are trying” (UBNRL2).

URRL4 at University Red also comments on challenges created by COVID-19; however, s/he indicates that online modalities of collaboration had occurred before the pandemic due to high costs of travel. Thus, this Research Leader had to find alternative ways of collaborating with the team members in the partner institution. However, this Research Leader also comments on technological competency and data challenges present in the partner institution and the country of the partner institution.

“My colleagues were not used to working online and it was highly challenging because they experienced a number of infrastructural challenges that impacted access to the online space. In addition, they did not all have access to laptops needed to access the online space” (URRL4).

Due to the technology challenges, the research leader worked mainly asynchronously with the team members by providing data for them to use on WhatsApp on their phones.

ULBRL2 at University Light Blue also speaks of the challenges posed by the pandemic, arguing that it has limited the opportunities for the team members to work together in a face-to-face way. However, the research leader further argues that the pandemic has opened new ways of working and opportunities to collaborate:

“Before the pandemic, collaboration depended a lot on travel which required some of the team members form my institution spending time at the research sites in my collaborator’s country, or the team members or the Co-lead spending time here. With the opportunities to work online as a result of COVID-19, the greater opportunities to connect has actually created a greater sense of community and an increased collaborative spirit. As a result of the pandemic, it suddenly did not matter anymore that the members of the team were dispersed across the continent, because we were able to connect and engage each other regardless. We were able to have more team meetings and update each other on the progress of the project on either side” (ULBRL2).

UPKRL2 at University Pink states that COVID-19 has proven to be the most impactful challenge. Due to the nature of the collaboration being facilitated through conferencing for team members to collaborate, the pandemic limited travel which meant no further conferencing.

4.4.2.4 Capacity and Competence Challenges

UBNRL1 at University Brown comments on competency issues when discussing the challenges of intra-African collaborative academic research.

“At the time of the project, I was a senior lecturer, and my collaborator was a professor. I thought I would learn a lot from him however; it was the reverse. Even though it was a collaboration and he collected data and contributed to the literature review, I had to run everything” (UBNRL1).

UBNRL2 also comments on capacity issues; however, s/he sees this challenge through the lens of the lack of investment to contribute to capacity within the South African sector:

“There are not enough people coming through the system. The funding that we received from the NRF is required to fund post-doctoral researcher. However, the need is to build capacity at a post-graduate level. The result was that we were actually only able to find one post-doc researcher, which highlights the fact that we should be building capacity at a lower level” (UBNRL2).

This Research Leader also comments on the lack of capacity at their institution to adhere to tight deadlines and the demands of the NRF.

“The NRF will send us an email on a Friday at 4PM, requesting a report due on the same day” (UBNRL2).

Furthermore, UBNRL2 comments on an attitudinal issue from young academics. According to this Research Leader, young academics are keen to do research. However, when it comes to the teaching requirements that go with being an academic, they do not want to do it.

“People want to do research and they want academic freedom, but they don’t want to teach, they don’t want to do their marking and they don’t want to do

their admin. But in South Africa, that goes with the territory. We do not have the luxury of picking and choosing what we do” (UBNRL2).

URRL1 at University Red presents capacity and competence as the most prominent challenge to their project that includes intra-African collaboration. More specifically, getting team members to work at the same speed is challenging.

“So, for instance, you might have a particular assignment that requires a team member to carry out within maybe one week and then you sort of find yourself having to prompt or push them to remember to complete the assignment on time” (URRL1).

This research leader relates this issue to the fact that team members may be at the same level of the research leader, or PI. There is no hierarchical structure to the team, so team members are not reporting to the research leader. However, URRL1 comments that while most research collaborations are challenging having to work with people from different cultural and educational backgrounds and who have different orientations to the matter being investigated, it is not something that cannot be overcome.

“Challenges are fairly common in this type of research” (URRL1).

URRL2 also isolates challenges relating to timeous feedback and responses from team members in relation to challenges of the research and research collaboration.

“So, at times, you need timeous feedback in order to meet the deadline, but in most cases, you don’t meet the deadline and have many excuses instead” (URRL2).

Similarly, URRL4 alludes to a lack of feedback and responses in trying to manage the research team.

“I think I am quite a nice approachable and patient person and I try to talk nicely, so we can build that teamwork, but receiving feedback is still tricky. Because we are collaborating across countries, we would sit here not knowing what was going on in Zambia” (URRL4).

ULBRL2 at University Light Blue focuses on workload challenges that impact capacity for research collaboration in Africa.

“One challenge, and I think this is very true for many in Africa, is that we all do 1000 jobs. Those working in the global North have more resources to fund additional manpower and capacity to help with the workload issue. If I worked in the U.K, I wouldn’t have half the responsibilities that I have here” (ULBRL2).

This Research Leader outlines the challenge of the team members in Africa who are leaders within their institutions, managing teams of people and offices while completing post-graduate qualifications that are contributing to this collaboration. Mirroring these sentiments, UPR1 cites heavy teaching and administrative responsibilities which limit time for research, as posing a challenge to intra-African collaborative academic research.

Similar to UBNRL2, UBRL2 speaks of academics at the different institutions and their attitudes towards academia.

“I think sometimes it might be related to the end game of the research itself in that being based in Africa, we are more interested in seeing how the research directly changes people’s lives and makes an impact in communities. We are more interested in participatory action research and less in pure descriptive exploratory studies” (UBRL2).

In line with the sentiments of URRL1, UPKRL1 at University Pink also sees capacity as the most impactful challenge to intra-African collaborative academic research. The research leader believes that Africa is not ready to work together.

“I would like to state categorically that Africa is not ready to work together yet. There are many issues to untangle here, but issues such as visa challenges that limit the movement of people and resources between countries in Africa is a challenge” (UPKRL1).

This Research Leader also states that a big challenge is that African governments do not fund research.

“The only country that funds research in their country is South Africa through the NRF; however this is mainly closed off to the rest of Africa. The funding contributes to collaboration with countries outside of Africa” (UPKRL1).

These comments are in line with the data presented by UNESCO (2020) detailing the percentage of GDP spending on R&D. The Continental Education Strategy for Africa (2016: 8) highlighted in Chapter 2 of this research outlines the strategic objectives for tertiary education in Africa and calls for governments in Africa to spend at least 1% of their GDP on R&D. Our World in Data (2014) and World Bank (2019) both illustrate the spend by Africa, noting that South Africa spends the most on R&D at 0,83%.

UPKRL1 also states that all of their intra-African collaboration is funded by external funding, requiring more time and capacity to deal with the administration that this funding brings. UPKRL3 agrees that institutions in Africa do not have the capacity to deal with the administrative bureaucracy that comes with the funding of IRC.

Jowi (2012) has also listed the lack of institutional capacity to respond to the opportunities and consequences of internationalisation as a challenge to IRC within Africa. In addition, he (2012) has also listed the low rate of research output and post-graduate training due to a shortage of strong research academics on the continent as a challenge.

4.4.2.5 Political/Legislative Barriers

UBNRL2 at University Brown has listed events that have occurred at a local country level and an international level impacting the research collaboration. Referring to political issues in South Africa, the research leader has referred to the Jacob Zuma presidency remarking on the Presidential Terms as problematic for South Africa's reputation, influencing partners perceptions and decisions to partner with South African universities.

Furthermore, still in South Africa, the severe droughts of 2018 have also been attributed to impacting international researchers to partner with South African universities. The researcher has attributed these issues to the delay in getting the project off the ground or to enhance it through collaboration in any way. In addition,

the Fees Must Fall movement that impacted the South African higher education sector has also been mentioned as a political challenge that impacted this research project. Similar to the COVID-19 pandemic which has also been mentioned by UBNRL2, the fees must fall movement negatively impacted the research collaboration due to the limited access to campus and labs for students.

“When you set out a timeline for your research, many times the timeline requires a sequential flow. The protests delayed certain activities which then impacted later activities and cause major delays in the project” (UBNRL2).

UGYRL3 at University Grey has spoken of the limitations posed to the project by delays in acquiring import permits for biological material from other countries.

“Applying for the permits to bring biological samples from other countries through the Ministry of Health has been our biggest challenge, because permits take time, and they can actually delay your research” (UGYRL3).

Similarly, UPKRL1 at University Pink has also cited political barriers to their research project. These include legislative, policies or frameworks as well as immigration regulations that impact the movement of scholars between countries on the continent.

“We have had a couple of post-graduate students meant to start with us however; there have been delays of months with their visas, further delaying the project. Some of these visas are delayed by more than five months. This is not good for intra-Africa relations” (UPKRL1).

The second issue highlighted by UPKRL1 is that of credit transfer of students from other African countries.

“Most systems in Africa do not accommodate the transfer of credit that would allow for successful movement of skills and knowledge between institutions at a post-graduate level. The leadership for the development of research capacity for the continent is lacking because we are unable to come to agreement between our different systems. Our systems work against each other and further limit this type of research” (UPKRL1).

From the same institution, UPKRL2 has also presented political differences between countries in Africa as a challenge to collaborating on research in Africa. The research

team experienced this challenge after arranging a conference to facilitate collaboration in Ethiopia.

“The East Africa conference that we arranged included the theme of literature addressing Lesbian, Gay, Bisexual, LGBTQI+ identities and this resulted in quite a lot of backlash when the programme was released in the host country. I don’t know if they thought we were coming down to convert people or to promote the community. As a result of the backlash and the feedback we were receiving, we had to cancel the conference the day before, and then it was reinstated. However, some of the participants did not feel comfortable travelling to the conference because of some of the feedback that was received and this negatively impacted working together” (UPKRL2).

UPKRL3 has also listed political barriers when discussing challenges to intra-Africa academic collaborative research. The research leader has given the example of working in Angola where academic staff also work for the government. Consequently, this results in the government having influence over the research and the collaboration.

“The government may intervene and put limits on the amounts you can spend on certain aspects of the research, even though the funder provides more” (UPKRL3).

This Research Leader also offered examples from other intra-Africa projects he has led. Presenting an example of a project between South Africa, Angola and Tanzania, the research leader has spoken of the challenge of having to work within the boundaries of the Revolutionary Council of Zanzibar, and frameworks within Angola. UPKRL3 has argued that there is conflict between the two.

“For the research, we have to ensure that we work within the two frameworks” (UPKRL3).

Furthermore, the research leader has highlighted political challenges that have occurred during the current project, working with colleagues in Mozambique.

“In Mozambique, we have been trying to work holistically, but there is a war in the North of Mozambique, so it becomes quite difficult for the team members there” (UPKRL3).

This Research Leader has offered that in this situation, it has been a challenge to collect biological information and data needed for the research.

“The challenge has highlighted the need to ensure modelling in the research is inclusive of these political contextual challenges into account. One must understand the political environments they are working within” (UPKRL3).

4.4.2.6 Language and Cultural Barriers

Cultural and language barriers were presented as challenges by research leaders. At University Brown, UBNRL1 spoke of the patriarchy in the country of their research partner. The research leader, a female, spoke of having to deal with awkward situations within the collaboration, having to lead a male who is older and then having to correct mistakes within the research process:

“I had to find strategic ways to let him know that what he was doing was incorrect for the benefit of the research. And then, because of culture, as a woman in a room full of men, you have to wait for your turn to speak. There were even instances where fellow females let me know that I should not be speaking when the male colleagues were speaking. At times in order to be able to get my point across, I had to focus on their egos first so that I was able to then get my viewpoint across” (UBNRL1).

These comments are mirrored by Akanji et al. (2019: 2), who note the institutionalisation of gender dominance that exists in Nigeria leading to men being socialised to become breadwinners, while women are expected mainly to engage in childcare.

URRL1 at University Red presents language as a challenge to research collaboration.

“Some of the team members are from Francophone countries and at times, the communication has been a challenge” (URRL1).

Working in the area of customary law, this Research Leader also argues that cultural pluralism is a challenge.

“So, you have people from different cultures and they tend to approach certain customs in a particular way different to the perceptions of the other team members” (URRL1).

URRL4 selects cultural differences as a challenge that was experienced during their collaboration. However, this issue was more related to the economic expectations of the different team members. In this project, team members included the schoolteachers operating as data collectors.

“With the limited self-funding, we could only offer these team members a stipend as a gesture, because this work they were doing over and above their teaching. However, we hit a big bump in Zambia, because the expectation from the teachers was that they would be paid quite a large sum of money for their time” (URRL4).

The research leader spoke of trying to address altruism within this project through the training that was included for the teachers. However, this inclusion was not implicit, and the unexpected expectations to be paid large sums of money required extra time to negotiate through this conflict for the project to continue.

Further to this issue, another cultural aspect that impacted the project timeline was the topic that the research aimed to address. Sexual risk in young people and the education around how to prevent HIV, teenage pregnancy and other consequences of risky sexual behaviour in young people, is a topic that is taboo within Zambia. URRL4 perceived team members in Zambia to be conservative, traditional and God fearing, resulting in team members being hesitant to implement the programme in schools for the data collection to occur.

UGYRL1 at University Grey also mentions language differences as a challenge to collaboration between researchers in different African countries. For the current project, this challenge was not a barrier, as all team members speak English. However, the research leader comments on other projects they have worked on.

“The moment you work with people in East Africa, language is a challenge. In my experiences working on other projects in Africa, is that it is easier in the British colonies. I have worked with colleagues in Mozambique, Cameroon, Nigeria and Morocco. The collaboration in Morocco was only possible, because the two team members spoke English” (UGYRL1).

The research leader speaks of the challenges working in Lusophone and Francophone countries, thus mirroring the sentiments of URRL1 at University Red.

Similarly, UPKRL3 at University Pink speaks of language as a limitation, or challenge, to research collaboration in Africa.

“Particularly when working in French or Portuguese countries and one is working within communities in these different countries, to ensure information is translated correctly by members of the community can be quite difficult” (UPKRL3).

UBRL1 at University Blue also comments on cultural differences when addressing challenges of intra-African academic research collaboration.

“One must be sensitive when working with people of different backgrounds. It may be the smallest thing, but you could say something that could lead to a very big misunderstanding” (UBRL1).

This Research Leader advises that when leading a team of different cultural backgrounds, listening carefully and understanding what people are saying between the lines, is a requirement.

“I think that we as South Africans are very comfortable and open because our multi-cultural population and our interesting history. I think this has helped me deal with the challenge of cultural differences” (UBRL1).

4.4.2.7 Lack of Opportunities to Publish

Research Leaders at University Red and University Pink comment on the challenge of publishing in accredited journals. URRL4 at University Red speaks of the opportunity to present the research observations at an international conference outside of Africa. This Research Leader highlights the fact that conference organisers in the global north are always interested in presentations that focus on Africa; however, s/he argues that publishing this work is more complex with limited opportunities:

“Conference organisers and delegates are interested in these presentations, but sometimes we have noticed that we struggle to publish work done in Africa in American or European Journals. So, publishing this work is not always well received. I think they think that issues in Africa have nothing to do with them, so do not see the value in the content. They turn it away saying it is not relevant.

We must make sure we link the local context to the context of where the international journal is located” (URRL4).

Research Leader 3 at University Pink has also spoken of publishing as a challenge, stating that it becomes incredibly difficult to publish this work without connections in the global north. Tarkang and Bain (2019: 3) also argue that the reason Africa only accounts for 2% of the world research output is because research papers from Africa are rejected when submitted to international journals for publication. They (2019: 3) further argue that there is a lack of sustainable journals on the continent.

Similarly, Jowi (2012) has cited concerns about the quality of research emanating from Africa by other countries as a challenge to collaboration and opportunities to publish.

4.4.3 Sub Theme 3: Perceived Challenge Mitigation or Facilitators

Research leaders also spoke of different ways of mitigating the challenges they have experienced in leading intra-African academic collaborative research. Where mitigation is not possible, research leaders unpacked ways in which they have been able to work around certain challenges. In addition, the research leaders also spoke of possible facilitators that could enhance academic research collaboration between countries in Africa.

At University Green, UGNRL1 addresses the issue of the mismatching of national funding timelines, suggesting that collaboration should start at governmental level and be inclusive of institutional representatives who have expertise in the areas being addressed.

“When signing agreements, governments should align their timelines which would allow for institutions to align their timelines and have the research flow sequentially in the timeframes advised by the academic research experts. These agendas should be inclusive of the academic community who will work on these issues” (UGNRL1).

This researcher specifies that the issue is not unique to their current project, and that they have experienced this issue in other collaborative projects on the continent.

“From my perspective, for these types of collaborations to occur to further the development of the continent, the alignment is essential. It is one thing when you have a five-year project, and have a longer period to accommodate delays, but in a two-year project like this, misalignment of approval and delivery of funds can have devastating effects on the project” (UGNRL1).

The research leader at University Green also highlights how additional capacity at an institutional level to identify and assist in the application of funding proposals, could benefit:

“With the high workload issues in universities, it is difficult to be aware of the opportunities to apply for funding of collaborative research. At our university, we have this capacity, and it really helps. We have a very good internal system whereby research opportunities are communicated to staff, so I get regular emails about research funding opportunities that are relevant for our faculty. The information is organised to assist us in navigating the application and proposal process and assist us in writing the proposal” (UGNRL1).

UBNRL2 also refers to funding from within Africa for research and research collaboration. He/she says the funding is needed for the mobility of research team members, improvement of infrastructure, and equipment needed for research. Thus funding is seen a facilitator by UBNRL2.

At University Purple, UPRL1 associates an increase of funding from within the continent, the unburdening of academic staff from heavy teaching loads and administrative bureaucracy and curtailing managerialism at universities as facilitators that they believe will enhance academic research collaboration on the continent.

Similarly, UBRL2 mentions grants which are managed by their university to promote collaboration on the continent. However, these grants are not enough to finance the full lifecycles of projects. With an amount of R80 000 for a project, this Research Leader advocates for this funding to be used to initiate partnerships between academic researchers on the continent. UBRL2 further advises that research, or international offices, use these types of grants to facilitate partnering of academic researchers across the continent.

Furthermore, UBRL2 proposes institutional committees with representatives from all faculties and departments to monitor the opportunities to maximise research partnerships and support applications for further funding to support research projects between partners. In addition, UBRL2 highlights the importance of spotlighting the strengths of Africa and institutions in Africa through events like celebrating Africa day and focusing on knowledge generation from the continent contributing to the global stage. The research leader believes that consequently, this will lead to the management of administration in terms of IRC.

The research leaders at University Red all speak of facilitators related to the administration of research and research collaboration, including the application for funding processes, transferring of research funds between partner institutions, and the reporting of research activities.

“The administrative side of things needs to be effective, so if for instance, you have the leader of the project and a CO-PI, if there are no administrative staff to manage this side of the research. It can affect the entire project” (URRL4).

This argument is affirmed by Haelewaters, Hofmann and Romero-Olivares (2021) in their online contribution to rules for global North researchers collaborating in the global South. They (2021: 4) state that scientists are overwhelmed by the administrative work that comes with teaching and research. They (2021: 4) argue that it is important to recognise that different collaborators may need different timelines to accommodate for these types of challenges.

UBRL1 at University Blue comments on administrative issues that are associated with IRC. S/he argues that we cannot do without the administrative frameworks that come with funded collaborations, or collaborations that work within formal institutional agreements. This issue is highlighted as important to ensure ethical and transparent co-operation between researchers. However, this Research Leader believes that the administrative aspects are very complicated and very difficult to understand, resulting in research time being devoted mainly to administrative processes rather than collaboration and research activities. S/he therefore suggests devoting institutional resources to these tasks.

ULBRL2 further speaks of the necessity at universities for strong legal and financial departments to manage the administrative aspects of the collaborations. Formalising the collaborations through the establishment of legal contracts is recommended by this research leader who argues that having the legal department handle this aspect, assists with any conflicts that arise in the collaboration. The research team is then able to focus on the research. Similarly, ULBRL2 says that having a financial department monitoring the finances of the collaboration when it is funded and managing the reporting of the finances, assists the team in being able to focus on the research itself. ULBRL2 also notes that these aspects require specialised skills that are not necessarily held by any of the researchers within the team.

“This is massively important, because we need people with skills who understand these systems both in order to report correctly, but also to ensure financial accountability of the project” (ULBRL2).

At University Brown, UBNRL1 associates academic staffs’ mindsets with facilitators of intra-African collaborative academic research. Arguing that the reason for the lack of intra-Africa research collaboration can be attributed to the attitudes of academics in Africa, this Research Leader encourages increased collaboration in Africa in addition to the collaboration occurring with countries in the global north.

“I would encourage all African academics to change the mindset that a good collaboration would only come from people in Europe or America. Researchers in Africa are very friendly, open, and very welcoming” (UBNRL1).

Similarly, UGYRL1 comments on mindsets and attitudes to collaborating with the rest of Africa.

“If one has a condescending attitude or feels superior, collaboration will not work” (UGYRL1).

UBNRL1 at University Brown also indicates that at an institutional level, strategies to internationalise should be more inclusive of collaboration with countries in Africa.

“All of the countries in the North are collaborating with the rest of Africa, but we in South Africa do not promote collaboration with our African counterparts” (UBNRL1).

Zezeza (2012: 16) in exploring opportunities and challenges for the knowledge project in the global South, mirrors the sentiments of the two research leaders. He (2012: 16) arguing that due to global inequalities and Eurocentric hegemony in knowledge production, institutions in Africa tend to collaborate more with countries in the global north, furthering and enhancing these perspectives and paradigms and excluding the indigenous knowledge from Africa and the global south.

UBNRL2 intimates that research skills development at a post-graduate level should focus on developing researchers with a strong collaborative character or culture. Further to this recommendation, UBNRL2 also comments on the longevity of the team and sustainability of the research when post-graduate students are included as part of the research team.

“When we include post-graduate students in the team, the sustainability of the team is also strengthened. The alternative is team members who participate in short term workshops and cannot be fully committed to the project, because they have a lot of other work on their plates” (UBNRL2).

UBNRL2 also attributes skills development and capacity building through the inclusion of post-graduate students to the contribution of diversity in research by focusing on skills such as intercultural competence and tolerance of diverse perspectives.

The perceived facilitator of capacity building for collaborative research skills through the inclusion of post-graduate students and/or early career researchers is also mentioned by UBRL2 at University Blue. This Researcher Leader believes that including early career researchers from different countries on the continent would contribute to the diversity of perspectives from the continent within one's own institution. However, UBNRL2 at University Brown specifies that the investment of funds and time should focus on both post-graduate students and early career researchers at a post-doctoral level, as s/he believes there are not enough students coming through from a PhD level to contribute at a post-doctoral level.

UBNRL2 lists a number of other facilitators that could enhance intra-Africa academic collaborative research. Understanding leadership methods and techniques needed for research collaboration are two of the facilitators listed. This Research Leader had

participated in a leadership short course prior to leading the team and believes that the skills developed have enhanced the leadership of the team.

“I’m a scientist. I was not trained in leadership, so this really helped me”
(UBNRL2).

Van Noorden (2018) also singles out a lack of training in the management of research teams. Referring to the Nature Survey of 2016, he (2018) discusses the results of the survey, indicating that scientists require PIs to participate in a leadership training course. In arguing for sustainable leadership in academia, Haage, Voss, Nguyen and Eggert (2021: 1) state that success and productivity in science are mainly measured by the number of scientific journal publications. However, leadership skills in the development of young researchers are neglected.

Furthermore, URRL2 argues that communication and being open to sharing of information can facilitate increased collaborations resulting in leadership development on the continent.

“We don’t talk to each other. We are working in isolation. If we talk more and communicate with other colleagues across the continent, I think we will be able to move forward in creating knowledge on the continent” (URRL2).

Correspondingly, UGYRL3 at University Grey argues that strong networking across the continent can facilitate collaborative research.

“In-person networking opportunities like conferences where you are able to network outside of the formal programme and in turn meet members of their networks and funders is very important. We are getting to do this virtually. In the pandemic, but the traditional form of face-to-face meetings where ideas flow organically is necessary” (UGYRL3).

Similar comments regarding the snowball effect of networking leading to other networks and collaborative opportunities has been mentioned by UGNRL1, UBNRL2, ULBRL1 and UPKRL3. URRL2 at University Red also asserts that a continental platform to facilitate communication for partnering may assist in this process and will result in advancing research and collaborative knowledge creation in Africa.

Further to this suggestion, at University Light Blue, ULBRL1 argues that the entities such as the AAS, or the South African Medical Research Council (SAMRC), as structures to facilitate partnerships for the generation of new knowledge would be helpful. Furthermore, facilitating discussions between researchers on the African continent and research funders, could assist.

“The vast majority of research funding in the field of health science comes from HIC’s, so communication would be welcome” (ULBRL1).

This Research Leader argues that communication would help shape the research agenda to benefit the local context.

UGYRL1 at University Grey states that the most common facilitator academics would cite is funding; however, s/he argues that improved infrastructure would facilitate the advancement of research collaboration between countries on the continent.

“Improved bandwidth and access to collaborative platforms would further the continental research agenda” (UGYRL1).

Further to this insight, this researcher also links potential facilitators for intra-Africa IRC to the challenges they have experienced in leading an intra-African academic research team. Interpretation services that could assist the team to navigate the language and cultural barriers to IRC have been suggested by this Research Leader. Similar to the other research leader who spoke of the facilitator of the correct mindset, UGYRL1 comments on the need for team members to have the will to find ways to work around the different challenges they face.

“If there is the will to find a solution, then I tell you we do find a solution” (UGYRL1).

This sentiment is repeated by UGYRL2 who has indicated being flexible and resilient in leading a team is a facilitator.

“It requires a cool mind and attitude that motivates one not to give up when team members are delaying processes” (UGYRL2).

While providing insights on managing collaborative research, Currie-Alder, Cundill, Scodanibbio, Vincent, Prakash and Nathe (2020: 116) also argue that collaborative

research requires synergy, overall direction, and flexibility at multiple levels. The issue of attitude, or mindset that encourages resilience, is also included in the responses of ULBRL1 at University Blue.

“If you want to work in Africa, you must include people in your team who are not doing it for the sake of funding and career advancement. They must be people who genuinely want to further knowledge for the development of the continent” (ULBRL1).

Similarly, ULBRL2 indicates that with the correct mindset, challenges are not barriers to successful collaboration.

“One has to be creative and resilient to succeed at collaborations like these” (ULBRL2).

ULBRL1 at University Blue also associates increased and enhanced understanding of challenges and context as a facilitator to intra-African collaboration. This notion is in line with those research leaders who have put a spotlight on mindset and attitude to collaboration in Africa.

“I sometimes get the feeling that that people don't always understand the challenges when you work in Africa. Africa is not as in South Africa, Africa is a very different place, and some trivial things might be difficult to do in Africa. I mean I can buy all the equipment that I need. The funder was quite surprised when I said it all this equipment is available in South Africa. However, this was not the case in Kenya” (ULBRL1).

This Research Leader believes that one must understand that research collaboration in Africa requires time and effort to deal with unique challenges, but that with a resilient and adaptive mindset, it is possible.

ULBRL2 goes on to suggest that the challenges presented when collaborating in Africa are similar to that of collaborations outside of Africa.

“Other countries I have worked in, for example, Yemen, there have been similar challenges, such as political instability and violence” (ULBRL2).

ULBRL1 adds that clear roles in the team are necessary as a facilitator for a successful cross border collaboration. In addition, this Research Leader recommends that when HICs are contributing to the team, they are cognisant of being supportive and collaborative at all phases of the research, rather than dominating.

In addition to the above comments on the perceived facilitators for intra-African academic research collaboration, ULBRL2 also offers a strategy which links the issue of heavy academic workload and funding. In their project, the funding allowed for the team members to sufficiently focus on the research. This research team leader was able to offer funding to a PhD student who took a significant amount of time off from his/her employment to focus on the research.

UPKRL1 at University of the Western Cape, uniquely refers to the NPF for Internationalisation of Higher Education in South Africa, arguing that this policy should encourage further collaboration within the continent. This Research Leader further argues that policies and strategies that are collaboratively developed between countries on the continent and governments, can assist in taking these initiatives forward for the benefit of the continent. Chasi (2021: 32) argues that the NPF fails to address issues of decolonisation in higher education.

“The DHET’s Policy framework does not appear to make a direct and obvious link between internationalisation and decolonisation of higher education in so far as the term decolonisation has not entered its vocabulary. It is neither mentioned in the draft version of 2017 nor in the final version adopted in 2020” (Chasi, 2021: 33).

However, Chasi (2021:33) also argues that issues of transformation and Africanisation have been referred to in the NPF, specifically giving expression to an Afro-centric preferential approach to the SADC region. Furthermore, a regional and continental orientation is evident as a priority focus is given to designing internationalisation activities firstly around South African interests, thereafter, observing the interest of the SADC, the rest of Africa, BRICS, the global south and emerging economies and then the world beyond (Chasi, 2021: 34). Furthermore, the NPF, specifically refers to the development of Africa through intra-African collaboration (DHET, 2020).

In addition, UPKRL1 also argues that institutional openness and readiness for intra-African academic research collaboration are key. H/She argues that this readiness can only be done through the recognition and acceptance of the diversity of the configuration of qualifications on the continent:

“The configuration of qualifications in the rest of Africa differs from the three of four-year bachelor’s degree that requires an honours level to qualify for a Master’s Programme in South Africa. In other countries, their qualifications are at an honours level when they graduate. However, in some cases, they are expected to complete an honours qualification before being accepted into a master’s programme” (UPKRL1).

UPKRL1 further argues that through the SAQA evaluation, these students are evaluated at an NQF level 7 instead of the NQF level 8, at which they stand when they graduate. These nuances should thus be considered to facilitate furthering the participation of post-graduate international students in intra-African research teams.

University Pink’s UPKRL3 believes that word of mouth and sharing of experience to entice colleagues to follow suit would increase intra-African academic collaboration at South African higher education institutions.

“I have talked to a number of young researchers who are keen to get involved, however; need some guidance” (UPKRL3).

This Research Leader advises that a mentoring programme, with a personality and culture for collaboration that is inclusive of Africa, be established to develop young researchers. S/he believes that facilitating the inclusion of younger researchers through expanding their networks and encouraging collaboration with Africa would facilitate the enhancement of intra-African collaborative academic research.

4.5 Theme 4: Funding Academic Research Collaboration on the African Continent

Related to identifying opportunities, a number of different funding sources have been highlighted through the literature as well as through the semi-structured interviews with intra-African academic research team leaders, or PIs. The following section begins

with a figure depicting the major funding sectors supporting research collaboration in Africa and then details how the collaborative work in Africa is funded.

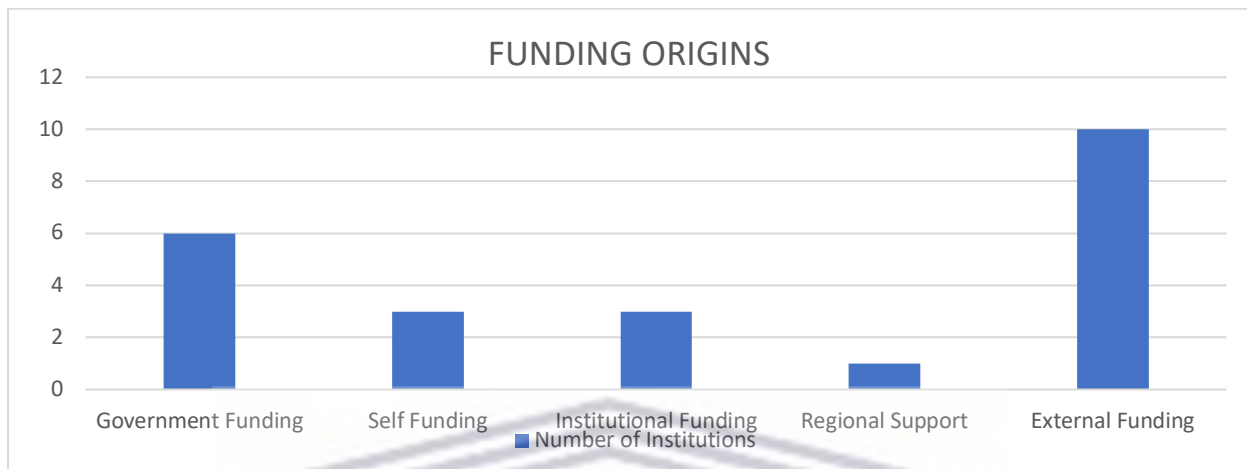


Figure 4.15: Funding for the intra-African Collaborative Academic Research Teams
Source: Researcher’s own construction (2022)

The data derived from the semi-structured interviews show that one of the projects has a combination of different types of funding. Six of the intra-African collaborative academic research projects received funding from the NRF. Out of these six projects, four are fully funded by the NRF, and two are co-funded. Of these two, one is co-funded between the NRF and the Carnegie UK Trust. Another is co-funded between the NRF and a research unit at University Grey.

Six of the projects are self-funded. In these cases, the research team leaders use their personal research funds to fund the research and the collaboration. UGYRL1 at University Grey argues that working without funding from their institution and governmental, or research organisations, makes the collaboration process easier.

“It is sad that we don’t have funding, but that’s just how research works in the South, you work mostly without funding. But it is easier, because you don’t have to stick to the protocols that the funders require” (UGYRL1).

This Research Leader also reasons that self-funding gives the team freedom to pursue protocols that work for the specific context of the research.

Five of the intra-African collaborative projects are funded by the PI’s institution, with one of the four being co-funded by one of the research units at University Grey and

the NRF. At University Blue, there is co-funding between the institution in Africa and the International Atomic Energy Agency (IAEA), located in Vienna, Austria.

Still internal to Africa, there is one project at University Red funded by the AU. At University Pink, there is a project being co-funded by the Western Indian Ocean Marine Science Association (WIOMSA) in Tanzania and the Benguela Current Commission (BCC), a multi-sectoral inter-government initiative of Angola, Namibia and South Africa. Further to these organisations or agencies, the Fisheries and Aquaculture Organisation of the United Nations and the WB contribute to this project as well. A number of projects are supported by external funders. The external funders include the following:

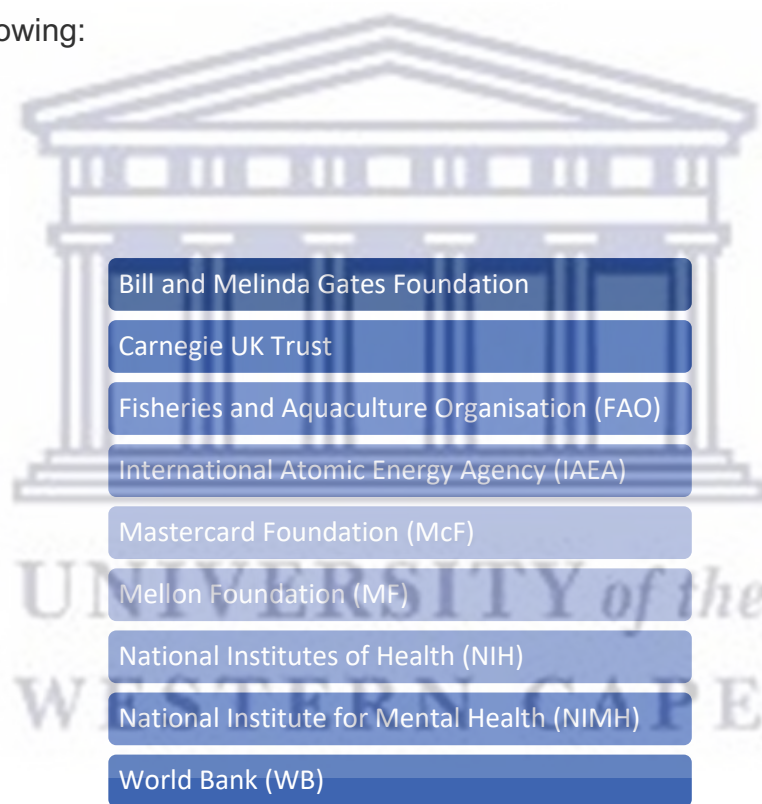


Figure 4.16: Funding Organisations Funding Research Collaboration Occurring in Africa

Source: Researcher's own construction (2022)

4.6 Theme 5: Structural Leadership of intra-African Collaborative Academic Research Teams

The following section outlines the nature of leading IRC within the African continent at an institutional level. Directors of international, or research offices, at the 11 research-intensive universities were surveyed for the purpose of understanding the structural

leadership of internationalisation and intra-African research collaboration each institution.

4.6.1 Sub Theme 1: Institutional Leadership of intra-Africa Academic Collaborative Research Teams

To understand the institutional structures that impact intra-African collaborative academic research, the next section includes charts illustrating the institutional structural leadership roles at different levels of the university including institutional management, research and international offices, academic faculties, research centres as well as individual academic researchers.

Following this illustration and narrative, the research team leaders/PI's perceptions of influencing factors on their leadership roles is discussed. These accounts are further complemented by the influence of the funding agency on the activities of leading the research and the perception of the role as the leader by research team leaders/PIs.

According to the Directors of research, or international offices, at the 11 research institutions in South Africa, institutional management including Vice-Chancellors, Deputy Vice-Chancellors, university executive Committees, the Senate, Management Committees and university Councils could be possible for the following:

4.6.1.1 The Role of University Senior Management or Leadership

The below figure aims to illustrate the role of institutional management in relation to facilitating intra-African collaborative academic research. Institutional management in this research refers to the levels of the VC, DVC, Executive Committee/Management (EXCO) of the University, or the Management Committee/Council (MANCO) as well as the University Council.

In your institution, in relation to intra-Africa academic research collaboration, the institutions' senior management (VC, DVC's, EXCO, MANCO, Council) is responsible for:

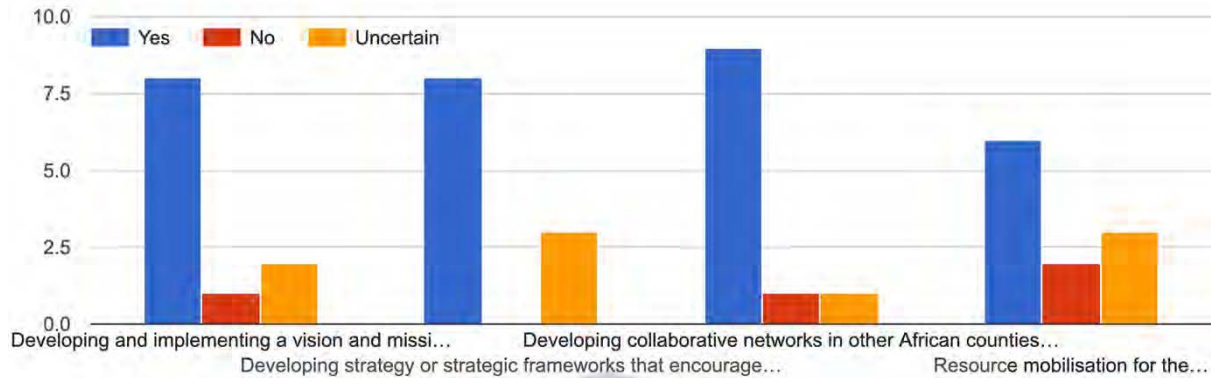


Figure 4.17: The Role of Institutional Senior Management in intra-Africa Academic Collaborative Research Teams

Source: Researcher's own construction (2022)

In developing and implementing an institutional vision and mission that enables and facilitates intra-African collaborative academic research teams, eight of the 11 respondents indicated that university management is responsible, while two indicated their university leadership is not responsible and one respondent was uncertain about this responsibility.

Eight of the respondents indicated that their institution's leadership is responsible for developing strategies, or strategic frameworks, that encourage and motivate intra-African collaborative academic research. Conversely, three of the respondents indicated that the institution's leadership is not responsible.

Nine of the respondents said that their institutional leadership is responsible for developing collaborative research networks within the continent to foster intra-African collaborative academic research, while one of the respondents indicated that this activity was not the role of the institutional leadership and another indicated uncertainty of this role at the level of the university senior management and leadership.

Six of the respondents answered that the institutional senior management structure, or leadership, is responsible for resource mobilisation and facilitating funding for intra-African collaborative academic research, while two of the respondents asserted that this activity is not the role of senior management. Three were not certain of senior management's role in funding such collaboration.

4.6.1.2 The Role of Research and International Offices

The online survey results also show the roles of international and research offices in relation to collaborative academic research within the continent. Notably, certain activities have overlap in terms of responsibility, showing a gap in communication between the two entities of an institution.

Table 4.2: Perceived Roles of International and Research Office Directors

Role	Research Office	International Office
Identifying partners within the continent to foster intra-African collaborative academic research	5	7
Connecting researchers in different African countries with similar research interests	7	6
Disseminating information about partners in different African countries for research purposes	6	9
The administration and logistics (contract negotiation, immigration, access to facilities, welcome orientation, accommodation)	7	9
Managing intra-African research collaboration administration	8	0
Facilitating intra-African collaborative academic research projects from inception to output/publishing	8	5
Facilitating proposal applications for funding for intra-African collaborative academic research	7	8
Providing capacity building or skills development for skills such as research methodology for intra-African collaborative academic research	5	0

Providing skills development for leading intra-African collaborative academic research	4	0
Resource mobilisation for the funding and budgeting of intra-African collaborative academic research	0	5

Table 4.2 outlines the roles of the research and international offices at each of the research institutions in South Africa.

At the level of the institution's Research Office, five of the respondents answered that it is their role to identify partners within the continent to foster intra-African collaborative academic research, while another five indicated that this activity is not the role of the research office in their institution and the remaining one was uncertain. It is notable that the respondent who indicated uncertainty was a representative working in an international office. Another respondent in this question related to the international office, mentions that this task is the role of the international office. The contrasting responses by employees highlights a lack of collaboration and communication between the two directorates within an institution that is responsible for internationalisation and/or research. Furthermore, two respondents who answered that identifying partners within the continent is the role of the research office, also indicated that it is the responsibility of the international office.

Seven of the respondents indicated that it is the role of the research office to connect researchers in different African countries with similar research interests while four of the respondents indicated that it is not the responsibility of the research office. The four participants who indicated that connecting researchers is not the responsibility of the research office are all representatives of the international offices at their respective universities.

Six of the respondents indicated that one of the roles of the research office regarding intra-African collaborative academic research is to disseminate information about partners within the continent for research collaboration purposes. However, nine answered that this endeavour is the role of the international office. Three respondents

indicated uncertainty. Six of the respondents indicated that it is the role of both the international office, and the research office.

Eight of the respondents assert that it is the role of the research office to manage the administrative tasks associated with intra-African collaborative academic research teams. The remaining three indicated uncertainty about which department should be managing the administration. Nine of the respondents answered that it is the role of the international office to handle the administration and logistics including contract negotiation (MOUs), immigration aspects, registration and access to institutional facilities, orientation and accommodation. Seven of the respondents indicated that the administration required at the operational level is the role of the research office, and two of the respondents selected both options.

When it comes to facilitating proposal applications for funding for intra-African collaborative academic research, seven of the respondents said that this action is the role of the research office. Eight said partner information dissemination is the responsibility of the international office, while four selected both options. In addition, one respondent said that this activity is the role of the international office but was uncertain if it is also the role of the research office.

Eight of the respondents believed that it is the responsibility of their institution's research office to facilitate intra-African collaborative academic research projects from inception to output/publishing, while five of the respondents said that this same activity is the responsibility of the international office. Four of the respondents thought that the responsibility of facilitating collaborative research projects between researchers in different African countries lies with both the international office and the research office at their respective universities.

Five of the respondents believed that the role of the research office is to provide capacity building, or skills development, for skills such as research methodology for intra-African collaborative academic research. Four respondents said that research capacity building is not the responsibility of the research office. However, none of the respondents indicated that capacity or skills development is the role of the international office. Two of the respondents indicated uncertainty about this role. In providing skills

development for leadership of collaborative research in Africa, four respondents indicated that this capacity building is the role of the research office. Five of the respondents said that the international office is responsible for mobilising resources for funding and budgeting for intra-Africa academic collaborative research.

4.6.1.3 The Role of Research Centres

The figure below illustrates the responsibilities of academic research centres in relation to academic collaborative research within the continent.

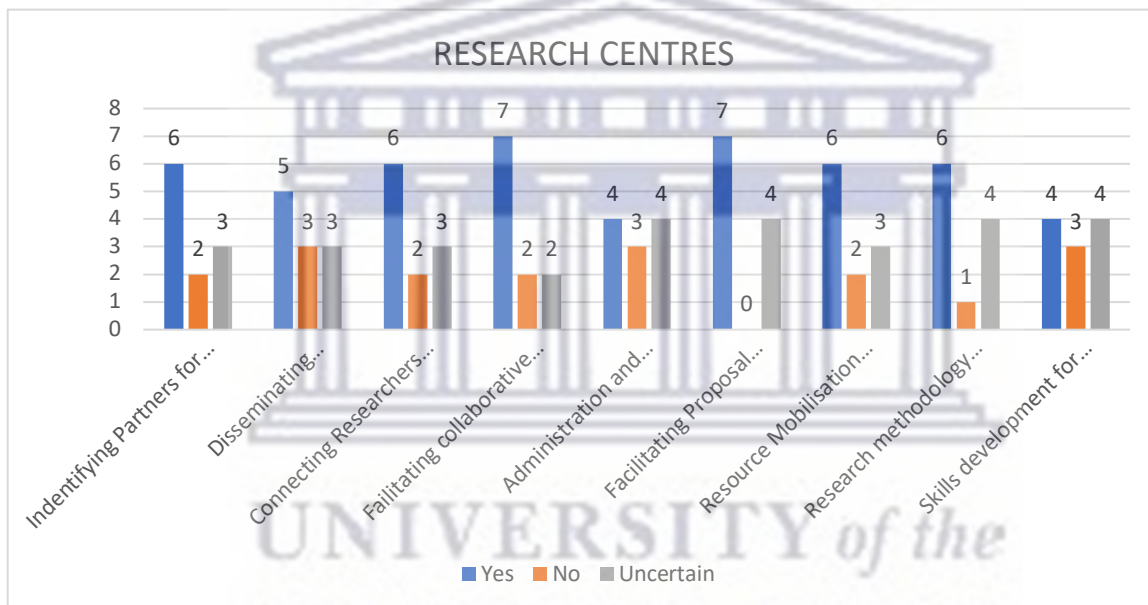


Figure 4.18: The Role of Research Centres in intra-African Collaborative Academic Research Teams

Source: Researcher's own construction (2022)

At the 11 research intensive universities in South Africa, the directors of research or international offices were also asked to comment on the responsibilities and roles of the institutional research centres. In relation to identifying partners in other African countries for academic research collaboration, six of the respondents indicated that identifying partners in Africa is the responsibility of the research centres at their institution, while two of the respondents posited that it is not the responsibility of the research centres. Three respondents were uncertain.

Six of the respondents believed that it is the role of the research centre to connect the research partners in different African countries for the purpose of research collaboration within the continent. Two believed it is not the research centre's role and three were uncertain. One of the respondents who answered negatively believed that connecting research partners in Africa is the role of the international office, while another was uncertain of where the responsibility lies within their institution.

Regarding disseminating information about partnering opportunities within the African continent for research collaboration, five respondents said this is the role of the research centres. A further five respondents indicated that disseminating partner information is not the role of the research centre, and three respondents were uncertain. Three of the respondents who answered negatively to this question, also indicated that it is the responsibility of the international office.

The majority of the respondents felt that it is the role of the institution's research centres to facilitate the collaborative research projects from inception to output/publishing, with seven responding affirmatively to this question. Two respondents indicated that facilitating the project throughout the life-cycle is not the responsibility of the research centres. The remaining two were uncertain. One of the respondents who answered negatively to this question, indicated that the facilitation is rather the role of the international office. The other respondent who answered negatively to this question, also chose the 'no' option when asked if it is the role of the international office and the research offices. One of the respondents who indicated uncertainty, said that facilitating the collaborative projects throughout the life-cycle is the role of the research office in their institution.

Regarding the role related to administration and logistics of intra-African collaborative academic research, four of the respondents said this is the role of the research centres. A further four were uncertain of whether the role lies with the research centre and three said no. The three respondents who answered negatively to this question indicated that the role lies with the international office at their institution. Furthermore, two of the respondents who were uncertain about the responsibility of the research centres, also indicated that the role is with the international office.

The majority of the respondents (seven) answered that facilitating funding proposal applications for intra-African collaborative research projects is the role of research centres, while four were uncertain as to where the responsibility lies within the institution. Of the four who answered that they were uncertain, three indicated that the role lies with the international office, and one said it is the role of the research office.

Six of the respondents said that it is the role of the research centres to mobilise resources for funding and budgeting for intra-African research collaboration. The two who indicated that this role is not is not with the research centres, said that the responsibility lies with the international offices at their institutions. Of the three who were uncertain, two indicated the role is located at the institution's senior management.

In providing research methodology capacity building in the context of Africa, six of the participants indicated that the research centres are responsible for this at their respective institutions. Out of the four respondents who were uncertain if this role lies with the research centres, one said the role is the research office's. The other three were uncertain as to where the responsibility lies within their institution. The one respondent who answered negatively, also answered negatively to the question related to the research office. Furthermore, in providing skills development for leading collaborative research teams between researchers, located in different African countries, four of the respondents answered that this is the role of the research centres. Of the three respondents who answered negatively, one indicated the role is that of the research office. Four respondents answered that they were uncertain and could not indicate where this role lies in their institution.

The following section outlines the responses from research and international office directors regarding the role of the faculties in leading intra-African collaborative academic research.

4.6.1.4 The Role of Faculties

To further understand the study's topic of intra-African research collaboration, the online survey showed results in terms of the role of academic faculties within the higher education institutions for the promotion of intra-African collaborative academic

research in Africa. The role of academic faculties as reported by research and international office directors is illustrated in figure 4.19 below.

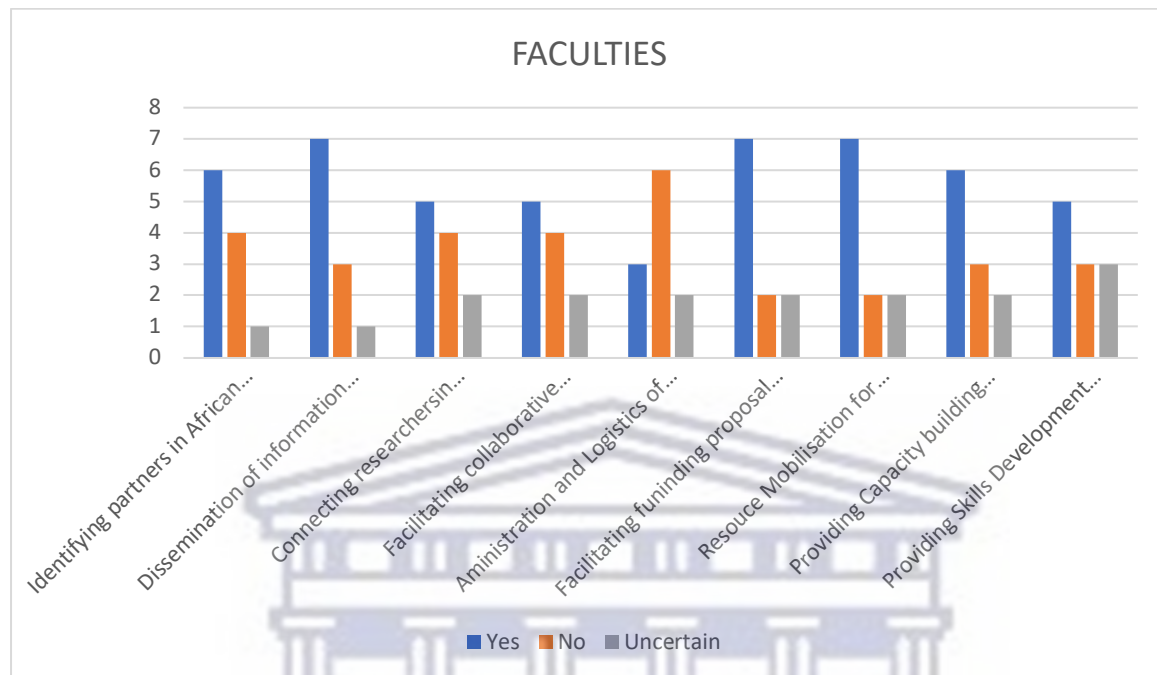


Figure 4.19: The Role of Faculties in intra-African Collaborative Academic Research Teams
 Source: researcher’s own construction (2022)

Six of the respondents answered that when it comes to identifying institutional partners across the continent for the purpose of cross border collaborative research between researchers in South Africa and researchers in other countries in Africa, the role lies with the institutional faculties. However, two of the respondents responded that instead of the faculties, the role lies with the international office, and one indicated that the role lies between the research office, the international office and research centres. Another respondent did not indicate where which department has the responsibility to identify partners. The remaining respondent who indicated uncertainty also suggested that the role should be addressed between the research office and research centres.

In terms of disseminating information on opportunities to partner with researchers across the continent in cross border research collaboration, most of the respondents (seven) noted that the responsibility is associated with the faculties in their institution. Of those who answered negatively to this question, two asserted that the role should

be assumed by the international office, and one said the responsibility lies with the research office. The remaining participant who was uncertain also suggested that this activity should be addressed by the research office.

In connecting researchers between South Africa and other countries across the African continent, five said that the faculties bear this responsibility. Four answered negatively to this question. Of these, two also suggested that connecting South African researchers to researchers across the continent should be transposed to the international office. A further respondent indicated that this role should be shared between the research office and the research centres, and the remaining respondent did not indicate where this activity happens, or should happen, in their institution. The two participants who indicated uncertainty to this question also said that connecting researchers should be handled between the research office and the international office and the research office and research centres respectively.

In facilitating research projects from inception to output / publishing, five of the respondents said that this is done by the faculties. Out of the four who answered negatively, one said that the role should be shared between the research office, the international office and research centres. Another said this facilitation is the responsibility of the international office and the third said the research office should facilitate the research projects. The final respondent of the four did not indicate which departmental offices should facilitate the research projects. The two respondents who were uncertain of the faculty's role said the research office, international office and research centres should be responsible. The remaining participant said that the role should be between the research office and research centres.

In dealing with the administration and logistics of research collaboration between South African researchers and researchers in other African countries, including processing of MOUs and agreements, facilitating and assisting with visa applications and assisting with transport and accommodation, three respondents said this is the responsibility of the faculties. Six respondents said that administration does not lie with the faculties. Two of the six agreed this facilitation should be handled by the international office. Another said that the research office should work on administration and logistics. A fourth respondent said the international office should work on administration, but it should be managed by the research office. Two of the six

respondents who responded negatively to this question, also indicated that the administration and logistics should be managed by the research office with the international office, research office and research centres working together on this aspect. A further two respondents recorded uncertainty in relation to whether administration and logistics is linked to the faculties. One said the administration should be managed by the research office with the research office and the international office working together on the administration and logistics. The remaining participant said the research office should coordinate the international office, research office and research centres in the administration and logistics of the cross-border research collaboration between South Africa and other African countries.

In facilitating proposal applications for funding of intra-African collaborative academic research, seven of the respondents said the role belongs to the faculties in their institutions. Two indicated facilitating proposals should be handled by the international office and the research office respectively. A further two selected 'uncertain' as their answer. One linked the responsibility to the research office and research centres together, with the remaining participant identifying the international office and research centres as responsible for the facilitation of proposals for funding.

Seven of the participants affirmed the role of the faculties in mobilising resources for funding and budgeting of intra-African academic research collaboration. Two indicated this activity is not the responsibility of the faculties, with one identifying the international office as being responsible and the other did not select a department for this role. The remaining two indicated uncertainty, with one suggesting the international office should be responsible and the remaining participant was unable to link a department to this responsibility.

Six of the participants said that the faculties are responsible for ensuring capacity building for research methodology within the African context. Three indicated that this capacity building is not the responsibility of the faculties, with one of the three selecting the research centres as responsible for this. Two of the three did not select any other department for this role. A further two communicated uncertainty in relation to the responsibility for research methodology capacity building, with one indicating that

the role should be between the research office and research centres and another did not indicate which department should be responsible.

In developing skills in leading multi-national teams within the context of Africa, five of the respondents associated the role with the faculties in their institutions. Three said this aspect is not the role of the faculties, while one suggested it should be the role of the research office and two of the three did not identify a department as being responsible. The remaining three expressed uncertainty in relation to leadership skills development for multi-national research collaboration in Africa. However, one of the three said this is the responsibility of the research office and research centres. Two of the three did not selected a department which should be responsible for leadership skills development.

4.6.1.5 The Role of Individual Researchers and Academic Staff

The following section outlines the role of individual academics and researchers at the 11 research-intensive universities in South Africa according to the directors of research, or international offices. Figure 4.20 below details the role of individual researchers, or academics, when it comes to intra-African collaborative academic research teams.

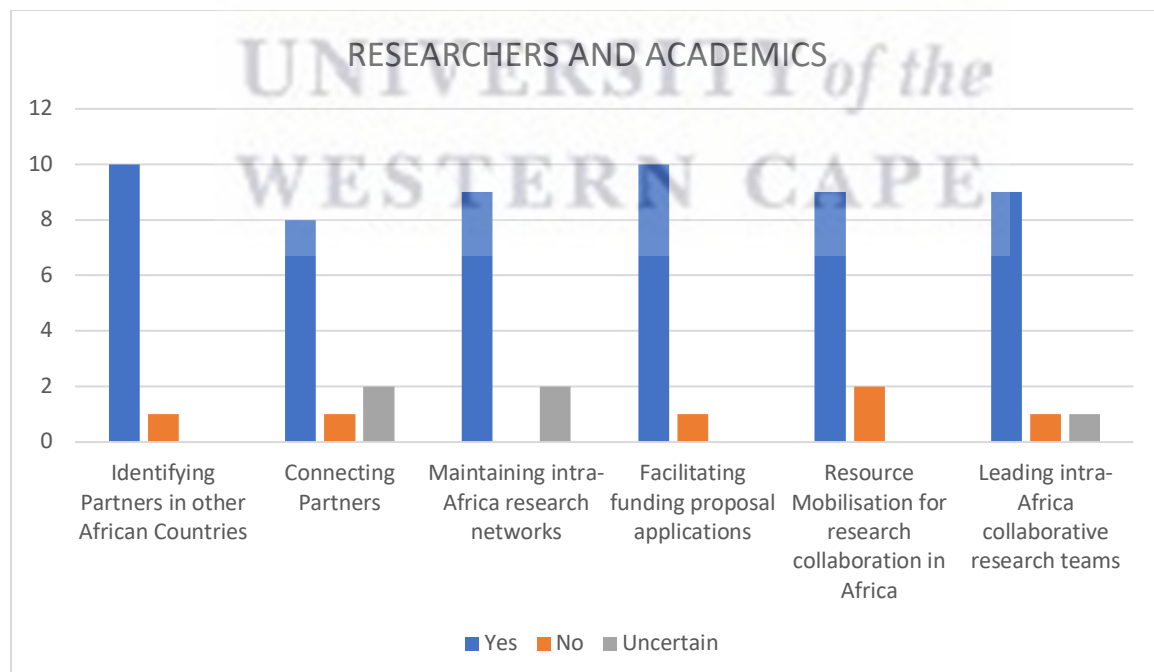


Figure 4.20: The Role of Individual Researchers and Academic in intra-Africa Academic Collaborative Research Teams
Source: Researcher's own construction (2022)

In terms of identifying partners to collaborate with in other African countries, 10 of the participants answered that this is the role of individual researchers, or academics. The respondent who responded negatively on this aspect of cross-border research within the continent said that identifying partners should be the responsibility of the faculty and the international office together. Eight respondents indicated that the role of connecting researchers between South Africa and other African countries, lies with the individual researchers or academics. However, one of these eight respondents said that this role should also be addressed by the research office and research centres. Two who were uncertain if the role should lie with academics, said it should be handled by the research office and the international office.

In maintaining networks in Africa for the purpose of facilitating cross border research collaboration within the continent, nine of the respondents said that this was the responsibility of the individual researchers and academics. The two who were uncertain did not indicate where the responsibility should lie.

Six of the respondents said that the role of administration of intra-African collaborative academic research including processing of MOUs and agreements, facilitating and assisting with visa applications and assisting with transport and accommodation is associated with the individual researchers and academics. One of the respondents who selected 'no' for question, indicated that the role should lie with the research office. Another said this activity should lie with the international office and the research office and the third said the role should lie with the research office. The fourth respondent did not indicate where the responsibility should lie. The one respondent who selected 'uncertain' when answering this question said the activity should be handled by the international office and the research office.

In facilitating funding proposal applications for research in Africa that would allow for collaboration between different countries in Africa, the majority of the respondents (10) said that individual researchers and academics should address this. The one

respondent who answered negatively to this question, selected the international office as the department which should handle the responsibility.

In terms of mobilising resources and budgeting for cross border research collaboration in Africa, nine of the respondents said that this should be done by the individual researchers and academics, while another said this should be addressed between the faculty, research centre and international office. The remaining respondent said this finance aspect should be handled by the international office.

In terms of providing leadership for intra-African academic research collaboration, nine of the respondents said that this should be the role of the academics or researchers. The remaining two selected 'no' and 'uncertain' for this question. From these data sets, I have deduced that the structural leadership of intra-African academic collaborative research at the level of South African research-intensive universities is unique and complex at each institution.

4.6.2 Sub Theme: Influences on the Perception of the Leader Role

There are a number of institutional, national, regional and global structural factors that have influenced the research leaders in their leadership of intra-African collaborative academic research. The research leaders interviewed as part of this study commented on the structures at an institutional level, governmental and geopolitical level which influence how they perceive their role and how this translates into leading activities, styles and methods.

At University Green, UGNRL1 discusses the motivation to successfully complete an international collaborative research project. Institutional strategies that promote publication in internationally accredited journals was said to have been important to all partners involved in the research collaboration. Further to this issue, this Research Leader speaks of the impact of international collaboration on the inclusion of articles in internationally accredited journals, saying that this method increases the chances of inclusion.

“To a large extent, this collaboration has been defined in terms of deliverables in the form of journal articles that we aim to achieve” (UGNRL1).

UGNRL1 also attributes this motivation to the faculty's strategy that aims to create an environment in which academics must be internationally competitive.

"In this way, it has become part of our DNA" (UGNRL1).

Institutional strategies at University Green and policies that deal with internationalisation of research do not seem to have made an impact on, or influenced, the ways in which the intra-African collaborative research team is led. However, this phenomena is attributed to researchers and academic staff not necessarily being aware of reading the policies or procedure guidelines at an institutional level. UGNRL1 argues that if an institution is enabling in terms of its environment, there is trust that the activities are in line with these strategies, procedures and guidelines. Furthermore, this Research Leader, speaking in the context of University Green, argues that academic staff and researchers are able to trust the strategies and policy frameworks of the university, when aspects that pertain specifically to certain departments are communicated effectively by the institutional custodians of these documents.

UGNRL1 further discusses leading IRC in Africa and the influence of national legislation in each of the participating countries. With the research situated in the field of Engineering, policies, procedure guidelines and legislation that deal with safety issues have to be considered by the research leader. Notably, the research leader argues that occupational health and safety regulations and legislation within the South African context has to be considered. In addition, the similar policies, guidelines and legislation had to be considered by the Co-PI team members in the partner country. This Research Leader notes that in both countries, legislation, policies and procedure guidelines that were considered, did not have any limiting impact on the research, or the collaboration.

"I don't think there is any legislation in the world that makes it difficult for people to do research on renewable energy. We work in quite an enabling environment. However, it will always have to be subject to safety regulations" (UGNRL1).

The UN SDG's as an influencing instrument was mentioned specifically by seven of the research leaders interviewed as part of this study, while three have made reference to the Africa Agenda, 2063. The rest answered that they did not consult, or consider, regional or global political or developmental instruments. However, when

asked the question, research leaders were motivated to consider the ways in which the research themes and the nature of the collaboration may be contributing to addressing the UN SDGs at a regional and global level.

The interview with UGNRL1 shows that no regional, or global instruments that address political or developmental agendas such as the UN SDGs or the AU Agenda 2063, have been considered in the decision-making processes and leadership of this research, or the collaboration.

“I am aware of the SDGs and I have attended many conferences that address the topic that has assisted me in identifying goals that my field of research contributes to such as water and energy. What I have not succeeded in is addressing the SDGs in the research proposal” (UGNRL1).

However, the research leader notes that the collaboration with the Co-PI aimed to define the project within the phenomenon of globalisation by addressing the global challenge of renewable energy as well as Africanisation in that the objective is to ensure that the unique African context is understood within the global fields of interest.

At University Brown, UBNRL1 describes the research ethics application processes at the two participating institutions as factors of influence on the research, research collaboration and the leadership thereof. Furthermore, the research leader indicates that the research required additional approval from executive management of the partner institution for the release of the funding for the collaborative research project. The research leader stipulates that the policies and guidelines between the funder and the partner institution impacted the collaboration.

“The funder required a letter of support from the VC of my partners institution. For the VC to send the letter of support and the letter of invitation from the invitation, they needed confirmation that the funding application has been approved and the funds will be awarded. The funder also requested a letter from my own institution, approving travelling to my partners institution to conduct the research” (UBNRL1).

The research leader also commented that the partner institution’s procedures to receive the letter of support from their VC encompassed complicated protocol that included approval at different levels of the institution, including the the dean of the faculty of their research partner.

Similar to UGNRL1, UBNRL1 at University Brown also speaks of the institution's objective to become a globally competitive research-intensive university. The inclusion in internationally recognised journals is influenced by IRC and this is cited as one of the motivators for the collaboration along with the funding for the project.

Even though there has been an institutional influence to collaborate internationally, this Research Leader has also been influenced by the phenomenon of Africanisation, arguing that their personal goal is to explore the continent and add the knowledge from the continent into global knowledge generation.

"We are so used to comparing ourselves to case studies from America, but we should also be highlighting successes on the African continent as well" (UBNRL1).

UBNRL2 mentions the South African Department of Science and Innovation's (DSI) 10-year plan that outlines the focus areas for the department for the next ten years. This Research Leader indicates that the DSI 10-year plan would inform the research group's research themes, as the DSI provides the NRF funding that is required for the research to occur.

"The DSI has decreased funding, meaning that the NRF has decreased support for research. It is imperative in order to receive funding through proposals that the research is aligned to the DSI objectives" (UBNRL2).

Apart from the DSI 10-year strategy, this Research Leader also comments on ARUA policies in relation to policies from UK funding agencies which specify the requirement to work with partners in the UK. However, having been awarded an ARUA centre of excellence, the expectation by the leader is that there would be engagement across ARUA centres at different universities in Africa. The research leader also mentions that these requirements have changed from time to time with ARUA also encouraging engagement with any universities on the continent.

Furthermore, UBNRL2 argues that the difference in policy messaging causes confusion about what is actually permitted by the funder and ARUA. As a result, universities approach this Research Leaders ARUA centre of excellence for funding.

This Research Leader further discusses these requirements as factors of influence on leading the research teams, as the requirements for the inclusion of universities in research collaboration is impacted.

The only institutional structural factors of influence, or impact, on the leadership of the research is admissions requirements for the inclusion of post-graduate students into the research team. UBNRL2 indicates they had to be aware of the requirements before recruiting students to contribute to the research and the research team. In addition, this Research Leader explains how the research themes were set through workshopping the SDGs and Africa Agenda 2063 goals with prospective team members before the deadline for the call for research proposals. The reason cited here is the need for research to further develop Africa and the guidelines being consulted to ensure targets are being addressed.

URRL1 at University Red describes their collaborative research project as focusing on legislation of cultural customs. S/he therefore indicates that a range of laws related to cultural customs across the continent are consulted for the research. However, these are specific to the research itself and do not necessarily impact the way in which the research is conducted, or how the collaboration processes occur. The research leader acknowledges becoming aware of the NPF, however; notes that there are no specific guidelines on IRC in the NPF.

URRL1 also comments that the institutional policies which deal with international collaboration were not consulted for this project. However, The Africa Agenda 2063, was considered in terms of how the research findings feed into the legal integration measures being pursued by the AU. The SDGs were also referred to, with this Research Leader adding that “*passing references have been made to the SDGs to portray a particular argument*” (URRL1). However, URRL1 argues that the team was not inspired by the SDGs further than referring to them in the research reports and articles in order to show how the research is contributing to the objectives.

In addition, Africanisation and Globalisation have influenced this research leader’s decision-making while leading the intra-African collaborative academic research team. This Research Leader argues that the research topic focusing on customary law will contribute to the elevation of indigenous knowledge in the field of law from Africa to

the global space; thereby increasing the consideration of laws and the practice of traditional and cultural customs. However, this Research Leader adds that these concepts are fluid in contemporary society, arguing that:

“...behavioural spaces, physical or virtual, cut across urban, semi-urban and rural areas as well as time, space and generations. Digitalisation and the power of technology has closed the gap between the local and the global. And so, globalization affects the conceptual framework of our research in that we are saying look indigenous values are no longer what they used to be precisely because of globalization and so we must stop drawing an artificial line between the so-called official customary law and this so called living customary law. These things are meaningless, why just because of globalization, so it has blurred the line between the formal and the informal, the rural and the international at the local and the urban” (URRL1).

URRL3 notes the influence of POPIA when discussing any legislation or policy frameworks that impact the decision-making processes of leading their multi-national African research team.

“POPIA and any data protection policies would be important in research and collaboration in terms of data collection from people. Not only in South Africa, but the other countries our collaborators are operating within” (URRL3).

This Research Leader indicates that institutional policies dealing with IRC were not considered when developing and leading the project. However, upon being asked the question, s/he acknowledged that these policies should be considered at each of the participating institutions.

Furthermore, URRL3 notes phenomena such as Decolonisation, Africanisation and Globalisation as having an influence on the conceptualisation of the research and the nature of the collaboration in terms of the decision to collaborate in Africa.

“It is important to build an authentic African scientific identity with a strong presence on the global stage” (URRL3).

The SDGs and Africa Agenda 2063 have also been mentioned as critically important when conducting such research. URRL3 said the team had to be aware of the bigger

picture and what the outcomes and impact of the research will be within the continent and the societies in which they operate. However, the research leader notes that when considering the SDGs in alignment with the Africa Agenda 2063 and the South African NDP, the goals of each plan can be contradicted.

“So, you can't for example, guarantee say infinite supplies of portable water for everyone while preserving water resources because preserving water resources requires using less water but how do you use less water if you want to give water to more people? So, there's interesting tensions between these different goals” (URRL3).

The research leader further comments that one of the goals of this collaboration is to try and bring scientific thinking to these goals that will result in the ability to understand the different tensions:

“For example, it is important for young scientists to realise that when they're pursuing the goal of green energy and want to manufacture solar panels, one must consider the energy equation between the use of solar panel and if the manufacturing of the solar panels of solar panel costs more energy than the solar panel can provide in its lifetime before it's not workable anymore. In addition to the scientific question that is posed, the ecological question of whether this is environmentally friendly must be considered. So, the ability to think along all the development axis and the development priorities that are set with an understanding of what it means in the bigger picture I think is something that is very much at the heart of what we do” (URRL3).

URRL4 aligns the research topic with the outcomes-based education policies of the South African Department of Basic Education.

“The policy prescribes life skills on sexuality training and substance abuse which requires skills training for teachers. With the understanding in South Africa being that all teachers require this training, we are aiming to expand this into Africa” (URRL4).

This Research Leader argues that their partner institution in Zambia was also influenced by similar regulatory frameworks calling for the inclusion of similar aspects in the high school curriculum.

“Both institutions were driven by governmental level strategies for basic education for curriculum and youth development” (URRL4).

In terms of institutional strategic or policy influence on the research, URRL4 is unsure. However, s/he notes the institutional operating plan (IOP) that calls for Africanisation with the term being *“understood to as part of internationalisation while working collaboratively with other African countries. So, it was because of that that I took up this project to fulfil IOP” (URRL4).*

This Research Leader also comments that being in an institution that is located in Africa, there is an opportunity to assist other countries on the continent. Further to this asserion, URRL4 argues that the IOP’s influence on institutional culture has resulted in large scale enthusiasm for IRC in Africa.

“From the top down, there is eagerness for this type of collaboration at a research level and a curriculum development level” (URRL4).

URRL4 mentions that the project began before the launch of the SDGs; however, also notes that the preceding MDGs guided the development of the project and as the project evolved through the years. The SDGs have also been consulted when understanding the output and impact of the research. Furthermore, recommendations by the WHO for health education have also been considered. However, URRL4 further notes that they are unaware of the AU Agenda 2063.

UGYRL1 at University Grey selects ethics protocols as institutional research policies that affect the research and research collaboration.

“Ethics protocols are a nightmare when working across institutions, as it is more complicated when application processes are unique to each institution” (UGYRL1).

Because the institution does not provide any funding for the research or the collaboration, UGYRL1 believes there is less institutional influence over the decision-making processes involved in the research project. This conclusion is the case for one of the collaborating institutions as well, where the collaborator has chosen not to record the project with the relevant policy owner directorates in order to avoid the bureaucratic processes of the institution that are related to IRC.

This Research Leader nevertheless acknowledges that supportive institutional leadership is necessary for the success of collaborative research projects.

“I suggest due consideration be given to this matter. Perhaps at least within the SADC region, developing a transnational protocol for research in Africa that includes guidelines that will enable success” (UGYRL1).

Global and regional instruments such as the SDGs and the Africa Agenda 2063 were not consulted for the development of this project and had no influence on UGYRL1. However, the leader notes that their institution has referred to these policies in institutional strategies. UGYRL1 indicates awareness of the SADC protocol in terms of regulatory frameworks for international cooperation on the continent; however, s/he also notes that this instrument does not guide IRC.

UGYRL1 attributes institutional subscription to neoliberal philosophies for the lack of institutional support for IRC.

“If you work with other people, the researcher and the university does not get as much money as when researchers work alone. It is about money, the new liberalism that is against the collectivism, which is actually what being African means. That mania in terms of income generation cripples’ collaboration, disabling quality research while viewing students as a source of income” (UGYRL1).

This Research Leader is rather motivated by being aligned to developing African research and African scholarship.

Africanisation is understood by UGYRL1 within the higher education sphere as a phenomenon advancing African scholarship.

“My understanding and experience is that within the rest of Africa there is a lack of critical thinking about what African research means. We in Africa are comfortable to just take what the West develops. What about post-colonial methodology or post-qualitative enquiry? An emergence of awareness of critical enquiry that is contextual to the continent is necessary” (UGYRL1).

UGYRL2 says that they are not aware of any clear guidelines, or policy, enabling the objectives of the intra-African collaborative research projects at an institutional level.

However, this Research Leader argues that University Grey promotes internationalisation of the academic project and through promotion, aims to create an international collaborative environment. Within the promotion of international engagement, UGYRL2 indicates that the institution actively promotes collaboration within the continent.

UGYRL2 further asserts that they are not aware of any regulatory documents at a national level which govern research collaboration. However, s/he notes that as the leader, s/he has had to be aware of international agreements of which South Africa is a signatory. Here the research leader names agreements such as the AU Agenda 2063, regulating patents and legislation related to the rights of indigenous people.

“These regulatory frameworks should not be flouted; they should be viewed as international norms that influence the way we work” (UGYRL).

An additional global strategy that was named by UGYRL2 is the Responsible Research and Innovation Network Globally (RRING). An EU initiative, the RRING is a coalition initiated in 2018 with activism at its core. The coalition seeks to make research and innovation systems everywhere more responsible, inclusive, efficient and responsive as an integral part of society and the economy (Rring.eu, 2022). This Research Leader who is a member of the coalition, argues that the network has been shaping their thoughts on their collaboration.

Furthermore, the phenomenon of globalisation has influenced UGYRL2’s project in their vision and strategy.

“While we live in the same global village, not everyone is the village head. Globalisation contributed to the exploitation and marginalisation of Africa. Resources in the global village are not equally shared, but they tend to gravitate toward the centre. Unfortunately, Africa is not at the centre, but the periphery” (UGYRL2).

This Research Leader also comments on the relationship between globalisation and Africanisation, arguing that international collaboration must reflect the pan-African principles of elevating the collective African voice to the global stage.

“While I work in projects that involve all and sundry, my place is in Africa, and what I do must benefit Africa. This is my worldview” (UGYRL2).

Similar to most of the other research leaders, UGYRL3 also highlights the research ethics protocols as institutional regulatory structures. The protocols are not only relevant for the PI’s institution, but also for the Co-PIs and collaborators. This Research Leader also indicates an awareness of University Grey’s policy guidelines developed by the institution’s research office, which prescribes ways in which any type of research collaboration should happen along with the ways in which these should be reported on. In addition, the institution’s international office is said to be supportive of IRC.

In terms of regulatory structures, or policies, that determine research collaboration, UGYRL3 says that the institution does not enforce any such policy or strategy. This Research Leader further argues that both the research and international offices at University Grey have offered support for the intra-African collaborative academic research projects they have been involved in. The offices have supported these collaborations through hosting workshops to facilitate navigating policies and strategies.

The WHO policies and regulatory frameworks on health science research have been consulted by UGYRL3 and the Co-PIs in order to understand ethical guidelines.

“The WHO defines some of the viruses of medical importance and provide ethical guidelines on how to research these” (UGYRL3).

Similar to UGYRL1, this Research Leader also believes in facilitation of intra-continental collaboration for the purpose of strengthening African research and scholarship.

“A regional structural arrangements that enables institutional engagement that assist with navigating the management of administration and finance as well as to navigate the different contextual challenges in each of the collaborating countries is necessary” (UGYRL3).

ULBRL1 at University Light Blue also cites research ethics protocols as institutional regulatory activities that have impacted the research and the collaboration. The participating institutions have had to consider these guidelines in order to conduct the research. This Research Leader also notes that the process of receiving ethics clearance is a complex process in the context of collaboration due to the different set of parameters at each of the participating institutions. The differing protocols have impacted the timeline of the research project. This issue is at the level of the research team members as well as the post-graduate students at each institution. The research leader further specifies the necessity of following internationally standardised ethics protocols.

In addition to research ethics protocols at an institutional level, ULBRL1 has also had to consult legislation at a national level, such as the South African Mental Health Act of 2002, to ensure good clinical practice when conducting research during randomised control trials. In addition, this Act also guides the ethical features of the research project from a national standpoint.

Furthermore, the NIMH, an external funder from the USA, provided training for the intra-Africa collaborative research team, which included procedures for the randomised control trials and ethics in human participation in mental health research. ULBRL1 adds that the funder had a number of regulatory and oversight mechanisms aligned to USA legislation and policy on mental health research, which the team had to be aware of. This regulation included oversight of the ethics applications at each of the participating institutions. As a result, there are rigorous reporting methods that had to be implemented in each of the participating institutions and countries as well.

This collaborative research project is also in line with the strategic objectives of University Light Blue, which aims to establish the institution as a leading mental health research centre.

“Through the previous and current project, we were able to really consolidate our Master’s programme with fellowships benefiting a number of students from different African countries. We were also able to firmly establish our institution as leading in mental health research on the African continent” (ULBRL1).

This Research Leader also explains that the SDGs have been considered in terms of how these relate to mental health. S/he indicates that the SDGs were referred to in the funding application in terms of the motivation and rationale for the research and explaining the impact and outcomes of the research and how they contribute to the broader human development targets outlined in the SDGs. Similar to URRL4, ULBRL1 says that their previous projects also took the MDGs into account.

This research has also been considered within the frameworks of globalisation, Africanisation and decolonisation, with the leader arguing that the project contributes to global mental health research and incorporates the broad African perspective into global developments:

“There is a lot of debate within the field about exporting western hegemony and its dominance over African culture and African needs. Following the Black Lives Matter (BLM) movement, the question of how mental health research is led on the continent has become prevalent, pushing us to publish on how insidious race is in assumptions about who gets to define the research agenda, who leads on research papers, and who leads on research grants that deal with mental health in Africa” (ULBRL1).

Similar to URRL1, UBNRL2 at University Brown and UGYRL1, ULBRL1 argues the importance of building African research collaborations to enhance the emerging voices from the continent and increase the leadership of this research within the continent.

ULBRL2 also emphasises the driving force of research ethics in the leadership of their project. Moreover, this Research Leader identifies as an academic ethicist; additionally the collaborative research project in question focuses on health science research ethics. In this project, ethics is viewed through the lens of epistemic justice, inclusivity, and equity in terms of research participants and respondents in health science research.

“Literature around decolonial, southern and epistemic justice theory has massively influenced my thinking and decision-making on research projects, how and where to collaborate” (ULBRL2).

ULBRL2 cites the issue of science equity, health justice and global governance thereof as driving phenomena behind the research project’s topic and collaboration.

Similar to UGYRL1, URRL1, UBNRL2 and ULBRL1, ULBRL2 has specifically mentioned the need to advance African research through the development of early career researchers from a post-graduate level. However, ULBRL2 emphasises the necessity of incorporating the lens of equity and epistemic justice into the morale of research and research collaboration as part of this development.

“Our research focuses on African Genomics and our students apply literature on global health equity in terms of governance. If we are serious about equity and justice, what are the governance principles of this work” (ULBRL2).

This Research Leader mentions the strong institutional structural policy frameworks that support the research and the administration thereof. Spotlighting the legal and financial departments at University Light Blue, ULBRL2 says that the establishment of agreements and the administration of the research funding between the collaborating institutions has facilitated the research.

“Having a legal department to develop the contracts and manage any challenges that arise as well as a financial department that monitors the finances and prepares the financial reports for the funder is massively important. Managing the budget for financial accountability is not something I have the capacity for. The institutional accountability systems that we have in place has enabled the collaboration” (ULBRL2).

In terms of global policies, or instruments, that have influenced the research leader's leadership of the team, the Council on Health Research for Development's (COHRED) Research Fairness Index (RFI) has been cited as influential in leading this specific team. At an institutional level, this policy has been contextually formatted as an institutional policy to guide research collaboration at University Light Blue.

“The RFI's emphasis on research fairness is something that is inward looking and is important. The RFI brings into focus the idea of your own responsibilities towards those who are less well-off and the responsibilities of those in the core towards those in the periphery” (ULBRL2).

UBRL1 at University Blue says that they are not aware of any national regulating policies, or frameworks, that influence their research collaboration. However, s/he

notes the immigration regulations of the participating countries that had to be considered when purchasing resources and equipment necessary for the research.

“As a nuclear physicist and you buy equipment you have to declare what it will be used for – like you are not going to build a bomb or something” (UBRL1).

Because of the nature of the research, UBRL1 mentions that ethical clearance was not required. Furthermore, at an institutional level, this Research Leader notes an institutional internationalisation policy, but indicates that this policy has not had any influence over the research, or the collaboration. UBRL1 connects this issue to the challenge of administrative bureaucracy.

“Sometimes, it is better to avoid these policies, because the bureaucratic administration that it brings complicates our processes. As an academic, you try to avoid this as far as possible so you can just focus on the actual research” (UBRL1).

The research leader further explains that the support structures should look at their processes that are prescriptive and limiting and ensure that these are rather supportive instead.

In terms of regulatory instruments, UBRL1 mentions that their research aims to cover institutional objectives that target the SDGs. However, it is noted that these were mentioned in the research grant proposal in order to ensure the understanding of the impact of this research, but these objectives have no bearing on the decision-making tasks of the research. This Research Leader also indicates that s/he perceives the roles of university management and the international and research offices, are to ensure the institutional objectives related to IRC are cascaded throughout the institution.

UBRL2 highlights being driven by the philosophy of Ubuntu.

“The rationale to collaborate in Africa is really aligned to the African principles of Ubuntu and the health of the collective” (UBRL2).

Similar to the research leaders at University Brown, Grey, Red and Light Blue, the aim here is to enhance African scholarship and advance the academic voice of the continent within the field of disability research.

UPRL1 at University Purple argues that there are no regulatory documents at an institutional, national, regional or global level that have enabled clear achievement of the research projects goals and objectives. This Research Leader further elaborates by saying that at an institutional level, the managerial culture at their institution has deterred them from taking on any research team leadership role.

“If it were possible to fulfil a leadership role in a context where I will enjoy academic freedom and autonomy, I would gladly take on such a role” (UPRL1).

UPRL1 further argues that the requirements associated with research ethics are extremely discouraging and demotivating due to their time consumption and the violation of professional autonomy.

At a national level, UPRL1 cites strenuous visa requirements in the participating countries such as Nigeria and Angola as factors determining the amount of research collaboration for the leader. At a regional or global level, this Research Leader argues that acknowledgement, or engagement, with instruments such as the SDGs or AU Agenda 2063, does not improve opportunities for collaboration, as there is still a lack of financial support.

However, UPRL1 does indicate that phenomena such as globalisation and Africanisation have provided the rationale and theoretical frameworks for the project. Having international perspectives contribute to the research along with the opportunity to advance African scholarship, are factors that have impacted the rationale of the project along with the ways in which decisions for the collaboration have been made.

At University Pink, UPKRL1 mentions the NPF as a document that is currently being consulted for the sustainability of their research collaboration. Noting that the NPF has been discussed at an institutional level for alignment to the institutional internationalisation strategy, this Research Leader explains that they are unsure of the impact on intra-Africa collaborative research. They note that for future research, internationalisation in relation to the NPF will have to be considered. Furthermore, the policy guidelines that regulate finance and the formalisation of agreements at their institution have had to be consulted by UPKRL1.

Also at a national level, UPKRL1 mentions the POPIA as having been considered for the cross-border collaboration as well as the data collection for the study. The NDP has also been recognised in the development of the research topic in order to ensure national priorities are addressed. Linked to the research area, the national policy guidelines on water quality are identified by UPKRL1 as a contributing factor to the decision-making processes of leading the research project and team.

At a regional and global level, the AU African Agenda 2063 and the SDGs have informed the research topic by taking into account the identified priority challenges. Further to this influence, when designing the proposal for the research, the Continental Strategy for Education in Africa was also consulted in order to ensure that the development strategies for the continent were being considered.

“When developing the call for PhD candidates, respondents were evaluated on the alignment of the research topic and themes to the AU Agenda 2063 and SDG priority areas” (UPKRL1).

This Research Leader also argues that the inclusion in this collaboration of post-graduate students from different African countries, aimed to ensure that the priority areas of Africa are being addressed in different contexts.

Decolonisation viewed as a movement motivated UPKRL1 to collaborate within Africa.

“The solution to African challenges rests with Africans. So, between contributing to Africanisation and Decolonisation, the project concept is heavily influenced by the notion that it is largely Africans who will be able to address some of the challenges that confront Africa and therefore, we must stimulate intellectual engagement among ourselves and facilitate intellectual movement of people on the continent” (UPKRL1).

UPKRL2 indicates that institutional policies related to internationalisation of research have not impacted the research, or the collaboration, in any way. However, this Research Leader indicates that institutional agreements or MOUs had to be considered for clarity on the nature of the engagement between the participating institutions in the project. The research leader further indicates that MOUs do not have to be in place for research collaboration to occur, but as the leader, s/he found it

necessary to explore whether or not agreements were in place. UPKRL2 further states that s/he prefers working without the restrictions of an MOU.

“Signing of MOUs is a logistical nightmare and when considering whether we should sign MOUs with the collaborating institutions we decided against it due to the red tape we knew it would have brought about” (UPKRL2).

When asked about national regional or global policies of influence, the research leader indicated that they were not aware of the AU Agenda 2063 or the SDGs. Moreover, the phenomenon of Africanisation is understood by the research leader as highlighting the expertise of Africa through research.

“This research started around the time of the Fees must Fall movement, so we were thinking the global North seems to produce all knowledge, and we should be producing knowledge from Africa that would transform and decolonise the global status quo. If you think about it through the decolonial lens, you start to understand the nexus between globalisation and Africanisation. We look at the inclusion of voices and perspectives that have traditionally been excluded from spaces” (UPKRL2).

UPKRL3 mentions the FAO codes of conduct which guide best practice in research, as a document of influence on the leadership of their collaborative research team. Further to this influence, this Research Leader had to consult the fisheries legislation at a country level in each of the participating countries in order to ensure the research takes place within all legal parameters as well as to ensure there is no exacerbation of country challenges in terms of food security or issues of environmental sustainability.

“It is an integral part of the leadership to ensure that the research is not impacting community and environmental health” (UPKRL3).

In terms of leading the collaboration specifically, UPKRL3 specifies that the FAO, Southwest Indian Ocean Fisheries (SWIOFISH) and the WB have guided the ways in which the collaboration occurs.

“They request various ways of collaboration within the bid, including criteria that deal with collaboration” (UPKRL3).

Also related to the decision-making within the collaboration, this Research Leader also highlights factors of institutional capacity and competence related to the management of grant funding.

“Where we have had experience with institutions that have difficulty in undertaking these aspects, we have chosen not to collaborate. At times, the funder has also advised on this” (UPKRL3).

Further to these influencing factors, UPKRL3 argues that the goal of internationalising the research influenced their decision to collaborate in Africa. However, at an institutional level, there seems to be very little support to facilitate research collaboration.

“Our international office is severely under-resourced and understaffed to be able to ensure the level of IRC that would establish the university as a centre of excellence in South Africa or Africa” (UPKRL3).

This Research Leader further argues that this situation speaks to the short-sighted views of the institution which is becoming more parochial in terms of what they are doing.

“I get the feeling that the more foreigners there are, it is seen as bad, rather than the other way around and that is a problem” (UPKRL3).

UPKRL3 further indicates that the research topic has been influenced by the SDGs by framing the concepts around the different goals and focusing on contextual impact in each of the participating countries. Furthermore, their research aims to develop regional policies with indicators that track the progress of the action. The frameworks and policy guidelines aim to highlight best practice, while ensuring that context, and specifically the African perspective, is considered. The phenomenon of Africanisation has also influenced the recruitment of students into the collaborative research teams. The research leader says that the is to ensure there are post-graduate students from different African countries that can contribute to the skills set in each of the participating countries.

Globalisation also influences UPKRL3 in that the long-term aim of the research collaboration is to ensure the research outcomes are spotlighted on the global stage. Furthermore, engagement with researchers external to Africa will ensure the

opportunity to make use of global expertise in the development of skills and research in Africa.

The following section will outline the influence of the funder on the leadership approaches and strategies in funded projects within these intra-African collaborative academic teams.

4.6.3 Sub Theme 3: The Influence of Funding Agencies on Leadership Strategies and Approaches

The majority of the research leaders indicated that funders do not influence the decision-making processes of the research, or the leadership of the multinational collaborative research teams.

UGNRL1 at University Green comments that the funders of this project, which are government organisations from each country, do not have influence over how the project is led, or the processes of the research. However, UGNRL1 argues that there is influence in that they decide whether to grant the funding based on the proposal.

Research leaders have also argued that even though the funders do not necessarily contribute to any of the research processes, they do have influence in that they set the agenda of the research by establishing the call for research proposals which includes specific criteria for consideration and granting of funding.

UNBRL1 at University Brown says that the funders influenced the timeline of the research by specifying in the research call that the funding provided was specifically for research produced within the timespan of a month.

“They may not have influenced the decision-making, but indirectly, by specifying the timeline, they influenced the decision-making of how the research processes would work and the extent of the collaboration” (UNBRL1).

This Research Leader adds that the funder required the research leader to publish from the research and also to include the name of the funder in the publication.

UNBRL2 argues that the funder as well as the centre’s awarding organisation has had influence over the decision-making of the research project. This Research Leader

describes this project as evolving from a previous project involving the same funder. The previous project included research team members from across the continent at a post-graduate Master's and PhD level. However, for the current project the funder has specified that research team members should be recruited at a post-doctoral level:

“What we are trying to do is develop the next generation of African academics. For the follow up project, the funder has partnered with the AAS, and the result is that the funder has required the research to include post-doctoral candidates. The problem is that there are limited student coming up through the ranks, so we do not have enough post-doctoral candidates. How do we develop post-doctoral and early career researchers without investing in PhD students? The shortage is not in post-doctoral candidates, but in post-graduate students on the continent” (UBNRL2).

UBNRL2 also indicates that the funder has influenced the research and the collaboration by implementing timelines for programmes in order to ensure post-doctoral fellows complete their programmes within a specific amount of time. Furthermore, the research leader expresses that new rules of the funder require a focus on fellows from the UK being included in the collaboration, which is different from the agenda of the research leader wanting to capacitate Africa. Even though the research centre is an ARUA centre of excellence, there is no funding for African institutions. This Research Leader was thus forced to look for external funding. The rules of external funding stipulate capacity building in the country of the funder. The research leader is now in the process of looking for extra funding in order to fund fellows from Africa.

In addition, UBNRL2 emphasises that the funder influences the decisions regarding what the funding can be spent on.

“When we started, we understood that there was a great deal of flexibility with the funding and that it would cover our needs. However, when we do try and think outside the box and spend the money in an innovative way for our contextual needs, there are limitations that are set” (UBNRL2).

The research leader further explains that they understand that the external funds are paid by external taxpayer funds. However, when funding research for Africa, funders should consider the contextual needs of Africa.

URRL1 at University Red also says that the funder only has influence over the research and the collaboration in so far as providing requirements and guidelines and in the call for proposals. Further to this influence, the research leader points out that the only role the funder plays is to release the money and provide guidance for reporting. Other than these aspects, discretion is left to the researchers. It is important to note here that the funder of this project is internal governmental funding from South Africa.

URRL3, who are working with funding, both indicate that there is no influence from the funder. URRL3s project is funded from within Africa.

UGYRL2 at University Grey notes that the funder, providing internal funding from the South African government, has no big role in the decision-making of the research or the collaboration. However, the research leader highlights that the funder only allows support for South African students and that the research project must be managed by a South African institution. UGYRL2 further comments that the funding has not necessarily supported the collaboration; rather it only supports the research process. Each collaborating institution meets their own research expenses.

UGYRL3 reports that the projects funder, external to Africa, has contributed staff capacity to the research team in the form of a programme officer and a financial officer. These individuals ensure the administrative and financial policies of the funder are adhered to.

“The programme officer is also there to make sure that we are meeting the threshold and we are offering solutions to Africa” (UGYRL3).

The research leader says that the foundation requires technical and financial reports of deliverables and outcomes. However, they do not influence the outcome.

UGYRL3 adds that as much as the funder does not contribute to, or influence the day to day running of the project, they do influence the project, because the team is required to commit to the deliverables within the proposal that is accepted by the funder:

“So, as long as we are meeting our yearly to do list or deliverables in terms of inputs and outputs that we promised, I don't think the foundation has got

influence on how you do research, but you know their expectations in terms of publications that are disseminated through either conferences or most regional articles to be able to show the foundation that we are meeting our targets. But they don't really have influence on how we do research because they provide the funding. There is not that conflict in terms of determining the research outputs. So, we are the ones who deliver what we promised me and if there is any deviation, we definitely inform them out of good faith” (UGYRL3).

ULBRL1 at University Light Blue believes the funder influences the research by its set proposal structure that requires a detailed research programme with detailed timelines of deliverables. This Research Leader specifies that the funder’s criteria for granting funding requires details of how formative research will be conducted and in turn how this research will inform intervention developments. ULBRL1 argues that this aspect has not necessarily influenced the research proposals but has provided guidelines on leading the research objectives.

Furthermore, the funder’s reporting requirements and templates have influenced the leadership of the administrative activities of the research project. In requiring quarterly as well as annual reports, the funder has impacted how the financial administration is managed through University Light Blue. ULBRL1 further explains that the management of previous similar grants has provided institutional guidance on managing the administration of this project.

Similar to UGYRL3, ULBRL2 at University Light Blue also noted that the funder, external to Africa as well, has provided a programme official for the team. The programme official approves anything and everything within the research process, including signing off on annual reports, which in turn activates follow up funding tranches.

“If they are satisfied, the funding is delivered; however, if they are not satisfied, they can stop your funding for the following year. I've heard other people say that their program official was really quite a nightmare. In our case our program official has been incredibly supportive” (ULBRL2).

This Research Leader also adds that the programme officer’s support has enabled the evolution and successful milestones of this project. Furthermore, ULBRL2 comments

that the funder can make or break a project, comparing different funding sources which have been restrictive and not inclusive of the African context to funders who understand the African context and who have assisted in the successful completion of a research project.

UBRL1 at University Blue has funding from both their institution as well as external agency funding. The external funder has also provided a coordinator to provide support for the project. Similar to ULBRL2, UBRL1 perceives the support to be enabling for the research project and the collaboration, rather than prescriptive. UBRL1 also comments that this type of funding relationship is recommended, saying that the researchers should be at the forefront of the process.

“The funding was the major challenge for getting this project going and this funding available for Africa which helped allot. Our coordinator was merely there to oversee that their policies were adhered to” (UBRL1).

UPKRL1 at University Pink believes that their projects funding agency also has influence over the leadership of the research project through defining the objectives in the call for proposals.

“When you are responding to the calls for proposal, you take those objectives into account, and those objectives then drive where you make decisions” (UPKRL1).

This Research Leader further comments that they perceive these factors to be an indirect influence, as the funder does not get involved in the day-to-day processes of the research, other than requiring annual reports of output.

UPKRL2 discusses the funder’s requirements and the funder’s reluctance to fund the project without external supervision, due to their perception of researchers in Africa having a lack of capacity and experience.

“Granted I was a junior member of staff, but there seemed to be a reluctance to and a perception that I wouldn’t know how to run a grant. One of the things they insisted upon was that we appoint a senior researcher and a member of staff of my department” (UPKRL2).

This appointment was a recommendation by the funder. However, it was supported by the institution and according to the research leader, motivated by the need for the funding. The research leader further comments that this member of the team remained a silent team member and that the research team was overseen by the PI and the Co-PI at the partner institution in Africa. The research leader further comments that the research team was successfully led in this way.

UPKRL3 mentions that the co-funders of their research project had very little influence over the leadership of the team, or the collaboration process, except in that the team is required to report each year through a face-to-face conference, or during the pandemic through Zoom discussions.

“They really just look at the progress and may offer some suggestions on overcoming certain challenges” (UPKRL3).

The next section details the perceptions of the leaders of their role and how this perception then translates into leadership activities within intra-African collaborative academic research teams.

4.7 Theme 6: Leading intra-African Collaborative Academic Research Teams

To analyse the research team leaders’/PIs’ perceptions and interpretation of the leader role within the context of intra-African collaborative academic research teams, this section outlines what the team leader thinks the role should entail as well as activities that are included in their role. The section unpacks the role in terms of task-based, or directive, activities and explains the perceptions in terms of the difference between leading cross border teams and leading local teams. Furthermore, the leadership activities will be analysed against theoretical frameworks that were presented in Chapter 2 through descriptions of the leadership frameworks evident within the qualitative data. This analysis is followed by a discussion of the project management activities and tools used by leaders to manage research collaboration within the collaborative teams. Finally, the research leaders’/PIs’ descriptions of cultural diversity within the teams are unpacked.

4.7.1 Sub Theme 1: Perceptions of the Leader Role of intra-African Collaborative Academic Research Teams

This section details how leaders of intra-African collaborative academic research teams perceive their role as the leader. University Green's research leader perceives the leadership role as a leading and strategic role which entails creating enthusiasm for team members and colleagues to communicate on what they are working on, sharing information and thus collaborating. UGNRL1 at University Green also expresses that the leadership role is to develop capacity in research within their field and to ensure the sustainability of research collaboration.

"My job is to capacitate and develop the young people that are necessary to keep on running with this group that I have built up over the years and for them to start their own networks" (UGNRL1).

UGNRL1 says that the activities related to the leadership role include writing the proposal for funding to support the research and the collaboration necessary for the research. This funding supports the team members being able to travel between South Africa and Tunisia.

In addition, the research leader stipulates that the role also includes mobilising resources in the form of funding to support post-graduate students. Furthermore, UGNRL1's role entails encouraging and motivating team members in terms of the research as well as the collaboration aspect. In doing so, the research leader elaborates that it is important to be able to identify enthusiastic colleagues and students who are passionate about the subject matter. Facilitating the teamwork between the team members entails connecting early career researchers with post-graduate students and co-supervising research aspects within the broader research project.

"I find that my younger colleagues are far brighter than I am with the software, so I give technical inputs when supervising and share experiences that I have had in the past. My job is really to facilitate the different perspectives, values and contributions for the research" (UGNRL1).

This Research Leader also indicates that it is important for them to focus on the more strategic issues related to the research as well.

UBNRL1 at University Brown perceives the leadership role to be one that ensures the final output is achieved and that the objectives agreed upon by the team are met. Further to these activities, this Research Leader perceives the role of the PI as one that motivates and encourages team members to be persistent and resilient in the face of challenges in order to move forward with the research and reach the end goal. UBNRL1 gives the example of the process of publishing outcomes of the research, saying that the team had to submit their work to a number of different journals before it was accepted. As a result, the PI's team members became despondent about the possibility of getting the research published.

"I had to encourage them to keep going, not give up and to not let the hard work we had done go to waste" (UBNRL1).

This Research Leader says that 70% of the role entails leading and strategic direction, providing support and direction to the team, while 30% is task-based to ensure that timelines are adhered to, and deadlines and objectives are met.

UBNRL2 describes the leadership role as a facilitating one, saying that as a leader, one must be a go-getter and push the team members to collaborate creatively within the research project. This Research Leader comments that facilitating research collaboration and ensuring tasks are operationalised and deadlines are met is challenging due to the fact that the research team members may also at the same professional and academic level as the leader.

"I don't actually have any clout, because I am the PI, different from say, the Head of a School, so if people don't perform, I can't jump up and down" (UBNRL2).

This research PI says that leading the team to perform requires creative thinking which includes motivating the team, encouraging the team, and facilitating collaborative activities that contribute to the research. When asked to describe the balance of the role in terms of managing the team and leading the team, UBNRL2 attributes 60% of the role to leading and strategic direction, with 40% being task-based. The 40% is linked to the challenge created by a lack of administrative capacity for the team, requiring the PI to cover this role as well.

URRL1 at University Red perceives the research leader role to be a simple role that entails conceiving and developing the research concept, selling it to possible partners and organising the team of researchers. This Research Leader comments that in the case of empirical research, field researchers must be trained. In terms of funding, URRL1 perceives that the leader should coordinate the funding and then oversee the administrative tasks associated with the funding.

“As the research leader, the role may be simple; however, it is important to know that the buck stops with you” (URRL1).

The research leader attributes 70% of their role to being task based, while 30% is strategic, supportive and directive. The 30% entails ensuring team members work together and receive the necessary administrative, financial or skills capacitation support.

URRL1 believes that the leader role within the intra-African collaborative academic research team is not very different from roles that are not international in nature:

“Certainly, I have been a head of department elsewhere, outside South Africa and when I was University Light Blue as well. I led the postdoctoral research fellows association, and even when I was a student there at University Light Blue, I led the post-graduate students council, so I have led in that respect, multinationals and there hasn't been really that much difference between leading a larger group and leading a smaller group composed of people from varying backgrounds so not much difference” (URRL1).

URRL2 argues that the role of the collaborative research team leader is to facilitate and moderate meaningful discussions between team members.

“I don't want to impose my ideas. As a team, the team should own the research and the research ideas. It's not about me, it's about the team” (URRL2).

The role is perceived to be more of a leading and strategic role rather than a directive or task-based role, with the research leader saying that 70% of the role entails strategy and leadership and 30% entails the management of tasks.

URRL3 perceives the leadership role to entail mentorship and networking which results in opening doors for early career researchers. Furthermore, the research leader also sees the role as a tool to develop a research culture that is collaborative in nature and that strives for diversity and inclusivity of perspectives. In developing future researchers, this Research Leader views the role to be more strategic, leading, and supportive rather than directive and task based.

URRL4 distinguishes the research tasks from the collaborative processes when discussing the leadership role within this team. Thus, writing of the proposal, the collection of data as well as the administration related to the research is associated with this research leader's role. The administration includes ensuring a formal agreement between the two institutions, the procurement of equipment for data collection and the transferring of research funds to the partner university. This Research Leader describes the leader role as overseeing these tasks.

URRL4 also distinguishes the ratio between the task-based activities and the strategic, supportive collaborative processes as 50/50. The leading, strategic, and supportive nature of the role is described by URRL4 as facilitating the teamwork. This facilitation includes setting the team up using networks, bringing people together to get to know each other and facilitating the collaborative processes and activities to contribute to the research. According to this Research Leader, this aspect of the role also includes facilitating research output or publishing. This facilitation was done through writing workshops as well as editing journal articles produced by the team members.

URRL4 further comments that the role should entail capacity building and skills development for research within the context in Africa through the development of post-graduate students and early career researchers.

“The intra-Africa research collaboration should include the collaboration between post-graduate students. There is a huge need in Africa for capacity building and skills development in the area of research within the field of health science” (URRL4).

The research leader also recommends the use of online technology and blended learning to facilitate capacity building, arguing that the high costs within the South

African higher education system limits its contribution from South African leading experts to capacity building in Africa.

This Research Leader compares leading multi-national teams within the borders of the African continent and leading local teams, describing the processes as different in terms of cultural dynamics and contextual differences between the different countries involved. The multi-national teams are described as complex, as there are different contextual situations that present themselves, such as lack of infrastructure, or equipment. However, the research leader also adds that the cultural dynamics have enriched the activities more than what occurs in teams that are local in nature.

“In teams that I have led that are local, you are still working on the tasks and getting the team to work together. However, you also need team members who are willing and passionate to overcome different challenges. I found that this is how our international collaboration in Africa was successful” (URRL4).

Similar to URRL4, at University Grey, UGYRL1 perceives the leadership role to be an academic one, with the responsibility of mentoring early career researchers.

“When I was a young academic, I had excellent mentors and I can never thank them enough, but I can pay it forward, so I choose to invest in people” (UGYRL1).

This Research Leader sees the leader role as an enabling one, allowing young researchers the opportunity to develop their research skills through research collaboration in a supportive and flourishing environment.

“Even in formal leadership roles, I don’t see myself as a boss. I see myself as having the responsibility to create an environment where people can grow and nourish that growth through focused support and encouragement” (UGYRL1).

The research leader describes the leadership activities as motivating the team to collaborate on the research activities and making sure they have the necessary support and resources to do so. In addition, s/he needs to support the team members through the different and unique publishing processes of international scientific journals, including those within the continent.

“We need to publish in terms of findings, but we also need to advance African scholarship and African methodology through the research and through the collaboration. It is a chance to advance African epistemology, and this is part and parcel of specifically the research leader of teams within Africa” (UGYRL1).

Furthermore, UGYRL1 comments on issues the role should address that did not impact their current project. Issues in terms of personalities and group dynamics as a result of cultural differences are issues that the research leader indicates should be addressed by the leader. Discussing similar collaborative projects, the research leader speaks of patriarchy as a perceived cultural barrier.

“I have done collaborative work with senior men in other African countries, and I will not do it again. Simply because of African patriarchy being as ugly as any other form of patriarchy if not sometimes worse and it is a waste of my time” (UGYRL1).

This sentiment is similar to comments on challenges faced in their project by UBNRL1. Finally, This Research Leader argued that the skills needed to lead a team of these specific characteristics include cross generational skills, as well as cross cultural skills which entail approaching collaboration through diverse teams.

UGYRL1 also perceives the role to be different because it is not a funded project, saying that if there was funding, there would be a more formal hierarchical structure, allowing for more structured leadership and accountability for tasks within the project. However, this Research Leader prefers the non-funded project, as leadership can be shared between all team members. UGYRL1 sees the role as being 90% strategic and supportive and 10% directive and task-based.

UGYRL2 perceives the leader role as one that requires ensuring output within the time set for the project. The role is seen to be more leading and strategic and includes activities that motivate team members to be resilient, persevering and creative through collaboration. The research leader believes that 95% of the role is leading and strategic rather than directive or task-based.

UGYRL3 describes the activities within that role as including the development of a team structure and the coordination of the collaborative tasks. The development of a

workplan with deliverables and timelines is recommended by this Research Leader. Furthermore, the research leader advises that team dynamics must be influenced and balanced by the leader.

“You will find that not everyone is equal in terms of delivery and may drag other team members behind, while others are super active. It is important to be able to manage those who are not performing in a diplomatic way, concentrating on your communication skills so as not to offend team members” (UGYRL3).

UGYRL3 elaborates that the strategic activities such as identifying opportunities for research and research collaboration, creating a vision for the research project and the team, and ensuring that the team works well together is a strong part of the leader role and can only be executed by the research leader, or the PI. Further to these activities, overseeing the processing of the research data including data collection, generating scripts for raw data handling and assembly. The research leader also highlights transforming the data for impactful use and finally, dissemination must also be facilitated by the research leader. However, UGYRL3 indicates that in the South African context, the leadership of multi-national teams is not very different from the leadership of a local team within their institution, as the teams are very culturally diverse.

UGYRL3 also describes the directive and task-based activities as managing the funding and budget of the project and ensuring that the funding is properly administered. In addition to the financial reports for the funder, technical reports for institutional management are also the responsibility of the research leader. Furthermore, UGYRL3 believes the leader is responsible for facilitating other administrative activities such as the purchasing of research equipment and processing of requisitions within the institutional financial system.

ULBRL1 at University Light Blue describes the intra-African collaborative academic research team leader role as multi-faceted. Foremost is facilitation that enables processes for teams to perform at their best and produce high quality research. Furthermore, the role requires supporting team members, which in turn means the research leader, or PI, also gets involved in the research processes and trusts team members to be competent colleagues able to execute the research tasks.

Secondly, ULBRL1 believes that the vision must be created and led by the team leader, or PI. The research leader emphasises that the vision must be clear in terms of the objectives of the research and collaboration. Being able to articulate the vision effectively to the rest of the team with their buy-in is an important responsibility of the research leader. The buy-in also includes ensuring that all team members' voices are included in the development of the agenda.

ULBRL1 also believes that intellectual leadership is associated with the role of the research leader, or PI, of these teams.

“One has to come up with an idea that is reasonably fresh and novel and take input from the team members, because the research product at the end of the day is never just one persons' work” (ULBRL1).

This Research Leader argues that as important as it is to generate the vision, it is equally important to be prepared to have this vision modified to fit the agenda of the holistic team. This leadership requires dedicating time to the team, being able to communicate consistently and effectively with the team, listening to members' concerns and being responsive to the team's needs. Collegial teamwork is recommended.

“One cannot be the expert at everything all the time. You have to be willing to listen and draw out the wisdom of all the team members and pay specific attention to the young early career researchers or post-graduate students who have fresh new perspectives and can really creatively shape the research” (ULBRL1).

Similar to ULBRL1, ULBRL2 describes the leadership role as one that ensures inclusivity of voices and perspectives across the continent. The research leader described South Africa as the research centre in Africa, holding the funding with the collaborators being from other countries in Africa, classified as the periphery, as they are the sub-awardees.

“We had the intellect and the thought, and they joined us, so even if we wanted to flatten the hierarchy, the reality is that who holds the funds, still holds the power” (ULBRL2).

This Research Leader also explains that in terms of capacity, access to journals, the internet and bandwidth, infrastructure and equipment, South African institutions are at an advantage and have privileged power compared to other institutions on the continent.

ULBRL2 views the ambition of the collaboration as trying to level this hierarchy and empower the periphery to become the core. The approach is through the practice of intra-African collaborative academic research that includes research skills development at a post-graduate Masters' or PhD level. The research leader believes that through this practice, early career researchers at a post doc level will be empowered to lead their own research teams within the continent in addition to pursuing their own grants through proposal writing, publishing their research and passing the torch to upcoming early career researchers.

“A recent PhD graduate part of this team who is now at a post-doc has developed a project in community engagement and has received funding for it. He wrote the proposal that is undergoing ethics review and when he receives this, he will execute this through collaboration” (ULBRL2).

This explanation of the role shows that the research leader perceives part of the role as being responsible for fostering and supporting collaborative networks that will in turn contribute to the sustainability of this collaborative research practice in Africa.

ULBRL2 comments that the nature of the research being collaborative is to encourage a collaborative research culture amongst up-and-coming researchers within the continent. The research leader facilitates collaboration activities by ensuring the network of PhD students and post docs meet each other and engage through virtual meetings once a week. This leader describes the leadership role as to facilitate discussions that contribute to collaboration and oversee how these collaborations are incorporated into the research so that is seen in the research output. ULBRL2 sees the role as important in ensuring that different perspectives are highlighted in the research and the research outputs.

UBRL1 at University Blue identifies coordination of the collaboration as a responsibility of the collaborative research team leader, or PI.

“It is important to be part of the team, and also to ensure that all team members are contributing equally” (UBRL1).

Similar to the research leaders at University Light Blue, this Research Leader believes that the main objective for them is to ensure all team members are appreciated within the space of the team. S/he highlights the importance of trust in the leader, and equally, trust in the team members by the leader. The relationship between the leader and the team members, as well as between the team members themselves is specified as a focus of the leader, in order to move the collaboration and the research forward.

UBRL1 perceives the role to be strategic and leading rather than directive and task-based.

“I don’t see myself as a manager; I’m not managing them at all” (UBRL1).

The research leader describes the role as having a bird’s eye view of the collaboration and the research being produced from the collaboration. However, UBRL1 also acknowledges that it is important as the leader also to be part of the team and support the team in the tasks as well.

“I am part of the team working on solving the problems and taking on tasks myself” (UBRL1).

The role is described as more directive and task-based. However, to a certain extent, it is supportive and motivating in order to bring the team together.

“So, my main work is to get the things done and I think that is how it should be, that the leader is also part of the teamwork, because it would be a sad day if you are a researcher that becomes a manager - ultimately you have to manage, but that should not be your main task. You know it's like taking a brilliant engineer making the managing director of a company - he's never gonna be an engineer again and now he starts to write letters and do evaluations on people's performance things like that and it's a waste” (UBRL1).

In addition, UBRL1 associates the role with ensuring that African voices and perspectives are not underestimated. The role is perceived to be quite different from leading teams that are not international in nature.

“There are some things that dovetail but being a research leader of a multi-national team requires specific wisdoms, for example, being able to listen to people and understand them through their cultural lenses as well as to be sensitive towards cultural differences and ensure team members are sensitive to each other’s cultural differences as well” (UBRL1).

Similarly, UBRL2 at University Blue views the leadership role to be a facilitative role that includes activities such as listening to team members and ensuring they contribute to the vision of the research project. Furthermore, identifying opportunities that would enhance the research through collaboration is a responsibility of the research team leader. In addition, this Research Leader says that supporting the team through problem solving and crisis intervention is the responsibility of the leader. This support requires awareness of cultural dynamics and cultural sensitivity when managing these aspects of the research team.

Mirroring UBRL1, UBRL2 also indicates that it is necessary to have a bird’s eye view of what is happening in the team to make sure the team is working efficiently.

“During the pandemic, it was important to have a birds eye view and look at things from the roof in order to organise the team and the collaboration within the team” (UBRL2).

This Research Leader further highlights that it is important for the team leader, or PI, to contribute to the team.

“One also has to have the willingness to change and to put yourself in the thick of things in terms of problem solving and coming up with solutions” (UBRL2).

The research leader also singles out the responsibility of managing cultural differences, as the teams and sub-teams include local, regional and international stakeholders, making each grouping different.

“Every moment is actually a learning curve. You are learning all the time, adjusting and learning, because each group is different” (UBRL2).

UPRL1 at University Purple identifies the responsibilities of the role which include arranging conferences and workshops (face-to-face and virtual) to facilitate collaboration and ensuring publication targets through research collaboration and

processes. This Research Leader believes the role should be more directive and task based. However, it should include strategic leading, support and motivation of the team as well. The research leader identifies 80% of the role as directive and task-based with 20% as supportive.

“I coordinate and lead at inception, methodology, sampling, data collection, analysis, funding and publication phases” (UPRL1).

UPKRL1 at University Park views the role of the leader to be the interface between the research team and the funder and says that this dynamic is due to the structure of the grant agreement.

“I mediate between the funding agency and the team and ensure that whatever I am informed about is translated to the members of the team” (UPKRL1).

Secondly, UPKRL1 accepts responsibility for facilitating the achievement of objectives within a particular timeframe and at the same time, ensuring that the team is adhering to the grant agreement with the funder and delivering on what is promised in the proposal. However, the leader also emphasises the importance of delegation through distributive leadership methods and ensuring that the leadership skills are also being transferred to the team members.

UPKRL1 credits the research team structure and the sub committees within the structure for the possibility to delegate and practice distributive leadership for the research collaboration and processes. These committees are responsible for the recruitment of post-graduate and post-doctoral candidates along with the liaison with supervisors to ensure that the research takes place and contributes to the objectives of the study while answering a number of different research questions.

This Research Leader also attributes the use of sub committees in the team structure for the ease of delegation and the possibility to use distributive leadership in leading this team. This leadership type is possible through the increased benefit of consultation and collaboration. The research leader promotes a consultative leadership process for soliciting new ideas and inputs and integrating those into the various processes of the research. UPKRL1 says the role involves creating a

collaborative environment for the research. One needs to have the skills to listen and understand the team members so that their perspectives are included in the research.

“It is important to be open and allow people to contribute as the leader, you are able to gain insight from colleagues” (UPKRL1).

Furthermore, the research leader advises that because the research team is diverse in nature, it is imperative for the leader to be sensitive to both cultural diversity and demographic diversity.

“We operate in a globalised world and a society that is quite vertical, so you have to be quite sensitive to that, but also as the leader have courage to be assertive so that the process moves forward, and tasks are accomplished” (UPKRL1).

Finally, the research leader views the role as including responsibility to ensure the development and sustainability of research capacity on the African continent. This approach, in line with other research projects included in the study, is done through the inclusion of post-graduate and post-doctoral researchers.

UPKRL2 discusses the leadership role as one that requires strategic leadership activities. For example, creating the vision and building the collaborative team to contribute to the vision. Secondly, the research leader believes the role of the leader, or the PI, is to provide a space where team members are able to develop their research writing skills and add their voices to the global knowledge generation of their field. Like other research teams and leaders, this research leader also promotes capacity development in research within the field of literature through the inclusion of post-graduate or post-doctoral candidates within the research team.

Furthermore, UPKRL2 perceives the role to be responsible for ensuring the team produces knowledge outputs that foreground African literature within the global scientific literature research space. By collaborating within Africa, the research leader says that bringing different people to work together on the continent contributes to adding African perspectives to knowledge generation in literature globally.

UPKRL2 mentions what they would have done differently in this project, which is to implement a more collaborative leadership approach, where team members are required to drive certain aspects of the research process so as to further develop their research leadership skills.

“I would ensure that it is not a top-down type of relationship within the team, and this would require collaboration from the point of creating the vision and developing the proposal for funding” (UPKRL2).

The research leader also describes the leadership role as being responsible for holding the project and the collaboration together through facilitation of collaborative activities and giving team members space to explore new ideas within the project.

Similar to other research leaders, UPKRL2 believes that the role is a process of trial and error, because it is not always possible to plan all of the research processes. However, even though this situation is attributed to a lack of leadership training within the field of study, the research leader recommends letting the process flow organically and being open to allowing the process to evolve through collaboration to allow for further innovation and creativity within the output.

“I find that what we have done, we had not planned, because you can plan a proposal and then five years down the line, something falls into your lap and it’s how you go with it that will determine if it positively contributes to the overall quality of the project” (UPKRL2).

An example given by this Research Leader is that of an extra theme contributed by a post-graduate student within the team who wrote on the theme of feminism in Africa. The research leader indicated that the role here was to facilitate the enabling of this theme into the project by providing the funding and resources for the student to contribute this research through a collaborative colloquium which evolved into a professional conference for the further development of this theme.

UPKRL3 discusses the responsibilities of the role as being facilitative and supportive including the mentoring and capacity building of post-graduate students and early career researchers.

“When members of the team ask for assistance or encounter challenges and limitations, I as the PI and my co-Pi’s, it is our role to assist there” (UPKRL3).

Further to this perception, the research leader highlights the importance of the Co-PIs in each country, who communicate the special and different requirements so that they can provide that specific support through the sharing of knowledge, skills, and resources. This comment also highlights the unique benefits of cross border collaboration that is also interdisciplinary of nature. The research leader also mentions the approach of leading the team without overtly implementing the leader position.

“I doubt the team sees me as the leader, but rather they tend to see me as the person involved with the team” (UPKRL3).

UPKRL3 also describes the role as requiring facilitation to meet targets through a mix of interpersonal skills and communication between team members. The interpersonal skills are highlighted with the research leader saying:

“Emotional quotient (EQ) is quite important when leading these types of teams, as the role requires working successfully with people from different cultural and educational backgrounds and being able to understand these differences in order to be culturally sensitive to the very different nuances that people from different countries experience” (UPKRL3).

This Research Leader further explains that the importance of EQ includes having to understand the political perspectives as well as worldviews of individual researchers from different cultural backgrounds and trying to understand the country perspectives of each of your team members.

The research leader comments that with interpersonal skills and EQ, a research team leader of a multi-national team within Africa ensures all team members are included and that they are not alienated from any of the collaborative research processes.

“The aim is to bring researchers from different cultures and languages together while providing an environment that enables teamwork. It is not easy, and it is different every time” (UPKRL3).

Similar to UPKRL2, this Research Leader also notes that the leadership activities occur by trial and error, as leadership skills are not necessarily taught to scientists as part of their undergraduate or post-graduate training.

The leader role of intra-African collaborative academic research teams has not been identified as very different from leadership roles that are not international of nature.

“It’s just magnified quite substantially in terms of dealing with very diverse groups of people” (UPKRL3).

However, the research leader attributes the South African culturally diverse context to improving the process of navigating the leadership of the diversity within the team.

The leadership role has been described by UPKRL3 as both leading and strategic as well as directive and task-based, with the leading and strategic part of the role described as happening at the beginning of the collaborative project. The leading and strategic activities are associated with organising the team members and determining how the deliverables will be met through collaboration. Thereafter, the leader says the role becomes facilitative of tasks through direction and management of the team.

The directive, facilitative and task-based activities include ensuring the collection of biological data, facilitating the analysis of the data by different team members in different countries and contexts and ensuring this information is collated and compared for the writing of publications. In addition, it is the role of the leader to ensure that the protocol is followed within each country. A central database was used to facilitate these activities. Furthermore, UPKRL3 associates a high level of administrative activities with the leader’s role. The research leader divides the strategic leadership activities at 50%, while the administrative, direction and facilitation also absorb 50%.

In consideration of the data collected from intra-African collaborative academic research team leaders, there seems to be a combination of transformational leadership styles and a transactional management style of control, organisation, and compliance of team members. This situation could be due to challenges of the lack of capacity within teams, requiring research team leaders/PIs to perform a number of roles within their leading role. Thus, as UPKRL3 notes above, there are numerous administrative tasks included in the leadership role. Also noted is the majority of comments from team leaders on the need to inspire and stimulate team members to achieve their objectives.

The following section details how the leader emerges within the team along with the ways in which leaders guide their team members to achieve the research objectives.

4.7.2 Sub Theme 2: Leadership Type and Activities

As seen in sections 4.2 and 4.6, there are different team structures that were identified in the study. Each team shows a combination of different leadership frameworks, more specifically, a mix of traditional leader frameworks with shared leadership frameworks. This combination includes the contextual framework of the Ubuntu theory. Viewing leadership through different prisms, various frameworks are visible in these teams. For example, when investigating the emergence or appointment of the leader, the most common leadership traits resemble those of the Great Man leader. However, when viewing the leadership activities and objectives, transformational and transactional leader frameworks are also evident.

The following section aims to understand how each leader came to be in the leadership role within their team as well as understand the theoretical leadership frameworks that are evident through the description of the leader activities by the leaders of the 18 intra-African collaborative academic research teams.

4.7.2.1 The Emergence or Appointment of the Team Leader

The majority of the team leaders emerged as team leaders because they initiated the projects or were appointed by the rest of the research team and stakeholders. A combination of two leadership theories; namely, the Implicit Leadership Theory and The Great Man Leadership Theory are evident in how the interviewees have come to be the leaders of their teams. The Implicit Leadership Theory speaks of leaders emerging through the influence of the cognitive structures of the team members.

The Great Man Leadership Theory highlights the different personal attributes between leaders and followers and argues that leaders possess certain characteristics that results in leading roles. At University Green, UGNRL1 said that the role of the PI is to initiate the research and the collaboration.

“If you are the guy who drives the development of the proposal, you also take the responsibility to see the project through” (UGNRL1).

Similarly, UBNRL1 at University Brown said that s/he initiated the project and developed the topic, resulting in the automatic leadership of the project.

URRL1 at University Red is also the initiator of their project.

“I was appointed as the research leader, as I am the instigator of the project and designed the original concept note” (URRL1).

The research leader further indicates that the team appointed him/her as the leader after s/he put the team together. URRL2 and URRL3 also argue that they were appointed as the research leaders of their respective teams as a result of their initiation of the project concepts and proposals.

“I came to be the PI in this research because it was my own idea. I conceptualised the research and then the team members contributed to it, so that is why I became the PI” (URRL2).

URRL4 also indicates that his/her leadership resulted from initiating the project. However, there were further influences in the emergence as the PI of the project. Having been involved in a prior project team that was led by researchers in the USA, the follow up project evolved and received input from the previous project leaders. One previous project leader recommended URRL4 as the PI for this research team. In addition, URRL4 adds that because s/he developed the team, s/he were also appointed by the current team members because of the initiation of the project.

At University Grey, UGYRL1 points to his/her seniority within the team which determined their emergence as the PI of the research. Even though the research leader also initiated the research project and developed the team, s/he indicates that their leadership emerged through the team agreeing that the most senior of the team members lead the project.

Similar to URRL4, UGYRL2 at University Grey also assumed leadership of the project in question due to involvement in a precursor project. This Research Leader argues that previous experience in similar research resulted in their emergence as the PI of the project.

Like the majority of the other respondents, UGYRL3 also argues that his/her emergence as the PI of the project was a result of their initiation of the research project through developing the concept, proposal and team. However, unique from the rest of

the respondents, this Research Leader argues that s/he automatically became the PI of the research as opposed to being appointed by the rest of the team.

At University Light Blue, ULBRL1 also assumed leadership due to their initiation of the project.

“There were some discussions between the different partners because some of us knew each other from other projects, but there was a general agreement that I would drive the process and because I led the writing of the grant proposal, coordinated and collected all the inputs, it made sense that I was the PI” (ULBRL1).

ULBRL2 also indicates that the appointment as the leader resulted from the initiation of the project and the development of the collaborative team.

UBRL1 at University Blue assumed leadership over time and this emergence was determined through a combination of funder influence and the will of the team members.

“I was invited by the Atomic Energy Agency to apply. As I developed the proposal, my role as the PI was solidified” (UBRL1)

Similarly, UPR1 at University Purple is also the PI of their research project as a result of the initiative taken to conceptualise the project and build the collaborative team.

University Pink’s UPKRL1 believes that leadership of the collaborative team emerged organically during the phase of the proposal writing.

“There wasn’t a roundtable discussion to select or appoint a leader, but during the process of contribution to the proposal, the team made it clear” (UPKRL1).

This Research Leader also comments that even if one offers the role to other team members, it is still preferred that the initiator is the leader.

UPKRL3 also says that when one leads the conceptual and proposal process, it is automatic that one is the leader of the team.

“During the proposal phase of this project, the template requires the name of the PI” (UPKRL3) .

Similar to UPKRL2, the answers from UPKRL3 show the funder has an influence on the emergence of the leader of the team. However, in this team, UPKRL3 at the point

of being the initiator, discussed the issue of who will lead with the rest of the team. The team decided on who will lead the team together and the consensus was that it should be the initiator of the project.

4.7.2.2 Leadership Nature and Methods

The following section aims to detail the leadership types that are used within the intra-African collaborative academic research context. In Chapter 2 of this thesis, different leadership theories were discussed to explore leadership types and activities within these teams.

To understand the types of leadership and methods and activities associated with the intra-African collaborative academic research teams, it is important to note the significant finding of the lack of leadership training or leadership skills development in academia. Leadership roles at academic institutions are not necessarily accompanied by the necessary training. In their work developing academic leaders, Zulfqar, Valcke, Quraishi and Devos (2021: 1) argue that universities reward senior professors with significant leadership roles without consideration of their leadership skills and competencies.

Notably, research leaders argue that leadership is not something they have been trained in. At University Green, UGNRL1 said that in their undergraduate and postgraduate training, there was a lack of training in leadership.

“I relied on the organic leadership and my intuition. I’ve never really thought that much about what type of leadership qualities are necessary for leading a team like this. I do know that communication is important along with a sense of genuineness and warmth” (UGNRL1).

ULBRL2 at University Light Blue also indicated that s/he was not well versed in leadership.

The criteria for promotion or recognition as a leader in the academic space focuses more on field expertise. Haage, Voss, Nguyen and Eggert (2021: 1) caution that measuring success and productivity on the number of publications in scientific journals, develops researchers in directly related field skills. However, the development of leadership skills are neglected. Similarly, UBRL1 at University Blue

answered that s/he has relied on wisdom and luck when leading the intra-African collaborative academic leadership project.

“I can’t say there is a system – you can’t go to college and train people to collaborate or lead international collaboration” (URRL1).

UPKRL2 also speaks of the lack of leadership training required to lead collaborative research teams.

“I was propelled into this and had to adapt with my own leadership style” (UPKRL2).

A number of leadership theories were explored in Chapter 2 of this study. In this section, leadership activities will be analyzed within the context of the various theories of leadership that have manifested in the interviews with international collaborative research team leaders. A combination of traditional and contemporary leadership theories became evident when analysing the descriptions of leadership methods in the intra-African collaborative academic research teams.

The Big Five Leader Model, the Great Man Leader Theory, the Situational and Contingency theories, Transformational leadership, and organic leadership have been prevalent in the explanations of how teams are led by the intra-African collaborative research team leaders. In addition, a number of shared leadership theories, together with servant leadership, have also been observed in the analysis of these descriptions.

At University Green, a combination of leadership theories are visible in the description of the leadership activities and the way in which the collaborative research team operates. Firstly, the transformation and transactional leadership framework is evident in the research leader’s description of the team’s direction towards achieving the research goals. Between the PI and the Co-PIs the leadership roles are used to achieve the goal of publishing the research in accredited scientific journals.

“The research collaboration is all organised around the output of book and journal articles. As a result, we can now show for the collaboration, there are about 24 collaborative journal articles, and a book we have published together” (UGNRL1).

The transformational and transactional leadership framework is also evident in the team's objective to develop research capacity on the continent through the inclusion and development of post-graduate students in the team.

Furthermore, at University Green, UGNRL1's explanation of the qualities or characteristics that have contributed to the leading of the team, are reminiscent of the Big Five model. The research leader spoke of having to be intuitive and a good communicator who is warm and approachable within the team. The comments show signs of the Big Five model of leadership which explains the traits of a leader encapsulating dominance, extraversion, sociability, warmth, achievement, orientation, organisational ability, self-acceptance and self-control.

UGNRL1's arguments of knowing and leveraging his/her own strengths together with those of the team members as well as the driving of activities to achieve specific goals and objectives, speak to these attributes.

"I give technical inputs, but very often find that the younger colleagues are far brighter than I am. They are fresher with the software, so I value their contributions. I make contributions by sharing my expertise but coordinate the expertise of the team to position the project and make sure we address the really important issues of the research" (UGNRL1).

The description of the team's collaboration and the leadership thereof by UBNRL1 at University Brown is strongly aligned with a combination of the transformative and transactional framework of leadership and Contingency Theory. Fiedler's Contingency Theory (Forsyth, 2014: 301) implies that leader effectiveness is contingent on both the leader's motivational style and their capacity to control the group situation. This notion is evident in the ways in which UBNRL1 has described dealing with the different contextual challenges such as patriarchy and infrastructural challenges (See section 4.2.6, paragraph 1).

Similarly, UBNRL2's collaborative project shows indications of the contingency framework of leadership. Even though, the leader attempted to facilitate team collaboration through planned activities, the leadership of this team was impacted by circumstances of the project. Unexpected circumstances influenced the leaders'

activities in leading the collaborative research team. The COVID-19 pandemic impacted the face-to-face collaborative activities of the team. In addition, despite the decision by the PI to direct funding received by the external funder to the inclusion of post-graduate doctoral students, the funder implemented regulations that required the funding to be redirected towards a post-doctoral cohort of early career researchers.

At University Red, URRL1's activities exhibits evidence of the Charisma Leadership Theory (Van Zyl and Dalglish, 2009: 4) and Fosyth's (2014: 286) Zeitgeist theory. In addition, the Transformative Leadership framework is also evident. The research leader speaks of the influence of globalisation and Africanisation on their perception of their role as the leader and their activities in leading the team. Being in the field of law, URRL1 discusses the contribution of the collaboration to the advancement of indigenous knowledge in law on the continent, as the vision of the research and the collaboration.

This Research Leader also describes having to be charismatic in engaging with the team when facilitating the collaborative activities. As described by Van Zyl and Dalglish (2009), within the African context, leaders emerge from the margins of society in times of social crisis and their extraordinary qualities determine the leadership functions. Focusing on the issue of limitations of indigenous knowledge in the field of law on the continent, this leader has aimed to motivate the team to enhance the value of customary law within the field and elevate the knowledge to a global scale.

“When dealing with such topics, one needs to be a leader who is charismatic and dynamic to carry the team along. One needs to inspire diligence and professionalism to drive a process like this. In the same light, one also has to be empathetic and ensure all team members are able to get along and have all the tools to work at the same pace” (URRL1).

Similarly, URRL3 speaks of specific characteristics required when leading a collaborative team within the context of Africa, showing signs of the Big Five model and the Charismatic theory of leadership.

“Kindness is necessary to create a sense of understanding of the project vision and humility within the team working together” (URRL3).

The research leader also comments that it is important to develop a peaceful and collaborative environment for the team to work effectively and for the research objectives to be met.

Aspects of the Big Five model of leadership and the Situational Leadership Theory have manifested in the nature of the leadership of URRL4. This Research Leader mentions the need to ensure cultural sensitivity in leading a multi-national team within the continent.

“I was coming into a different country with a very different culture. I had to be aware and sensitive to the ways in which my counterparts work in their own country” (URRL4).

Jayanthi and Rajandran (2014: 10) argue that a multi-cultural group that operates with the strength of cultural awareness is able to establish an environment of mutual respect and acceptance, necessary for effective functioning. URRL4 also comments that it was necessary to understand the types of leadership in Zambia which includes hierarchical structures different from that of the research leader, who prefers a flat structure for the team.

Linked to cultural awareness and sensitivity, effective communication has also been mentioned by this research leader. URRL4 indicates that in order to ensure the deadlines for tasks were adhered to, effective communication was necessary to ensure the research objectives are met. URRL4 also comments that there must be a balance of directive and task-based and supportive facilitative activities.

“I found that communication challenges resulted in delays in meeting certain objectives. So, I had to ensure clear communication in terms of the expectations for specific milestones like proposal submission for ethics at each university” (URRL4).

In addition to directing the achievement of milestones, the research leader had to also facilitate and support collaboration. For example, s/he had to liaise with the government of Zambia and the Education Ministry to determine the relevant policy documents to be consulted for the development of the research.

At University Grey, UGYRL1's description of the skills and methods of leadership for the intra-African collaborative academic team also shows aspects of the Big Five model. With the Big Five model including traits of sociability and warmth, the research leader stipulates of the necessity of cross-cultural skills as well as cross generational skills as well as being comfortable with diversity in a team. Tanneau and McLoughlin (2021) mirror this sentiment, arguing that effective global leaders must be able to function in cross-cultural situations by valuing diversity along with being aware of others' cultural identities as well as their own.

Similar to the research leader at University Green, the Big Five model of leadership is also apparent in UGYRL1's comments related to self-acceptance and self-control.

"I am older than the rest of the team members, and there are new fresh ideas they bring to the research. They also have specific skills that I do not necessarily have, so in leading the team, I need to ensure that all of these skills contribute to the research. We work well together and I find that our different skills sets complement each other" (UGYRL1).

UGYRL1 also speaks of the different ways in which engagement happens with each of the different team members, differentiating between mentoring roles with younger team members and also working with team members who have more research experience. These comments show signs of the Leader-Member theory of leadership that illustrates the leaders' relationship with each team member and which differs between people.

The Contingency and Transformational leadership frameworks are also evident in UGYRL1's team. The Contingency Theory is apparent through the research leader's remarks on issues of communication affected by connectivity in each country along with other challenges. This leader has detailed the ways in which these challenges were overcome through their interventions, motivation, and guidance. Further to this framework, the Transformational Leader Theory is illustrated by the leader's discussions around the broader vision of the research project contributing to enhancing African scholarship.

UGYRL3's description of the leadership methods in leading their intra-African collaborative academic research team, shows signs of The Great Man Leader Theory. This theory has not only shown up in the way in which the leader emerged or appointed. This Research Leader argues that internationally collaborative research team leaders should have a minimum requirement of at least a PhD.

"A PhD should be the basic level of education of the research leader, and they should be actively involved in researching within the field of study of the project. Because you are dealing with the top cream of your field, at an international level, so you cannot be sub-standard" (UGYRL3).

Similar to UGYRL2 and UGNRL1, The Big Five Theory of Leadership has also manifested in UGYRL3's leadership, with the research leader citing cultural awareness and sensitivity as strengths needed to lead a multi-national collaborative research team on the continent.

"It is very important to find a balance because people come from different backgrounds and all cultures must be respected. It is important for the research leader to create an environment that cultivates respect for different people, different regions, and different cultures" (UGYRL3).

Furthermore, the Transformational or Transactional Theory is also present within the leadership of this team in that the research leader emphasises the goal of research dissemination through publications in journals and conference proceedings.

Similarly, in line with The Great Man Leader Theory, ULBRL1 at University Light Blue argued that leaders should have a certain level of intellectual capacity and experience that differentiates them from the rest of the team. The type of leader described here is also associated with the Big Five Model in that dominance and extroversion are traits of the leader. Through these Research Leaders' qualifications and experience, their dominance is evident in their leadership methods.

The model also illustrates traits such as sociability and warmth and self-acceptance or self-control, which ULBRL1 described in their methods.

"My role is to create a space for team members to shine by knowing the capacity of the team and leveraging that to direct the team. There were some team members who really struggled and needed specific support, but there

were others, for example in the statistical analysis, a PhD student was really excellent and using those skills to strengthen the research” (ULBRL1).

The Leader-Member theory is also evident through the research leaders’ comments regarding the interactions with different members of the team through offering more support where needed and direction in other instances. In addition, the Situational Leader Theory is relevant in this case, as the leader had to use different methods to lead individual team members.

ULBRL2 described activities that highlight the Big Five Leader Theory as well. S/he describes:

“personal attributes such as a degree of leadership that drive the team to understand and reach the vision of the project through collaboration” (ULBRL2).

Further to this comment, this Research Leader commented that team members must be held to account when they do not perform. ULBRL2 says that this aspect is important when trying to enable critical and sustainable capacity in the region.

“If you want to be an international leader, you need to step up to the plate, be self-critical and create a nurturing environment for really good scholarship” (ULBRL2).

This Research Leader also argues that this type of leadership requires humanness, empathy, willingness to listen and learn as well as a non-judgemental attitude.

“One should have really high standards, but with compassion and the aim to empower young people” (ULBRL2).

At University Blue, UBRL2’s comments on the leadership style and methods are associated with the Situational Leadership Theory as well as the Contingency Framework of Leadership.

“We have regional and international stakeholders that are associated with our research and part of the research team contributing to the publications. Each grouping is a slightly different engine, and every moment is a learning curve. You are learning all the time and adjusting your approaches of facilitating the collaboration and the activities all the time” (UBRL2).

The Big Five Leadership model again showed up in University Purple's UPRL1's description of the leadership methods or type.

"There is a minimum structure within this team. I respect academic freedom, so my approach includes negotiation with the team members to ensure the best possible outcome" (UPRL1).

Further to the leadership theories evident in the intra-African academic collaborative research teams discussed in this section, shared leadership frameworks are also evident in the exploration of these teams. The next section details the ways in which these have manifested.

4.7.2.3 Shared Leadership Approaches

Forsyth (2014: 313) writes about the future of leadership, noting that the nature and application of leadership will move to more decentralised flatter methods rather than hierarchical and leader centered. Pearce and Sims (2001: 116) in their work on shared leadership, suggest that vertical leadership entails one individual projecting a downward influence on individuals. However, they argue that leadership can exist as a shared group level phenomenon and is an important determinant of group effectiveness and outcomes. Forsyth (2014:310) describes shared leadership as breaking the leader's monopoly on power, influence and authority in the group and distributing responsibility for core leadership functions to all of the group members.

All of the research leaders described a form of shared leadership complementing the leadership types already discussed. These shared types include collaborative, distributive and collegial leadership. Forsyth (2014: 310) offers terms used to indicate a shared leadership model including co-leadership, collective leadership, democratic leadership, delegated leadership, empowerment, peer leadership, self-leadership, team leadership and participatory leadership.

Shared leadership has also been associated with distributed leadership. However, Goksoy (2016: 297) while analysing the relationship between shared and distributed leadership, argues that shared leadership focuses the group's knowledge and competencies. On the other hand, He (2016: 297) argues that distributed leadership focuses on the collective work done to achieve goals through communication and interaction rather than individual work. The leadership styles described by the

research leader participants have been discussed as forms of shared leadership, with most citing collegial leadership as a concept defining part of their leadership and one referred to distributive leadership.

There seems to be contention in the literature between the characteristics of distributive leadership, with Zulkifly, Ismail and Asimiran (2020: 8) arguing that distributive leadership distributes leader activities without authority, power, or decision-making. Meanwhile, collegial leadership, more collaborative in nature, shares the leadership and the responsibilities thereof (Zulkifly, Ismail and Asimiran, 2020: 6).

At University Green, UGNRL1 noted collaborative leadership as a leadership style in addition to those described above. This Research Leader also described a form of shared leadership, naming collaborative leadership as the style used to lead the team. In discussing the collaborative process, Mooney, Burns and Chadwick (2012: 144) argue that collaborative leaders curate talent and motivate rather than merely act as givers of directives and orders. Instead, they (2012: 144) attempt to minimise power and empower others with authority and responsibility to make decisions. They (2012: 145) also argue that collaborative leadership is developed in theory and practice by collegial leadership.

UGNRL1 described the collaborative activities of their project which mirror the descriptions of collegial and collaborative leadership. This Research Leader described the shared interest with the Co-PIs of the project, including publishing in scientific journals and books. UGNRL1 explained that the collaborators from the partner institution have a good track record in publishing research.

“Through the collaborative leadership, this was all organised around outputs”
(UGNRL1).

This Research Leader further explained that they (PI together with the Co-PIs) facilitated the research and the collaboration through co-supervision of post-graduate students. In addition, there were co-authored papers and book chapters between the two institutions, with the post-graduates and researchers as the authors of the book chapter and the PI and CO-PIs the editors.

UBNRL1 at University Brown described a form of shared leadership with the co-PI of their team which resembles the principles of distributive leadership. While the leader works collaboratively with the Co-PI on different tasks, the leader still holds the power, authority and decision-making rights in the collaborative research team. The leader facilitated the progress of the research by assigning elements such as the literature review to their Co-PI.

UBNRL2 also described a shared leadership approach with the leadership methods displaying characteristics of collegial leadership. With the research leader as the director of a research centre of excellence, the team has been built by appointing Co-PIs or what the research leader refers to as Nodal Coordinators, who lead the researchers at each of the collaborating institutions.

“Leading in this way is the only way for success. The structure cannot be a hierarchical one, because we are all of the same rank. It is not like I have clout over the nodal coordinators, so the approach in receiving input from the participating institutions for advancing the research requires leading together for the common goal” (UBNRL2).

The research leaders’ comments indicate the sharing of power and decision-making in leading the research.

URRL1 at University Red specifically referred to collegiality in their leadership style. However, the characteristics of the leadership methods reflect more of a distributive leadership structure rather than a collegial leadership. Weisbach (2021) discusses a person showing collegiality as being a good colleague who adds value to a team. Elements of collegiality are evident in that URRL1 describes a democratic way of facilitating the research and the collaboration, liaising with Co-PIs in the decision-making and consulting for input on the ways in which to lead the researchers in the team. However, power and decision-making are still located with the research leader, showing the shared type of leadership as collaborative through distributive leading methods.

URRL2 mentioned distributive leadership; however, s/he described methods that display characteristics of collegial leadership.

“You lead by not imposing your ideas on your colleagues, but by facilitating and supporting the team in working together for the research objectives” (URRL2).

These comments show the collegial leadership principles of sharing the power and decision-making at the level of the research agenda with the research co-leaders.

URRL3 also described shared leadership practices in additional practices aligned to the theories mentioned earlier. However, the power and decision-making responsibilities are centralised around the one research leader. Similarly, URRL4 also shares leadership tasks, such as assigning the responsibilities of ensuring data collection in the partner countries to Co-PIs. However, the responsibilities of ensuring the research outcomes and outputs are reached, lie with this Research Leader.

At University Grey, collegial leadership has manifested along with the leadership frameworks outlined in the previous section. UGYRL1 described their leadership activities as enabling the development of the research team members into research team leaders.

“People irrespective of whether they are senior or junior, bring certain expertise to the team, so should be respected and appreciated for that” (UGYRL1).

At first the nature of the leadership comes across as distributive; however, due to the interdisciplinary nature of the project and the distribution of decision-making and authority for the different aspects of the research occurred, it showcases collegiality in the leadership style.

Similarly, UGYRL3 commented on group diversity and the leadership style being one that is able to manage teams that include people from different backgrounds and cultures, in a respectful and collegial way. This Research Leader also comments on the issue of working with people within the team who may be at the same level as the research leader. Similar to UBNRL1, UGYRL3 indicated that the team of Co-PIs should be flat in structure to ensure the collaboration of the different groups located at the partner institutions in the different countries within the continent. These indicators also highlight the collegial shared leadership structure discussed in the literature.

UGYRL2 also described collegial leadership in that s/he facilitated their research through supporting the team to reach the research objectives together. The research leader described their leadership activities as shepherding team members through

democratic activities and providing the vision for the research and the collaboration. The research leader further explained that these activities occur together with the Co-PI.

ULBRL1 at University Light Blue also spoke about creating a space that allows for the development of early career researchers at a post-graduate, or research associate level.

“As the research leader, it is important to be able to identify strengths of the individual team members and leverage those to enhance the research” (ULBRL1).

At the same time, the research leader described activities that show the collegiality between the PI and Co-PIs of the research, including that of sharing decision-making and authority, which are aligned to the principles of collegial leadership.

ULBRL2 spoke of the responsibility of the research leader and the Co-PIs to lead with compassion and with the aim of developing and empowering early career researchers. However, s/he also highlighted the importance of managing the research team as the PI and Co-PIs collaboratively including being able to hold team members accountable in order to achieve their vision and objectives.

“It requires holding people to account when it comes to enabling the research and reaching the vision of building critical and sustainable capacity. One needs to step up to the plate to create a nurturing environment for really good scholarship while supporting the development of early career researchers into leaders in their own right” (ULBRL2).

Furthermore, this Research Leader argued that the type of leadership also requires an understanding of the challenges faced by researchers in the participating countries. These comments highlight a combination of distributive leadership in that leading activities are shared with research team members and collegial leadership in that decision-making and power are shared with the Co-PI.

At University Blue, UBRL1 tried to enable the structure of collegial leadership by acknowledging the expertise of each of the research team members. In the ways in which the research leader chose to manage the research activities, the research leader described the principles of collegiality in the leadership style.

“The group members are academic experts within the field, producing outputs in their own right. For this reason, authority is not always possible” (UBRL1).

However, this Research Leader, similar to ULBRL2, argued that accountability is necessary within the team in order to ensure the achievement of the research objectives. UBRL1 further expressed how the accountability is approached through collegiality as well.

“There is the saying: punish in private, and praise in public” (UBRL1).

This Research Leader indicated that accountability is done in a way where the research team is motivated, supported and elevated as a whole, but when specific team members are not delivering, a separate conversation is held.

UBRL2 described distributive leadership in the leadership methods or styles implemented in their intra-African collaborative academic research. Having Co-PIs leading specific research groups focusing on specific themes, the leadership does manifest as shared. However, the power, authority and decision-making are centralised with the PI as the research leader.

UPRL1 at University Purple described activities that mirror the principles of collegial leadership.

“I respect academic freedom, therefore there is no structure within the research group. I negotiate with all members of our research team for the research to advance through the collaboration” (UPRL1).

At University Pink, collegial leadership is evident in the structure of the collaborative team, with UPKRL1 explaining that each participating institution has implemented a local management committee that is led by the Co-PI in each country. Each committee has authority and decision-making activities that impact the selection of research team members including that of post-graduates, as well as other aspects of the research such as data collection and analysis.

UPKRL2 also described a combination of distributive and collegial leadership. With the Co-PI, this Research Leader has shared authority and power and decision-making on all aspects of the research. However, the rest of the team includes early career researchers and post-graduate students. The research outputs are book chapters or

journal articles. Research team members take the lead in these outputs; however, decision-making and authority are centralised around the PI and Co-PI.

Furthermore, as discussed earlier in the chapter, the funder has specified the inclusion of another senior colleague within the team. Coupled with the comments by the research leader, indicating that s/he perceives the role to be more of an implementer, rather than a strategist, distributed leadership throughout the structures of this team is evident.

“I see myself more as being able to follow in someone’s footsteps. In all of my leadership positions, including this research project, I found myself in the position, without having thought of the type of leader I would be or without any leadership training” (UPKRL2).

UPKRL3 described collegial leadership when discussing their leadership style. Even though there are early career researchers and post-graduate students, the leadership occurs between the PI and the Co-PI.

“I am more of an administrative project leader than anything else, trying to make it all happen by supporting and facilitating the research project, ensuring the administrative procedures necessary happen without limiting the research collaboration” (UPKRL3).

UPKRL3 explained that each participating university has a Co-PI who understands the specific context of the university and the country in which they are operating. Each Co-PI is responsible for monitoring the research which occurs in each of these countries including the data collection and analysis. This responsibility is in addition to the input to the research proposal as part of the collaboration. The input from each Co-PI is collated for the research output as well. This Research Leader described the role as facilitating the research collaboration and bringing it all together. The shared leadership activities described by UPKRL3 mirror the principles of collegial leadership.

Comparable with shared leadership is the Ubuntu leadership framework. The Ubuntu leadership framework mirrors the shared leadership model of collegial leadership in that it emphasises collectivism and promotes transparent and democratic decision-making, collective solidarity, community networks and social sensitivity (Pillay, Subban

and Govender, 2013:108). However, the Ubuntu Leadership Framework also acknowledges the cultural context and contextual knowledge values from Africa. While exploring Ubuntu in leadership, Manasoe (2016: 2) argues that the framework considers cultural differences and promotes an Afrocentric approach. Laloo (2022:5) further elaborates that central to the philosophy of Ubuntu is respect for different cultures.

UGNRL1, UBRNRL2, URRL1, UGYRL1, ULBRL1, ULBRL2, UBRL1, UPRL1, UPKRL1, and UPKRL3 have made explicit reference to the recognition of the value of the indigenous knowledge from different countries in Africa. UGNRL1, UBNRL1, UGYRL1, ULBRL1, ULBRL2, UBRL1, UPKRL1 and UPKRL3 have all also commented on the position of South Africa as the scientific centre with the rest of Africa as the periphery and the need to ensure the closure of this gap within the continent.

4.7.2.4 Servant Leadership

In addition to the leadership frameworks evident in the research teams discussed earlier in this chapter, Servant Leadership is a trend evident in the descriptions by the intra-African collaborative academic research team leaders, of their leader activities, methods, and styles. Servant Leadership is a leadership style that prioritises the team's growth and well-being over the leader's own ambition (Vodicka, 2021). In most of the research teams, and especially where there are human capital limitations, the research leaders or PIs would assign research process tasks to themselves and equally contribute to the achievement of the research objectives.

Through characteristics such as humility, stewardship, empowerment and direction, all research leaders demonstrated aspects of Servant Leadership in addition to the leadership styles discussed above. UGNRL1 at University Green, spoke extensively of skills development and capacity building through the inclusion of early career researchers and post-graduate students. In reviewing Servant Leadership, (van Dierendonck (2010: 1232) lists empowering and developing people as a key characteristic of a servant leader and notes that a servant leader values the individual team members and their unique contributions to the team.

Furthermore, UGNRL1 also spoke about the shared leadership method as well as the flat structure of the team, highlighting their own contribution to the operational tasks of the research.

“I am also part of the research team and contribute to conducting the research as well” (UGNRL1).

Stewardship is another characteristic listed by van Dierendonck (2010: 1234), who notes that servant leaders serve rather than focus on control and self-interest. They act as caretakers, setting the right example and stimulating the team to act in the common interest of the team.

Similarly, the two research leaders at University Brown also serve as part of their research teams. UBNRL1 is one of two Co-PIs making up the intra-African collaborative research team. UBNRL2 serves as the Director of the Centre of Excellence. However, they also serve as a PI of one of the thematic groups which contribute to the overall project.

Humility is another characteristic described by van Dierendonck (2010: 1233) and supported by Coetzer, Bussin and Geldenhuys (2017: 6) in describing the functions of servant leaders. The characteristic is described as valuing and activating the talent of team members. This feature is evident in the explanations of the research leaders at University Green and University Brown, with all three leaders highlighting the observations of team member strengths being leveraged over their own strengths to enhance the research. Speaking of the Co-PIs from Tunisia, UGNRL1 discussed the expertise related to publications that has driven the research outputs. UBNRL1 at University Brown also spoke of the skills that the Co-PI brought to the research process and UBNRL2 addressed the capabilities of the early career researchers in understanding new technologies that enhanced the collaboration.

UGYRL1 at University Grey also mentioned the unique contributions each of the team members bring to the international inter-disciplinary collaborative research.

“Each of them is seen as leaders in their own right and respected and appreciated for that” (UGYRL1).

In addition, ULBRL1 at University Light Blue highlighted the strength of an early career researcher in the contribution to the statistical analysis.

“The leader cannot be the only expert. You have to be eager to listen and draw form the wisdom of other team members who come with great fresh and new perspectives that can shape the way the research evolves” (UGYRL1).

Furthermore, URRL2 at University Red also acknowledged the significant contribution from their Co-PI.

“There are some things I may not be able to see clearly, and this is where he contributes significantly. We bring our expertise together to contribute to the knowledge generation in the field from Africa” (URRL2).

Other key characteristics of servant leadership have been described by van Dierendonck (2010), who argues that the definitions presented through academic literature between 1995 and 2003 have given rise to different interpretations. However, van Dierendonck (2010) highlights six key characteristics that give a comprehensive overview of servant leader behaviour experienced by team members. The additional characteristics include authenticity, interpersonal acceptance and providing direction.

Retno, Surachman and Dodi (2020) recently defined servant leadership as a leader who has the intention and desire to lead while seeing themselves as servants and placing the needs of others before their own. They further present that the characteristics of servant leaders include humanity, openness, courage and rigorous thinking.

All of the intra-African collaborative academic research leaders have shown evidence of the servant leadership framework in their discussions of leadership methods in facilitating collaboration within the teams. Each of the research leaders described being part of the research team and actively contributing to the research activities in addition to facilitating, supporting and motivating research collaboration between the multi-national team members. URRL1 at University Red said that each team member has a clearly defined role, but that each team member is exposed to each of the research aspects including:

“the literature review, the data analysis and writing up the project. Each team member exposure and opportunity to contribute to the publishing aspect so are included in the output as well” (URRL1).

Despite most of the research leaders acknowledging their lack of leadership training, the contextual shared leadership framework of Ubuntu has manifested in the teams as one of the leadership styles. In addition, no one leadership style has been used to lead these teams. If anything, the multi-national and culturally diverse teams within Africa are showing that there is no one-size fits all model or structure for leading intra-African academic collaborative research teams.

4.7.3 Sub-Theme 3: Collaboration and Project Management

To understand the leader role through the perceptions of research team leaders/PIs, it is important to also understand the leadership and management activities of the leader. The exploration is through the lens of managing the research, and also managing the collaboration between team members who are located in different geographical spaces, in different cultural contexts and in different education systems. This section details project management tools to manage research collaboration.

Research collaboration in these projects is mostly facilitated through workshops or conferencing between the team members. Prior to the COVID-19 pandemic, these were face-to-face. However, collaborative research teams pivoted to collaborating online during the pandemic. As discussed in section 4.4.2.3, the pandemic posed a challenge to intra-African collaboration. At University Brown, UBNRL2 described limitations posed by the pandemic.

“Covid really snookered us. It would have been much easier to collaborate. We wanted to start off with a conference with all of the thematic teams presenting their projects and receiving critical feedback from other teams. It was also intended to allow for further networking and collaboration” (UBNRL2).

This Research Leader described how the collaboration took place through the sharing of recorded videos and asynchronous engagement.

UGNRL1 at University Green described facilitating collaboration through the ability of the PIs to travel to each of the participating universities. In addition, a conference was arranged for the team members to discuss topics and plan the research project. Further to these methods, email exchanges and online meetings were used as tools to facilitate collaboration between team members. The research leader also

mentioned that these exchanges led to other collaborative research activities between team members.

Physical mobility was also used in the facilitation of the collaborative research by UBNRL1 at University Brown, who travelled to the partner university and worked with the Co-PI on the research project. Following the trip, email and WhatsApp exchanges were used to facilitate research collaboration.

“When I left Nigeria, we worked with email and WhatsApp to be able to achieve the objectives, so a lot of it was done either synchronously or asynchronously virtually” (UBNRL1).

Similarly, UPKRL3 also described the ways in which the online space was used to facilitate collaboration within the research.

“We have regular Zoom meetings between the PI’s to ensure the evolution of the project and input from all team members” (UPKRL3).

URRL4 at University Red also collaborated with the Co-Pis and researchers from the partner institution via physical travel. The research leader expressed that asynchronous work was challenging due to infrastructural challenges discussed in section 4.4.2.2. Internet access and data, as well as access to phones, were a challenge for the collaborating participants from the partner institution.

“It was difficult to ensure data was collected and deadlines were met. Even though we provided cell phones to the PI and researchers, they did not always have airtime to communicate with us. Reception challenges also made it difficult for me to contact them” (URRL4).

At University Red, URRL1’s workshops were used to facilitate collaboration.

“There was an opening, mid-term and closing workshop for this project” (URRL1).

The workshops were used to ensure that team members were able to exchange ideas at different stages of the project and make sure that the plan was being implemented. Asynchronous collaboration through online platforms was used to ensure engagement between the workshops. Similarly, UGYRL1 at University Grey also opted for asynchronous collaboration.

“We set up a formal structure using Google Drive to store our work and use online meetings to check in every 10 days” (UGYRL1).

UGYRL3 also used online technology and conference calls to facilitate collaboration within the team.

“I as the PI schedule quarterly meetings with the Co-PI;s and their groups. In between these, there are bi-weekly calls with the Co-PI’s to listen to any challenges that the groups may be experiencing and discuss updates on research outputs” (UGYRL3).

Furthermore, workshops were facilitated to share the research as well as information on how research collaboration took place. For example, in the event of physical mobility of the Co-Pis, this Research Leader engaged their institution’s international office in order to assist in understanding immigration regulations and visa requirements as well as assisting with import permits for equipment and material needed for the research.

ULBRL1 at University Blue also referred to meetings including an annual face-to-face meeting with the entire group and more frequent monthly teleconferences with the Co-Pis. Further to these approaches, the local team meets once a week to review data and collate for the collaborative meetings and reports as well as analysis. Similar to UGNRL1, ULBRL1 also stated that annual meetings with the full team have provided opportunities to engage with sister hubs and provide opportunities for further networking and collaboration.

ULBRL2 at University Light Blue mentioned weekly meetings used to facilitate the collaboration.

“We run weekly meetings between the team to discuss the progress of the research and the challenges that are experienced in the collaborative activities” (ULBRL2).

Furthermore, the research leader commented that their presence in each of the meetings is essential in order to facilitate the conversations and the evolution of ideas as well as ways in which to overcome certain challenges.

ULBRL1 also referred to collaborative meetings using the online space as well as teleconferencing to facilitate collaboration. Furthermore, email communication occurred between the PI and Co-PIs to ensure the research's progress.

"We are still at the conceptual phase, so we don't have a standing meeting. We meet when we feel it's necessary to discuss the technical development of the project and the instrument. Once this is done, we will move to physical engagement between the team members to conduct the research on the ground" (ULBRL1).

ULBRL2, UPKRL2, and UPRL1 all spoke of conferencing to facilitate research collaboration.

"The conference allows for the cluster team leader to share data and collaborate on outputs" (ULBRL2).

UPKRL2 described how conferencing allowed for networking of team members to collaborate on articles together.

UPKRL1 at University Pink described the role of the local committees in delegating and managing the research teams in each of the collaborating institutions. Meetings between all of the local committees are used to ensure operationalisation of tasks and facilitation of partnering and research collaboration for collaborative outputs.

4.7.3.1 Project Management Tools

To understand how projects are managed in relation to resources used for the management of the project and the team collaboration, the section below discusses project management tools used by the collaborative research team leaders/PIs.

Most the research leaders noted that there are no specific project management tools or systems that have been utilised for the management of the research, or the research teams. However, as discussed in the section above, a mixture of asynchronous and synchronous as well as virtual and face-to-face activities have been used to enable collaboration and research. Research Leaders have also mentioned specific tools that have assisted in enabling the collaboration and the research.

URRL3 at University Red referred to Ghant charts as a way to manage the achievement of set targets according to deadlines.

“I would set deadlines for different elements of the project to be delivered. There would be decomposition of the project into tasks. These would then be prioritised in terms of deadlines and indicated through a Ghant chart structure” (URRL3).

Furthermore, URRL4 has expressed that in hindsight, a project management system, or tool, implemented for the team to work together may have led to speedier success of the project.

UGYRL1 at University Grey mentioned the use of checklists to track the project and manage the achievement of targets. WhatsApp would then be used as a tool to confirm task delegation discussed in meetings.

“At each meeting, a checklist would be developed in each discussion that would determine the breakdown of the tasks and which of these aspects that would have to be delivered by the next meeting. Using a WhatsApp group, I would then communicate the decisions taken in the meeting and confirm the delegation of tasks with the deadline of the next meeting” (UGYRL1).

At University Blue, UBRL1 spoke of systems and processes that were developed together with the teams project manager to track and manage different aspects of the project. As an example collaboration, the process to publish was highlighted.

“Whenever a team member wanted to lead on a project, we had an intention to publish form that had to be submitted to the project coordinator and myself, setting out the paper title, the abstract and the co-authors to be listed. It would also include the particular data that would be utilised in the paper. This would allow us to understand and track the outputs of the research collaboration” (UBRL1).

UBRL2 said that a project management structure was not created. However, s/he indicated this has consequently been a learning curve.

“I would definitely look at project management tools for my next project and this will be structured before the collaboration begins” (UBRL2).

For asynchronous collaboration and the storage of work, an MSTeams Group was used to further collaboration by all team members.

Barnes, Pashby and Gibbons (2006: 396) suggest that effective project management for R&D collaboration includes clearly defined objectives and responsibilities, a mutually agreed project plan, realistic aims, adequate resources, defined project milestones, a simple collaborative agreement, regular progress monitoring, effective communication and ensuring project delivery. However, while discussing the management of research collaboration, Brocke and Lippe (2015: 1031), contend that research projects operate under considerable uncertainty and require freedom of flexibility. They argue that uncertainty gives rise to the necessity of tight management in order to avoid failure.

4.7.4 Sub Theme 4: Leading Cultural Diversity

One of the findings in this research is that the research leaders participating in this research did not note any issues regarding team dynamics within the intra-African multi-national teams. Where culture posed barriers or limitations, the research leaders presented ways in which these were handled. This insight was outlined in Section 4.3 of this chapter.

The South African context is one that provides multi-cultural group settings regardless of the inclusion or exclusion of international partners. Two of the research leaders argued that the leadership of a multi-national team is not any different to that of a multi-cultural one and that the same leadership principles apply.

“I think as a South African, we are so used to working in teams that are diverse that I don’t even consider that anymore. I think it is sort of second nature by now” (UGYRL1).

UBRL1 at University Blue has similar sentiments, arguing that living in a diverse society allows one to prepare well for working within diverse settings.

“My faculty and university is quite diverse, so working in diverse teams is second nature” (UBRL1).

However, Robinson (2018) in his online article, *Multi-cultural SA offers great benefit*, argues that the basic education system in South Africa does not expose pupils to the diversity that South Africa has to offer. Harunavamwe and Palmer (2020: 16) discuss the South African context as complex with 14 different ethno-cultural groups and 11

official languages. They (2020:16) argue that in culturally diverse environments, it is important understand similarities and differences across cultures so as to be aware of cues in cultures different from their own. They (2020: 16) further argue that is necessary for leaders to be able to communicate effectively across cultural differences, understand how to negotiate complex social situations and be familiar with the customs and norms of varying cultures.

UGNRL1 at University Green answered that the cultural diversity and dynamics within the group has enriched the engagement and output of the project through the diversity of perspectives in the different data presentations which were analysed in the two different contextual settings.

“The research conducted and analysed in Tunisia has added new dimensions to the research that has completely enriched it” (UGNRL1).

UGNRL1 also noted though, that cultural diversity did not pose any challenges to leading the team, because the Co-PIs were at a level that did not need any training. They were also at the level of professorship and the research leader attributes this circumstance to the suitable working culture of the team. Even though there were no cultural challenges experienced in this team, the research leader expressed that similar collaborations with partners in China posed the challenge of language barriers.

“I have worked with partners in China and some of the students found it very difficult to express themselves. However, as long as you as the leader ensure ways of communications, perhaps an interpreter or trying to ensure the English that is spoken is communicated properly to the rest of the team, we can get our science done and enjoy the process as well” (UGNRL1).

At University Brown, UBNRL1 perceived the issue of patriarchy evident in the team activities as a cultural dynamic, as the team comprised the research leader and one other Co-PI. The team dynamics had to be managed between these two team members.

“I had to find strategic ways of directing him when leading this research. At times, I had to ingratiate him first before letting him know that I thought we should try a different approach or use different literature for example” (UBNRL1).

The research leader also gave examples of having to accept cultural settings within the partner university such as being told when to speak, or when not to speak, when other male members of staff at the partner institution were speaking.

“I had to find strategic ways of ensuring my ideas are heard” (UBNRL1).

UBNRL2 spoke of having to be sensitive to cultural differences and the need, as a white female leading the group, to be aware and sensitive to the cultural differences within the group.

“Given the colonial history of many countries on the continent, it is important for me as a white female from the UK to ensure the inclusion of the team member perspectives in all facets of the research while trying to understand how different cultures influence the way of working together” (UBNRL2).

This Research Leader also referred to the limitations of funding that allow for research only in certain areas or on certain topics. This research leader believes that within a certain professional culture, this may be a limitation when young researchers are particular about the activities they are willing to take on.

“In South Africa, we understand that funding is given for specific research areas. We take this on so that we can then also research the areas that are necessary as well. I advised a colleague who really wanted to work on a particular topic to do this so that she could get money that would fund research on an expanded topic and give her the opportunity to work on her selected topic. She chose not to do so and really snookered her career in the process” (UBNRL2).

This Research Leader also gave an example of a colleague who is quite famous in the area of dung beetles and has the research funded, so s/he is also able to research other areas.

“I suppose it comes back to its academic freedom but there's common sense in this academic freedom. One of my colleagues, he's very famous and works a lot on plants and he's brilliant and that's what his main task is, but he's more famous for the work that he does we're Dung Beetles. Because the funding is based on that work, because that's what the public see. He is actually far better at his plant work than he is for the dung beetle, but his philosophy is that a dung beetles work is fun, so he uses a little bit of his money to do dung beetles and

he uses most of it to do his plant work which is very important. It is very difficult to get other researchers to have the same philosophy” (UBNRL2).

The comments by this Research Leader refer to the perceived difference in work ethic in difference contexts. However, these comments are also relevant to the challenge of controlled agendas by external funders that do not consider the contextual needs of the countries in which the funding is meant to benefit (Refer to comments by ULBRL2 in Section 4.3 of this chapter).

URRL1 at University Red commented on the influence of differences of opinion during the design phase of the project methodology.

“The cultural differences that came into play only surfaced during the conceptual phase when methodology was discussed. This due to the contextual differences in each country as to how methodology can be operationalised” (URRL1).

Lupu and Michelitch (2018: 199) highlight survey methodology when analysing political science research methods, arguing that most survey research methodologies derive from experiences in developed countries, particularly in the United States. They note that researchers working in the developing world confront very different challenges to collecting high quality data. Munyoro (2018: 83) notes that researchers planning data collection in developing world environments must be cognisant of the particular challenges these environments may pose while contending with the challenges that researchers in both the developed and developing world, face.

Similarly, Confraria (2019: 60) critiques research methodology by focusing on the specific method of bibliometric studies. Confaria (2019: 60) argues that bibliometric studies are based on the central assumption that scientists contribute to the knowledge economy by publishing findings in international peer-reviewed journals. However, the complex reality of research in the global south includes its contribution to the local economy that is not necessarily cited. For example, the following play a role: international researcher indifference to contextual topics within the global south; language bias in most international journals published only in English and different

levels of access to international journals between the global north and the global south (Confraria, 2019: 29).

URRL1 at University Red highlighted the differences to note when considering methodology.

“The type of questions to ask respondents, the target population and sample, gatekeeper permission that differed in each country and issued of informed consent and ethics protecting identities of vulnerable informants had to be discussed during this phase” (URRL1).

URRL4 spoke of the different expectations between team members in South Africa and the collaborators in the partner country. Issues of financial compensation were highlighted as cultural differences by the research leader. Part of the research required data collection from school pupils in Zambia. The research leader, using personal research funds, had included in the budget a stipend for each of the teachers required to facilitate the administration of the research instrument. However, the teachers expected a larger amount of payment and complained to the research team members at the partner institution, causing conflict within the team. The research leader indicated that there was an attempt to build altruism as part of this project to benefit the continent.

“A way to overcome this in the future would be to communicate the amount and the objective and benefit of altruism, whereby they are being trained and gaining new skills. We had to then come in to resolve these issues by communicating effectively, and collegially. In the end everyone was friendly and understood” (URRL4).

This issue represents a cultural difference that required intervention by the research leader. In South Africa, this Research Leader perceived that a stipend would suffice. However, in other cultures, the work is perceived to be over and above their workload.

This issue also represents the issue of fair cooperation when data collection in research takes place. As discussed in Chapter two of the research, the power dynamics between South Africa and the rest of the continent, particularly in that of the SADC region, are that of a core and periphery relationship. Else (2022) argues that

researchers in underprivileged countries collaborating with those from wealthier countries, can at time result in inequalities where researchers are not given fair credit for their involvement, particularly when their contribution is related to data collection. Similarly, ULBRL1 at University Blue also spoke of the power dynamics between South Africa and other countries in Africa.

“I think one also has to be very aware of power dynamics and of how the dominant cultures from colonial times have an impact on the way things get done and always remain quite vigilant about making sure those things don't set the agenda for African research” (ULBRL1).

This Research Leader also argues that in the area of mental health, there are different understandings of depression and awareness of depression within different cultural settings across the continent.

“In some cultures, there is no word for depression, so in terms of the research, we have had to ensure cultural inclusivity in the defining and understanding of mental health aspects. As the leader it is important to ensure we are culturally sensitive and appropriate” (ULBRL1).

Cultural differences are further reiterated by UGYRL3 at University Grey, who argues that it is the responsibility of the research leader, or PI, to ensure respect for the different cultures within the team and to facilitate the inclusion of all perspectives within the research project. UGYRL3 states that for the full benefit of this type of collaboration, it is important to ensure a balance of the different perspectives from different regions and cultures.

Focusing on communication issues, UPKRL1 at University Pink spoke of specific instances where miscommunication associated with cultural differences in the team, impacted the leadership of the team.

“On the issue of recruitment of post-graduate students into the research team, one of the PI's felt that our team was not considering students from their university but did not communicate this clearly and left the meeting quite aggressively. I had to then speak to a colleague of his to understand the issue and after calling a separate meeting with the two of them, through clear

communication, we were able to resolve the issue and ensure that his grievances were given attention and rectified” (UPKRL1).

Two issues were highlighted in respect to cultural differences within research collaboration by UPKRL2. The research leader spoke of the educational level and position ranking in the South African setting, arguing that South Africans do not regard this aspect when determining the type of activities which they contribute to.

“A team member from one of the partner institutions, was not local to Africa and actually came from the USA and was someone who didn’t think it necessary to carry boxes or do any legwork when contributing to coordinating the conference. She also undermined some of the other teammates including myself” (UPKRL2).

The research leader commented on the negative impact on the approach to collegiality in leading this research team due to this issue. The result was the decision to terminate the contract of the US team member.

UPKRL2 also highlighted cultural differences in the case of how the topic of LGBTQI+ is received in different countries within Africa. The research leader gave the example of having to cancel a conference in Ethiopia after members of the research team were threatened when community members became aware of a subtopic of the conference. This challenge is further detailed in Section 4.2.5 of this chapter.

UPKRL3 argued that it is important for the team leader, or PI, to be aware of and understand contextual issues in each country related to the research topic:

“For example, we do quite a lot of work in Mauritius, one needs to understand the Creole fishing community. You need to understand how those operate, you need to understand the deep distrust between themselves and the Mauritian government, as there is a large element of distrust. So, it is important for the leader to be able to be aware of and know how to navigate these issues for the research team to be able to have access to information needed for the research” (UPKRL3).

The research leaders' comments highlight the importance of understanding the contextual cultural dynamics within each of the collaborating countries that the collaboration is taking place in.

4.8 Chapter Summary

In this chapter, the results of the mixed method enquiry into the structural dynamics of intra-African academic collaborative research teams, have been presented and discussed. Firstly, the nature and extent of intra-African academic collaborative research teams discovered at South African research-intensive universities has been discussed. This discussion includes the number of projects reported by research or international office directors as well as the number of projects discovered through the sampling of collaborative research team leaders. Also included are the disciplines covered as well as the research topics and objectives. In addition, the nature of the collaboration in terms of how the teams are structured, is presented.

Furthermore, leader concepts of leadership and structural roles within institutional, national, regional, continental and global frameworks are presented. Additionally, the perceptions of intra-African academic collaborative research as a concept by research leaders have been presented. The leadership theories that are evident within the research teams that were accessed, have been described in this section and finally, the ways in which the collaboration is led within the context of multi-national and multi-cultural teams is unpacked.

The next chapter will spotlight the findings of this research that are significant within the objectives of the research. The chapter will also include a summary of the study along with suggestions for future enquiry into IRC within the continent.

CHAPTER 5: SUMMARY AND INSIGHTS FOR FUTURE RESEARCH

5.1 Summary

The overarching purpose of this research was to explore the structural dynamics of intra-African collaborative academic research teams in South Africa. To achieve this goal, five sub objectives became necessary in this study. In particular, the need to understand how the leaders of intra-African collaborative academic research teams perceived their leadership role within these types of teams. Furthermore, in aiming to understand this phenomenon, I also worked on understanding the factors that impact the leader role, including the challenges and facilitators that contribute to the action of IRC within the African continent. Legislative policy, strategy, and strategic frameworks that leaders are required to operate within, are explored to understand the impact on the leadership activities. Concomitantly, while working within the context of South Africa, it became imperative to understand the nature and extent of intra-African academic research within the research arena in the South African higher education space.

Using a mixed-methods approach, multi-phase data collection and sampling techniques were operationalised. To reach the main and secondary objectives of the study, different target populations were required. In order to reach the academic leaders of intra-African academic research collaborations, I first worked to understand the nature and extent of intra-African research within the context of the research-intensive universities in South Africa.

The next step was to understand which of the academic staff within the research sites that make up the field, are leading these teams. To understand the nature and extent of collaboration and then reach academic leaders of these teams, professional staff contributing to the recording and storage of this information at each of the research sites, were approached using a digital semi-structured interview (Appendix A) that included questions aimed at allowing me to map out the areas of research that are collaborative within the continent of Africa.

To understand the leader role in relation to the structures within which it works, it is important to explore the phenomenon through a social constructionist view. A number of theories within the realm of leadership and management have been used to explore intra-African academic research collaborations within the South African research field. Through a thematic analysis, the views of leaders around the leader role are described alongside leadership theory.

The research leaders' views of their leader role have also been described against literature exploring internationalisation of research, as well as the benefits, challenges, and facilitators of intra-African research collaboration within the context of internationalisation. In addition, the leadership of multi-national and multi-cultural teams has also been discussed through the exploration of these teams.

Finally, influencing factors such as legislation, policy and strategy frameworks at an institutional, national, regional and global level were explored to understand the impact on individual leadership activities. The perceptions of intra-African collaborative academic research team leaders, of the influence and impact of these instruments on their leadership activities, have been discussed.

Important to note is that through a phenomenological perspective, I have also identified the necessity for modified methods to conduct research at a post-graduate level within the African context. These have been highlighted in methodology chapter of this research; namely Chapter 3.

5.2 Conclusion

Five main findings have emerged from this research. Firstly, the results of the online survey completed by international, or research office, directors at South African research-intensive universities as well as the semi-structured interviews, have confirmed conclusions made by authors cited in Chapter 2 of this study, who argue that cross border research collaboration within the African continent which includes South African universities, is minimal.

Secondly, the data shows that research leaders perceive that the sustainability of the continent is dependent on development supported by research for Africa by Africa. The research leaders believe that addressing common challenges together is of great benefit to the collective academic community on the continent.

The results of the survey with international and research office directors as well as the qualitative data from semi-structured interviews with intra-African collaborative academic research team leaders, have also shown that the leadership structures of intra-African collaborative academic research teams are dynamic. This result is true at an individual leader level, an institutional, national, continental and global leadership level.

The fourth finding is that most of research leaders have not taken developmental strategies, or policies, such as the Africa Agenda 2063 and the SDGs into account when developing collaborative research projects. Strategic instruments such as institutional strategies, policies and frameworks, national legislation or governmental policies and strategies, continental and global frameworks have not had a key influence on the decision to collaborate in Africa or on any of the leadership activities.

Finally, the research has also highlighted that there are discrepancies in the understanding of the leading roles played by different institutional entities. This issue is highlighted through the online survey completed by research, or international office, directors as well as through the semi-structured interviews with collaborative research team leaders. The survey results have highlighted the discrepancies in perceptions of leading roles those different entities at an institutional level play. Respondents have answered that the role of university management in leading different aspects of collaborative research is also the role of faculties, research centres and individual academics or researchers. Similarly, the answers pertaining to the role of research and international offices have highlighted the lack of communication between these entities when facilitating collaborative research.

In addition, collaborative research team leaders have also argued that institutional frameworks such as internationalisation strategies of research policies have not

influenced the ways in which they lead research, or their decision-making activities in research collaboration.

In terms of the research objectives of the study, the following section includes conclusions related to the research objectives.

5.2.1 The Nature and Extent of intra-African Collaborative Academic Research

The statistics and information that have been presented in Chapter four indicate that between South Africa and other countries in Africa, collaboration has been limited. This limitation is specifically apparent when comparing these statistics to literature that covers research collaboration between South African academic staff and academic staff from countries outside of the African continent.

The literature has highlighted that research collaboration in South Africa occurs mainly with countries in the developed world. The data derived from this research has reiterated the literature's findings that very little collaboration takes place with countries that fall into the science periphery including that of Africa. These findings speak to the extent of intra-African academic collaborative research.

Within the South African research-intensive universities, the survey with international and research office directors showed that the nature of the research is diverse in disciplines, indicating interdisciplinarity. The interviews conducted with the research team leaders also resulted in qualitative data showing diversity of disciplines and interdisciplinarity in the collaborations.

In terms of the extent of intra-African collaborative academic research, the study observes that University Pink is collaborating with 12 countries within the borders of the continent. Even though there are only three research teams at this university that have emerged from the research process, the three teams expand over these 12 countries. This result is detailed in Figure 4.5. However, in line with the arguments around decolonisation and the benefit of collaborating in Africa, it is important to also compare these results to the stats on where university Pink is collaborating outside of Africa to understand the priority ratio between collaborating in Africa, the global South and the global North. As detailed in table 2.7, South African university bibliometric data shows more collaboration in the global North.

5.2.2 Describing the intra-African Collaborative Academic Research Teams, Conceptually

The literature surveyed in this study argues that participation in research within the context of Africa is also nominal. Compounding this factor is the issue of an aging cohort currently providing supervisory capacity within the continent. The data presented has also shown that capacity, or skills development in research and research collaboration, is a method used to increase participation in research and research collaboration within the continent of Africa.

The literature and data have shown that there is a need to focus on the development of graduates who are able to address global challenges within the framework of sustainability and the development of the contexts they are living and operating in, as opposed to only developing graduates who are work ready. World ready post-graduate students who hold the skills which promote fair and equal collaboration through broad international partnerships and networks and who have the intercultural competences necessary for successful collaboration have been shown to be of importance to the collaborative research team leaders. This issue speaks to the nature of collaboration and the team structures of intra-African collaborative academic research teams.

Furthermore, the qualitative data derived from these intra-African collaborative research team leaders has shown that there is diversity in terms of team structure. The establishment of teams, the team makeup and the operationalisation vary in each case. In certain projects, there is a simple structure of PI and Co-PI working together. In most cases, there are Co-PIs working together on the research together with research team members comprising early career researchers at a post-doctoral level, PhD or Master's students. In the case of large teams with international partners on the continent, local committees are also included as part of the greater team structure.

The most complex team structures are supported through institutional centres of excellence, usually with the research leader, or PI, as the Manager or Director of the Centre with Co-PIs appointed at the collaborating institution. These research teams

also comprise researchers at early career levels as well as post-graduate students contributing to the team. Co-supervision also forms part of the collaborative activities with PIs and early career researchers collaborating to co-supervise post-graduate students. Teams also showed evidence of collaborators external to Africa. In all of the cases where there are external collaborators, funding has had an influence on the team structure.

The first commonality is that the research team leaders have argued for flat structures in the makeup of the collaborative research teams. However, due to capacity building, hierarchical structures have been established for the purpose of research capacity building and development of skills in collaborating internationally through research. Secondly, aligned to the co-supervision, team collaboration also includes the activity of co-supervision. Thirdly, the emergence of the collaborative research team leader seems to be similar in all teams which were explored in this research. The emergence of the leader in all teams was a result of having initiated the research project and leading the project's proposal.

5.2.3 Discussion of the Benefits, Facilitators and Challenges for Research Leaders in Leading Intra-African Collaborative Academic Research Teams

One of the common benefits cited by the collaborative research leaders is increasingly diverse perspectives in the research through international collaboration. This benefit is mirrored by the responses to Appendix A, to which research and international office directors responded. Similar benefits were mentioned such as increased access to resources, access to greater and enhanced networks, enhancement of indigenous knowledge, a contribution to the African voice and a contribution to the balancing of power and periphery dynamics in academic research, which all in turn result in increased perspectives and overall higher quality research.

In terms of challenges, all respondents spoke of the issue of funding when discussing limitations to intra-African academic research collaboration. Further to the issue of not enough funding for research, or research collaboration on the African continent, the challenge is also related to how funding is administered for collaboration. One of the challenges expressed by UBNRL2 related to the lack of funding, is the issue of funding support from ARUA. ARUA Centres of Excellence require an application process for

the establishment of a centre; however, a successful application is not financially supported.

As discussed in previous sections, funding for research in Africa by Africa is limited. The assumption would be that an organisation like ARUA would provide support in the form of funding for research with an African agenda. However, research leaders who successfully apply for ARUA Centres of Excellence are applying for funding through organisations external to Africa. The literature presented in Chapter two argues that the external funding organisations influence the research agenda and as a result, researchers in Africa are unable to prioritise issues unique to the African context.

Administrative Bureaucracy has been concluded to be the most impactful barrier to future iterations of collaborative research by the majority of the research leaders participating in the study. As the second most listed challenge to participating in and leading intra-African academic collaborative research, this challenge is described as leading to decisions to stop any future participation in similar collaboration.

In terms of facilitators as perceived by intra-African collaborative academic research team leaders, there is a diversity of suggestions in terms of ways in which to overcome the challenges discussed. The broad view is that communication should be enhanced to incorporate collaborative activities at the stage of research agenda setting. The reason is that research leaders believe context should be considered at the beginning stages of research, including setting the research topic, objectives and methods. The research leaders also argued that the administrative processes of the research project must consider the differences in administration of research, especially that of finance administration, at each participating institution. Institutional policies and processes must be inclusive of the flexibility necessary for international collaboration.

In addition, there is a need for strong finance and legal systems that support research and research collaboration to navigate the complexities related to research administration at different higher education institutions. In the absence of institutional capacity, the research leaders believe that grants which are inclusive of capacity for institutions may assist in enhancing this type of research. They believe that a continental platform that allows for strategic planning around the mitigation of

challenges related to administrative bureaucracy at higher education institutions, may be beneficial in facilitating more collaborative research on the continent.

Research leaders also mentioned changes in mindset by South African researchers towards opportunities to collaborate with researchers throughout the rest of Africa. They believe that equally valuing the expertise, knowledge, and skills of academic researchers from the rest of Africa to the ways in which that of Western partners are valued, would facilitate additional intra-African academic research collaborations.

Capacity building and skills development for a collaborative culture which prioritises the continent is also a facilitator that has been highlighted by the collaborative research team leaders. Research leaders have argued that during the developmental processes, fundamental values and a working culture should be a focus to ensure that early career researchers and post-graduate students understand the value of international collaboration and more specifically, the value and benefit of collaborating with those from within the continent as well.

Ensuring a collaborative culture at an institutional level is also linked to institutional strategies or policies that promote and are inclusive of collaboration with other African countries as a priority. This facilitating aspect has been suggested as a facilitator that will enhance intra-African collaborative academic research. Thus, the leaders promote an institutional strategy and policies inclusive of a drive for intra-African collaborative academic research. However, this can only be achieved if investment into R&D in Africa increases from within Africa.

Research team leaders have argued that in line with research for Africa by Africa, funding supporting R&D in Africa should come from Africa. Investment by African governments in line with the call by the AU for 1% of a country's GDP to be put towards R&D, may result in effective rollout of strategy and policy at institutional level.

Finally, the research leaders stated that skills development in leadership and specifically, leadership for research and research collaboration would be beneficial. With leadership skills development in the area of IRC, the research leaders believe

that collaborations will be fully beneficial through maximising partnerships to benefit the greater institution as well.

5.2.4 Opportunities for Multi-National Research Collaboration in Africa

Opportunities to collaborate on academic research within the African continent is dependent on the funding needed to facilitate research and collaboration. Chapter four highlighted the fact that the majority of funding supporting IRC within the African continent, comes mainly from organisations outside of the continent. This concern is despite the call in the Continental Strategy for Education in Africa for a 1% GDP spend on R&D by each of the countries on the continent. With South Africa spending the highest at 0.83%, there is a limited amount of funding support from other countries within the continent for collaboration.

The high dependence on international donors from outside of Africa results in institutions in Africa and academics in Africa having to compromise research agendas in order to align with the priorities of the donors. According to a representative from the AAS, Alphonsus Nceba, “external funding is so pervasive that if they pull out, research on the continent would be seriously disrupted” (Omungo, 2018: paragraph 6).

However, the data has shown that there are projects receiving support from within Africa. For example, certain the projects are receiving funding from the NRF. WIOMSA and the BCC are also funding projects that have been explored in the research. Even though the NRF is supporting research collaboration on the continent, the grants at times require co-funding, usually supplied by organisations external to the African continent. Notably, three of the projects are self-funded with researchers using their personal research funds to support research collaboration with other countries on the continent. The literature explored in this study has also highlighted continental organisations such as ARUA, SARUA and the AAS which also support research on the continent through policy, strategy and capacity development.

5.2.5 Leaders Perceptions of the Leader Role in intra-African Collaborative Research Teams

Despite most of the research leaders acknowledging their lack of leadership skills, the contextual shared leadership framework of Ubuntu has manifested in the teams as one of the leadership styles. In addition, no one leadership style has been used to lead these teams. If anything, the multi-national and culturally diverse teams within Africa are showing that there is no one-size fits all model or structure for leading intra-African academic collaborative research teams.

A finding in the research regarding leadership, is the ewof leaders regarding leaders' preparedness to lead a cross border collaborative research team. Most of the research leaders have said they have not received formal leadership training which allows them to understand leadership strategies that would be best for these specific types of teams. Those who have gone through leadership skills development feel that this development is beneficial and necessary for the success of an international collaborative research team within the boundaries of the African continent. Related to this issue, is the finding that the multi-cultural setting of South Africa may prepare academic leaders for the role of leading multi-national or multi-cultural research teams. However, the literature explored in the study refutes this notion.

Secondly, the leader role is perceived to be one that is more supportive in nature, facilitating collaboration and the navigation of the research process within the local university system and the collaborating institution's systems. Directive and task-based managerial activities also form part of the leader role but are dependent on whether there is project management capacity and the size of the team.

Thirdly, a major finding within the theme of leadership in intra-Africa academic collaborative research teams is that each team leader has demonstrated leader traits and activities that are espoused within different leadership frameworks or models. The data presented Chapter four, 4.7 indicates that the types of leadership which guide intra-African collaborative academic research includes collaborative, distributive and collegial leadership.

Traditional forms of leadership that are structured through the hierarchical setup are not common in the teams explored in the research. Notably, shared leadership frameworks have manifested within each of the 18 research teams, showing team members who are of the same educational level, such as having a PhD, or are at professorial or senior academic level within their institutions, being able to share responsibility.

Hierarchy does seem to form part of team structures but only in the form of skills development or capacity building. However, even in these cases, the team leader still aims to create a team environment without power dynamics as a basis for the structure. The shared leadership frameworks that have manifested in the team leaders' description of their role, are distributive leadership, collaborative leadership and collegial leadership. Team leaders' descriptions of their roles show that power and decision-making activities are not necessarily shared by the team members, showing elements of distributed leadership. The Ubuntu leadership framework has also been revealed, with research leaders aiming to establish a collegial leadership environment for the purpose of the enhancement of the collective African voice, or perspective, within the global knowledge economy.

In addition to shared leadership, all the research leaders have also demonstrated traits of servant leaders as well. All research leaders have argued that they value teamwork and view their role as a contribution to the full research process. Examples are the research leaders describing research activities within their role that include coordinating the proposal process, administration, fieldwork, and distribution of results. Notably however, eight of the 18 research leaders noted the influence of the SDGs and Africa Agenda 2063 goals. Even when research focused on topics that could possibly contribute to one or more of these goals, these instruments have not necessarily been an intention of the rest of the leader.

An observation related to views of the leadership role and what influences the role, is that research leaders have expressed indifference to policies, strategies and guiding frameworks at an institutional, national, regional, continental and global level. Even though research leaders have mentioned the SDG's and the Africa Agenda 2063, most of the research project objectives have not been directly related to the goals of these

instruments. In addition, most of the project leaders also expressed indifference to internationalisation policies, or strategies at an institutional level, stating that these documents usually place more of an administrative hindrance on the progress of research collaboration.

Finally, it is noted that with funding, increased capacity is available for the structure of the teams. The servant leadership activities vary in intensity depending on the human capital capacity available in the team through funding. Where funding is available, skills development forms part of the project, which in turn adds human, skills, and knowledge capital to the team.

5.3 Suggestions for Future Research

The following suggestions are offered for internationalisation practitioners as well as international collaborative research leaders in the field to address limitations of the study. The proposed future considerations are unpacked through the lens of each research objective.

5.3.1 The Nature and Extent of intra-African Collaborative Academic Research Teams

The literature exploring the trends and patterns of collaborative research partnerships of South African higher education institutions do exist. However, these insights are not recent and do not cover the context, or the impact, of the pandemic. Based on the study's literature review as well as the results on the nature and extent of research collaboration by South African research-intensive universities, through bibliometric studies, the up-to-date trends and patterns of research partnerships by all South African universities across the globe, should be explored. Furthermore, the trends and patterns of South African university partnerships with institutions within the continent must be compared in this research. In addition, the exploration of the trends and patterns of successful research partnerships across the continent will allow for greater insight into whether there is improvement in the number of partnerships within the continent with South African universities, which is reported to be nominal so far.

Also, within the frame of the nature and extent of intra-Africa academic collaborative research, it is suggested that a qualitative study be conducted that probes the relationship between intra-African academic research collaboration and Africa Agenda

2063 goals and / or national development goals of participating countries to understand the impact of the research in attaining the development agendas of the continent.

5.3.2 intra-African Collaborative Academic Research in the context of Internationalisation

In understanding the concept of intra-African collaborative academic research within the concept of internationalisation, qualitative research on cross border teams is future research could be conducted in this regard. Qualitative research on cross border research teams to understand the extent of intercultural exchange within the continent would be beneficial.

Research focusing on the extent of intercultural sensitivity and intercultural communication competence of team members, which could further contribute to their intercultural competence, is a suggestion emanating from the research. Research focusing on intercultural competence may provide insight for collaborative research team leaders into intercultural competencies necessary when building multi-national teams.

5.3.3 Benefits, Challenges and Facilitators of intra-African Collaborative Academic Research

In terms of challenges, research on understanding how research funding is structured and disseminated for the benefit of the developing world and specifically for Africa would be beneficial. Research on the challenge of limited funding for intra-African collaborative research may allow for enhanced understanding on the funding requirements and the impact of current funding on the needs of the continent.

Also, in relation to the challenge of funding, it is research providing a landscape, or overview, of funding available for research on the continent and funding that promotes cross border international research on the continent is suggested. The research should serve as a description of all funding organisations, structures and opportunities promoting intra-African collaborative research. This research may assist collaborative research team leaders in applying for funding to support research collaboration within institutions in other countries on the continent.

As an additional suggestion, research on the challenge of administrative bureaucracy impacting IRC in different contexts is suggested. The purpose would be to enhance the understanding on how this challenge is overcome in the space of collaboration. The challenge of administrative bureaucracy has been noted in the research as one which inhibits further forays into intra-African academic research collaboration. Research on how international collaborative research teams have worked together in different multi-national and multi-cultural contexts to overcome this challenge, would be beneficial for collaborative research team leaders.

5.3.4 Opportunities for intra-African Collaborative Academic Teams

The global benefits of the inclusion of the African voice on the global stage and the necessity of capacity building to ensure this inclusion are suggested as further research topics for future research. Research on this topic may allow for prioritisation of developmental needs on the continent in global, continental, regional and national strategies and policies related to higher education and research.

Furthermore, research to develop an understanding of governing instruments that influence, or support research collaboration on the continent is suggested. Structured in the form of an intra-African research collaboration governance framework, may assist collaborative research team leaders in understanding the instruments to be consulted outside of the research discipline. This contribution could provide greater understanding in relation to legal and ethical collaboration that is aligned to developmental agendas of each country within the continent.

Furthermore, research focused on understanding governing instrument aims and objectives through the lens of commitment to development of the continent could be beneficial. In line with this exploration, it is also suggested that qualitative research be conducted on the perspectives of research teams regarding the impact of their research towards Africa Agenda 2063 and the SDGs.

It is also important for collaborative research team leaders to understand the political dynamics within the continent that would influence research collaboration. For this reason, an analysis of political influences in Africa that would impact research

collaboration, may be conducted. Furthermore, as noted in Chapter 4, there is a minority in the numbers of research leaders who consult instruments such as the SDGs or the Africa Agenda 2063, thus a study to understand the impact of these instruments on the research agendas of such collaborative projects is suggested.

5.3.5 The Perception of the Leader Role

In relation to the objective of understanding how the leader role is perceived by leaders or PIs of intra-African collaborative academic research teams, the following suggestions for further and future research are made. The shared leadership approaches such as distributive, collaborative, and collegial leadership could be tested within teams to analyse their effectiveness.

In addition, the Ubuntu, or African shared leadership frameworks, may be explored within the context of intra-African academic research collaboration to understand the framework effectiveness in successful IRC on the continent. Furthermore, qualitative research to explore the perspectives of intra-continental collaborative research team members of the leader/PI leadership style may be beneficial. In addition, the research could explore the effectiveness of the style on collaboration and intercultural exchange. These investigations could be an opportunity to test the shared leadership approaches and their effectiveness as viewed by team members within these teams. This study focused only on the perspectives of the team leaders, not the members.

A further suggestion is that further qualitative research to understand the choice of distributed leadership methods over collegial leadership methods. As discussed in Chapters two and four, the lack of supervisory capacity in the South African and African contexts, calls for skills development in research and leadership of research. Here the distributive leadership method may be used to build capacity for the region and the continent. Alternatively, the literature and the data has shown evidence of power dynamics between South Africa and the rest of Africa, with South Africa being seen as the scientific centre and the rest of Africa as being at the periphery. The principles of distributive leadership that do not share decision- making and power in a shared leadership approach, may also be connected to the lack of trust or confidence in the co-leaders. A suggestion is thus to study these nuances through qualitative enquiry.

Finally, if leadership of intra-Africa academic collaborative research is to be understood and enhanced for an increase in participation by South African higher education institutions, further research to explore structural leadership at an institutional level at all South African universities is suggested. Exploring the leadership roles at various institutional levels is suggested. Specifically, institutional levels related to the different activities within a collaborative research project lifecycle may allow for a greater understanding of the institutional capacity necessary for successful collaboration within the continent. This may also allow for institutions to understand how activities should be distributed within an institution for successful collaboration.

5.4 Final Comments

The thesis has explored the dynamic structures that support, lead, direct and facilitate intra-African academic collaborative research at South African research-intensive universities. In doing so, the thesis what leadership of intra-African academic collaborative research teams entails within these universities during the period of 2019 and 2021. Firstly, through the literature and qualitative data, intra-African academic collaborative research was described conceptually.

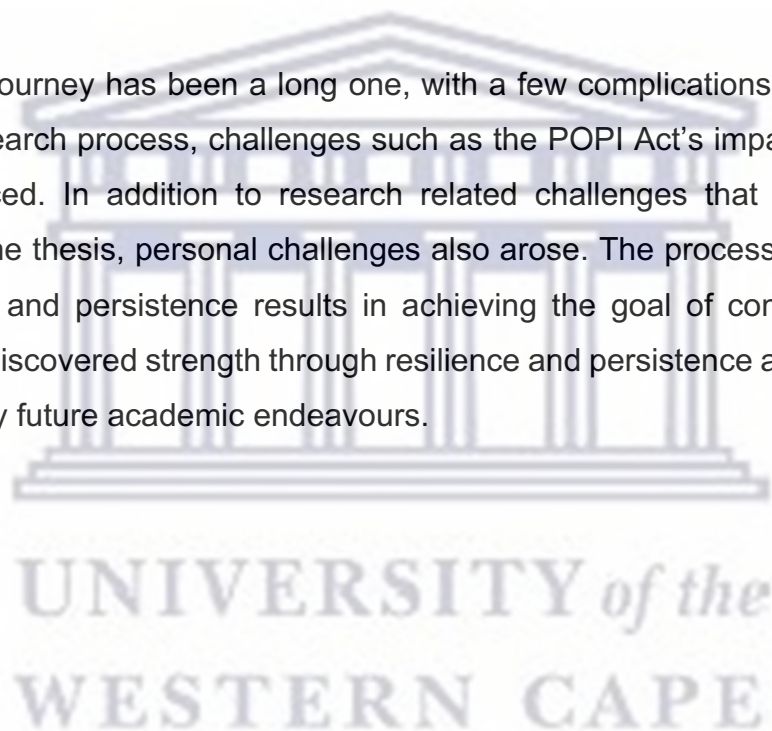
In order to explore intra-African cross border research at South African research-intensive universities, the nature and extent of intra-African academic research collaboration was also discussed. Literature exploring the nature and extent of cross border collaboration involving South African researchers has been presented along with statistics of the extent of cross border collaboration between researchers in the rest of Africa. This discussion has also included the number of projects found at research-intensive South African universities and the countries within the continent involved in the collaborations.

Furthermore, as part of this discussion, the contribution to R&D by Africa within the context of global and continental power dynamics has been presented. In exploring the nature of intra-African academic collaborative research, I have explored the benefits, challenges and facilitators as presented in literature and through qualitative data collected from the empirical research.

In addition, through exploring how intra-African academic research collaboration is structured, led, directed and facilitated, funding aimed at supporting and facilitating collaboration within Africa has been outlined against the background of the influence of external funding on collaboration within the continent.

Finally, through an expose of research leaders' views of the structures that influence intra-African research collaboration and their role as leaders, the leadership style of intra-African cross border collaborative research has been presented. Through an analysis of research leader views and activities, leadership types within these teams have been described.

The research journey has been a long one, with a few complications along the way. Within the research process, challenges such as the POPI Act's impact on sampling was experienced. In addition to research related challenges that are detailed in Chapter 3 of the thesis, personal challenges also arose. The process has taught me that resilience and persistence results in achieving the goal of completing a PhD thesis. I have discovered strength through resilience and persistence and will take this forward into my future academic endeavours.



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Appendix A: Interview Schedule: Directors of International Offices or Research Offices as custodians of information on Intra-Africa research.

Section 1: Background Information:

1. Please indicate your position (Job title)
-

2. Please indicate with a tick, the institutional department you work in

International Education	
Research Management	
Research Capacity and Development	

3. Institution Affiliation (Optional)
-

Section 2: The nature and extent of intra-Africa research:

4. In your opinion, in relation to intra-Africa academic research collaboration, university senior management should be responsible for: (You may choose more than one option)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Developing collaborative networks in other parts of Africa for their institutional research community					
Facilitating introductions between researchers within Africa and researchers within their own institutional community with similar research interests					
Facilitating intra-Africa academic research collaboration from inception to output / publishing					
Managing intra-Africa academic research proposal applications					
Managing intra-Africa academic research project administration					
Promoting the institution as an intra-Africa destination for research collaboration					

5. In your opinion, in relation to intra-Africa academic research collaboration, the institutions research office should be responsible for: (You may choose more than one option)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Identifying partners for intra-Africa research collaboration					
Connecting researchers in different African countries with similar research interests					
Facilitating intra-Africa academic research projects from inception to output / publishing					
Managing intra-Africa academic research project administration					
Facilitating proposal applications for funding for intra-Africa academic research collaboration.					
Provide research capacity building training intra-African academic research collaboration.					
Providing skills training for intra-Africa academic collaborative research projects.					

6. In your opinion, in relation to intra-Africa academic research collaboration, the institutions international office should be responsible for: (You may choose more than one option)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Identifying partners for intra-Africa research collaboration					
Connecting researchers in different African countries with similar research interests					
Facilitating intra-Africa academic research projects from inception to output / publishing					
Administration of intra-Africa academic research					
Facilitating proposal applications for funding for intra-Africa academic research collaboration.					
Resource mobilisation to create funding and budgets for intra-Africa academic research collaboration					

7. In your opinion, in relation to intra-Africa academic research collaboration, the institutions' faculties and departments should be responsible for: (You may choose more than one option)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Identifying partners for intra-Africa research collaboration					
Connecting researchers in different African countries with similar research interests					
Facilitating intra-Africa academic research projects from inception to output / publishing					
Administration of intra-Africa collaborative academic Research Projects					
Facilitating proposal applications for funding for intra-Africa academic research collaboration.					

Resource mobilisation to create funding for intra-Africa academic research collaboration					
Provide research capacity building training such as skills in research methodology for intra-African academic research collaboration.					
Providing skills training for leading intra-Africa academic collaborative research projects.					

8. In your opinion, in relation to intra-Africa academic research collaboration, individual researchers should be responsible for: (You may choose more than one option)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Identifying partners for intra-Africa research collaboration					
Connecting with research partners in other African countries of intra-Africa academic research collaboration					
Maintaining networks for intra-Africa academic research collaboration					
Administration of intra-Africa collaborative academic Research Projects					
Facilitating proposal applications for funding for intra-Africa academic research collaboration.					
Resource mobilisation to create funding and budget allocation for intra-Africa academic research collaboration					
Leading intra-Africa academic collaborative research teams					

Section 3: Intra-Africa research institutional strategy

9. Does your institutional strategy encourages Intra-Africa academic research collaboration

Yes	
No	

10. What, in your opinion is the main implication of this for advancing the intra-Africa research agenda?

11. Intra-Africa research collaboration is a challenge

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
--	-------------------	----------	---------	-------	----------------

Choose one					
------------	--	--	--	--	--

12. What is the main challenge to intra-Africa academic research collaboration at your institution?

	Lack of diversity in institutional partnerships
	Lack of funding
	Lack of Infrastructure support
	Lack of Faculty support
	Language or cultural barriers limiting collaboration
	Lack of institutional facilitation
	Geographical distance between research collaborators
	Visa and immigration requirements for visiting other African countries
	University / research leave policies
	Other

13. If you have chosen " other" in the above question, please elaborate

14. What are the secondary challenges to intra-Africa research at your institution? (you may select more than one option)

	Lack of diversity in institutional partnerships
	Lack of funding
	Lack of Infrastructure support
	Lack of Faculty support
	Language or cultural barriers limiting collaboration
	Lack of institutional facilitation
	Geographical distance between research collaborators
	Visa and immigration requirements for visiting other African countries
	University / research leave policies
	Other

15. If you have chosen " other" in the above question, please elaborate

16. What are the benefits of intra-Africa academic research collaboration for your institution? (You may select more than one option here)

	Diverse perspectives of research contexts
	Diverse perspectives of research methods

	Enhanced quality for the research
	Access to further developed scientific knowledge and technologies
	Added international dimension to research
	Researcher camaraderie of the continent

17. If you have experienced any other benefits, please list them below.

18. Approximately how many intra-Africa research collaborations are currently occurring at your institution?

0 – 5	
6 – 10	
11 – 15	
More than 16	

19. In which areas are these mainly occurring?

	Health Science
	Business and Economics
	Law
	Engineering and the Built Environment
	Arts
	Humanities
	Science

20. If there are intra-Africa academic collaborative research projects, are you willing to put me into contact with academics participating in intra-Africa academic collaborative research projects?

Yes	
No	

Please provide details (Name, Position, Email Address) below:

Appendix B: Semi Structured Interview: The Structural Dynamics of Intra-Africa Academic Collaborative Research Teams

Category B: Intra-Africa Academic Collaborative Research Team Leaders:

Thank you _____ for your time today in allowing me to interview you in order to understand leadership of intra-Africa academic collaborative research teams.

This study aims to understand how the leader of intra-Africa academic collaborative research teams perceives and interprets their role as the leader of this type of team.

In addition, this study aims to understand the team composition of intra-Africa academic collaborative research projects as well as to understand the levels and types of leadership of these teams.

Before we begin, there is just a few protocols I should cover:

- Firstly, do I have your permission to record this interview?
- Do you understand the nature of this study?
- Do you understand that your participation in this study is completely voluntary and anonymous and that you are able to withdraw at any point?
- Do you agree to go ahead and participate in this study?

Thank you, I will now start with the questions:

Section 1: The intra-Africa nature of the research project.

1. What is the nature of this research project?
2. How long has the project been running?
3. How many members are there in the team?
4. Where is each team member located?
5. Please describe the team in terms of gender and ethnic breakdown
6. Please describe the different roles of the different team members
7. Within which disciplines are they working in?

Section 2: The perception of intra-Africa research collaboration

8. What is your understanding of intra-Africa research collaboration?
9. What benefit or value does the international collaborative research component add to the research process and objectives?

10. Do you think the element of collaboration with researchers in other African countries, adds an international dimension /s to the project?

10.1. Please elaborate

11. Do you Strongly Disagree, Disagree, are Neutral, Agree or Strongly Agree with the following statements: The intra-Africa element of this research allows for:

- Individual researcher transformation
- Enhanced development of individual researchers?
- Enhanced research method perspectives

12. Do you Strongly Disagree, Disagree, are Neutral, Agree or Strongly Agree with the following statements: The intra-Africa element of this research enables:

- International perspectives of the research topic
- Enhanced knowledge innovation

13. What is the motivation for this research projects intra-Africa element?

Section 3: Benefits, Challenges and Facilitators of intra-Africa Academic Collaborative Research

14. What, in your opinion are the benefits of collaborating with researchers from different African countries on this project?

15. What implications would there be for this project without the element of intra-Africa collaboration?

16. Has the process of collaboration been easy or challenging?

16.1. Please elaborate

17. What have some of the challenges been in the collaboration of this research project (other than process)

17.1. If there were challenges, how have they been mitigated?

18. What in your opinion would facilitate this type of research?

Section 4: Leading the Team:

19. Please describe the funding source of this research project.

20. How does the funder contribute to the decision-making processes of this project?

21. Do any of the funding institutions staff contribute as team members of this research project team?

22. Were you as the leader, appointed as the research leader , PI, or did your leadership emerge over time?

23. Is there a hierarchical structure for this team?

23.1. Please describe the structure of this team

24. Is there a structure for this research project by means of set targets and deadlines for tasks?

24.1. Please explain how this has been designed and planned

25. How is the collaboration supported, motivated, directed or coordinated?

25.1. Please explain how this has been designed and planned

26. Do you use any project management approaches or systems to lead this team?

Section 5: Perception of the Leader Role:

27. Is your role to achieve certain objectives and tasks through this team?

27.1. Please elaborate

28. Is your role to assist, motivate, support, direct or facilitate the collaboration in this group?

28.1. Please elaborate.

29.21.1. What percentage of your role is directive and task based?

21.2. What percentage of your role do you view to be supportive?

30. Do you perceive your role to be managerial (operational) or leading (strategic)?

31. What do you think your role as the leader of this team should entail?

32. In your opinion, what leadership methods are specifically required to lead a multi-national team such as yours?

33. In your opinion, what leadership strengths are specifically required to lead a multi-national team such as yours?

34. How does the cultural dynamics of this team impact your leadership activities?

35. Are there any other leadership roles that are currently fulfilling within your institution?

36. Is your leadership role different from other leader roles you have served that are not international of nature?

Section 6: Macro Impacting Factors on the leader role:

37. Are you aware of any legislation governing your research topic?
38. Are you aware of any legislation governing the research collaboration?
39. Are there any policies, procedure guidelines, legislation or regulations that enable clear achievement of objectives and goals of this project? Please elaborate on this.
40. How does phenomena like globalisation and Africanisation impact the objectives and processes of this project?
41. What institutional structural factors impact your decision-making as the leader of the group?
42. Are there any local, regional or global policies that guide your research leadership process. For, example, The Sustainable Development Goals or the AU Africa Agenda 2063
43. Do the different Internationalisation or research policies of each team members institution influence the leadership of your project?
44. Are there any other intra-Africa collaborative research team leaders at your institution?

Backup questions:

1. Describe your role at inception,
2. describe your role at the methodological phase,
3. describe your role at sampling phase,
4. describe your role at data collection phase,
5. describe your role at analysis phase.
6. how do you view your role in terms of funding?
7. How do you view your role at publication / output phase?

Appendix C: Letters of Invitation to Participate



Faculty of Education
University of the Western Cape
E-mail: research-ethics@uwc.ac.za
9 January 2021

To whom it may concern

It is currently recognized that collaboration with African universities in research is significant. To this end, I am doing a Ph.D. at the University of the Western Cape, focusing on the Structural Dynamics of Leadership in intra-Africa Academic Collaborative Research Teams. The Ethics Clearance confirmation from UWC can be downloaded for your information [here](#)

Further to this, I have also received Ethical Clearance from the CHED REC to conduct this research at your university along with permission to access academic staff. Confirmation hereof can be found at the following links:

- CHED REC Approval
- Access to Staff for Research Purposes

This letter serves as an official invitation to participate in this research. Inclusion suitability in this study requires that academic researchers be leading intra-Africa academic collaborative research teams. As a research leader or PI, one should be leading teams comprising of team members located in different countries within the African continent. These are teams that are investigating a problem, situation or subject, with the purpose of creating new knowledge or a new understanding of existing information through the use of scientific research principles.

To ensure the study is representative of as many research universities in South Africa as possible, I require assistance. I am requesting your participation in a semi-structured interview that aims to understand your perception and interpretation of your leader role of this team. The interview should take place over the span of one hour at most.

Should you require any further information about the validity of this study, please feel free to contact the research supervisors at the following details:

Primary Supervisor: Professor Patricio Langa: planga@uwc.ac.za
Co-Supervisor: Professor Peter Cunningham: pwcunningham@protonmail.com

In this regard, should you wish to participate in this research, please contact me. You will then receive participation information sheets and consent forms.

Kind regards,

Ms. Divinia Jithoo

Ph.D. Candidate (UWC Student number: 3988675)

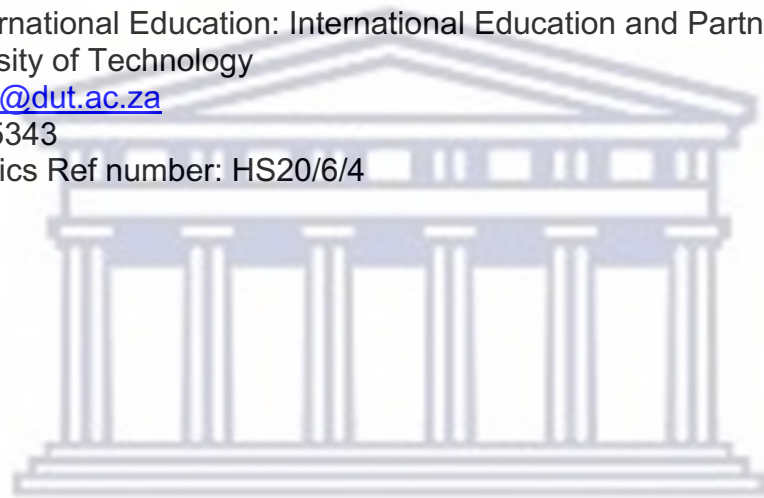
Contact Details:

Specialist: International Education: International Education and Partnerships
Durban University of Technology

Email: DiviniaJ@dut.ac.za

Cell: 078 627 5343

Ref: UWC Ethics Ref number: HS20/6/4



UNIVERSITY *of the*
WESTERN CAPE

Appendix D: Participant Suitability Test

South African Research Universities					
Academic Position	Department	Faculty	Discipline	Intra-Africa Research Team Leader / PI (Y / N?)	Team member location (please indicate the countries the team members are located in.)



Appendix E: Participant Information Sheet and Consent Form



Faculty of Education
University of the Western Cape
E-mail research-ethics@uwc.ac.za

11 February 2021

Dear

I would appreciate your participation in my research study that focuses on the Structural Dynamics of Leadership in Current Intra-Africa Higher Education Collaborative Research Teams. I have selected you as a participant because of your leadership of a team conducting research that requires intra-Africa collaboration and research that spans across different countries in Africa. Your experience and knowledge in leading such a team will advance the African research agenda at your university, and the future development of research leader's competencies. Your participation in this study will also assist me in understanding the structural dynamics of intra-Africa research collaborative teams.

I am requesting your participation in a semi-structured interview that aims to understand your perception and interpretation of your leader role of this team. The interview should take place over the span of one hour at most.

Please note that this study has ethics clearance by the Education Higher Degree Committee (EHD) (Faculty of Education) of the University of the Western Cape (UWC). The EHD consists of a group of independent experts that has the responsibility to ensure that the rights and welfare of participants in research are protected and that studies are conducted in an ethical manner. Studies cannot be conducted without the EHD's and the UWC Senate Higher Degrees Committee's (SHD) approval, which I have obtained. Queries with regard to your rights as a research subject can be directed to the EHD at research-ethics@uwc.ac.za

Participation in this study is voluntary and anonymous. You are not obliged to take part in this research. If you do partake, you have the right to withdraw at any given time. Through a unique coding system that has been designed for data evaluation method and report for this study, your identity will remain confidential and anonymous at all times.

Yours sincerely

Ms. Divinia Jithoo

Ph.D. Candidate (Student number: 3988675)

Contact Details:

Specialist: International Education: International Education and Partnerships

Durban University of Technology

Email: DiviniaJ@dut.ac.za

Cell: 078 627 5343

Ref: UWC Ethics Ref number: HS20/6/42

Please complete by adding text, or marking with an X, sign and return to the researcher

Institution

Gender

M	
F	
Prefer not to disclose	

Ethnicity

Black	
White	
Coloured	
Indian	
Other	
Prefer not to disclose	

I understand the nature of this study

Yes	
No	

I understand that my participation in this study is voluntary and I can withdraw at any point.

Yes	
No	

I agree to participate in this study

Yes	
No	

Signature

Date

Appendix F: Research Ethics Approval



UNIVERSITY of the
WESTERN CAPE



02 November 2020

Ms D Jithoo
Faculty of Education

Ethics Reference Number: HS20/6/42

Project Title: Structural dynamics of leadership in current intra-Africa higher education collaborative research teams: The case of selected South African Research-based universities.

Approval Period: 01 November 2020 – 01 November 2023

I hereby certify that the Humanities and Social Science Research Ethics Committee of the University of the Western Cape approved the methodology and ethics of the above mentioned research project.

Any amendments, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval.

Please remember to submit a progress report by 30 November each year for the duration of the project.

The permission to conduct the study must be submitted to HSSREC for record keeping purposes.

The Committee must be informed of any serious adverse event and/or termination of the study.

A handwritten signature in black ink, appearing to read 'Josias'.

Ms Patricia Josias
Research Ethics Committee Officer
University of the Western Cape

NHREC Registration Number: HSSREC-130416-049

Director: Research Development
University of the Western Cape
Private Bag X 17
Bellville 7535
Republic of South Africa
Tel: +27 21 959 4111
Email: research-ethics@uwc.ac.za

FROM HOPE TO ACTION THROUGH KNOWLEDGE.

Appendix H: Proof of Editing

Editing Service: Lee Kemp

14 Carlisle St

Mount Croix

Port Elizabeth

6001

30 March 2023

082 723 5408

TO WHOM IT MAY CONCERN

EDITING OF THESIS: MS DIVINIA JITHOO

This serves to confirm that I edited Ms Jithoo's PhD Thesis, which is to be submitted to The Institute for Post-School Studies at the University of The Western Cape.

The editing focused on language errors, layout and in-text referencing. In the process I used the Review facility in MSWord. I have no knowledge if the student accepted all the corrections made; thus, I cannot be held responsible for any remaining errors.

Yours faithfully



Ms L. Kemp

B. A. (Hons English); MBA

Member: Nelson Mandela University Editors' Forum