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Identifying the Challenges that Hinder Research Productivity in Academia: Evidence from Somaliland and The Way Forward.

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Acknowledgments

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Abstract

In any nation, research is the primary force behind innovation and progress. It contributes to the Economic growth, global competence, and social progress. Research productivity is highly valued in the scientific community. Scientific community research is regarded as the key factor determining academic recognition, financial support, and academic recognition. Nonetheless, the output of research faces difficulties in many sub-Saharan African nations. This study aims to understand what limits the research publication in Somaliland. The study adopt a mixed methods approach to understand and analyze the main reason behind the research and publication limitations in Somaliland's higher education. Individuals from various research and university settings who have experienced a wide range of working conditions and academic accomplishments are interviewed and surveyed. The findings reveal that precarity, lack of funding, limited number of Ph.D. holders, difficulty of data and literature accessibility, and obstacles in technology are the main reasons that contribute to the limitation of the country's research output. In the findings, there is a clear alignment between quantitative and qualitative data. Increasing the number of Ph.D. holders, developing contractual agreements that reduce precarity, and prioritizing funding mechanisms are some of the recommended interventions of this study.

Chapter One: Introduction

1.1 Introduction

Higher education aims to develop useful knowledge through research. In recent years, research productivity has emerged as one of the key factors determining the knowledge level and prestige of Higher Education Institutions (HEI) (Saleh, 2021). Consequently, in addition to their responsibilities in teaching and service, faculty members are required to demonstrate increased expertise in creating new knowledge through research and development (Kuralay, 2019). In the scientific community, research production is extremely valuable (Saleh, 2021). It is considered to have a major impact on personal status, academic recognition, job advancement, and financial assistance (Saleh, 2021). Research output is starting to play a significant role in determining a faculty member's success and progression in their career (Dundar & Lewis, 1998). Faculty members can generally grow personally, improve their school's standing, and improve the prestige of their field of study by publishing more scholarly publications in highly recognized and influential journals (Dundar & Lewis, 1998).

For these reasons, understanding the fundamental causes of research productivity and investigating methods to improve it is of great interest to researchers, policymakers, and faculty members (Kuralay, 2019). Academics have carried out numerous studies to look into the variables influencing faculty research production. It is noteworthy, therefore, that most of these studies have examined faculty research output in Western contexts (Kuralay, 2019).

However, as with many other African nations, research output is still relatively low in Somaliland (Bile et al, 2022). and academics in higher education do not give this element much attention.

This thesis' main goal is to understand the main reasons that limit research productivity in Somaliland's higher education. This thesis also looks into the variables that influence faculty members' research output, such as possible obstacles to continuing and advancing their work and the inspiring forces they encounter while conducting research. A mixed-method approach is used to accomplish this goal, using individuals from various research and university settings who have experienced a wide range of working conditions and academic accomplishments.

1.2 Research Problem

The Higher Education (HE) sector is a relatively recent development in Somaliland, resulting in a scarcity of comprehensive data regarding university education in the region (Ministry of Education & Science, n.d). This scarcity can be attributed to a lack of institutional regulations and limited involvement from the concerned Ministry of Education (Ministry of Education & Science, n.d).

In 1998, the inauguration of Amoud University marked the establishment of the first university in Somaliland (Ministry of Education & Science, n.d). As of 2011, the Ministry of Education and Higher Studies (MOEHS) had registered 16 higher education institutions, catering to approximately 15,000 students (Ministry of Education & Science, n.d). This growth has ensured that each of the initial six regions now boasts at least one university, with seven public universities spread across Somaliland (Ministry of Education & Science, n.d). Responding to the increasing demand for tertiary education, the number of private universities was raised to 35

(Ministry of Education & Science, n.d). The number of institutions in the nation has increased dramatically in less than two decades, accompanied by a significant growth in student enrollments. Despite these advances, there has been a substantial stagnation in research productivity across these institutions' faculties (Bile et al, 2022). .

For example, from 2017 to 2023, the University of Hargeisa, which is regarded as the biggest and most significant university in the nation, produced only 37 publications[1].

The below graph shows the research output of the University of Hargeisa between the years 2017 – 2023.

***Table 1**: Research publication in University of Hargeisa for the years 2017 to 2023.*

	Local researchers	*External partnership collaboration*	*Total Publications*
2017	5	5	10
2018	3	2	5
2019	2	3	5
2020	4	1	5
2022	2	3	5
2023	2	5	7
Total	18	19	37

Source: University of Hargeisa website. Accessed on April 2024: https://www.uoh-edu.net/publications-2/

The 'health' field, considered as one of the most researched topics globally, is extremely under researched in Somaliland. Boyce et al. (2015) evaluate Somaliland's health-related research

[1] These publications are the number of publications listed in Universities' website and the researcher accessed on Apr 2024, 5:30 pm.

output to assess the country's research capacity. Only 19 (51%) of the 37 health-related publications that were published in Somaliland between 1991 and 2013 had co-authorship by researchers based in Somaliland, according to the researchers. The researchers also found that 43% of those published papers did not report ethical approval during the study.

The below graph also compares Somalia/Somaliland with a few neighboring nations based on the number of publications in the health-related field (1945-2020)[2]

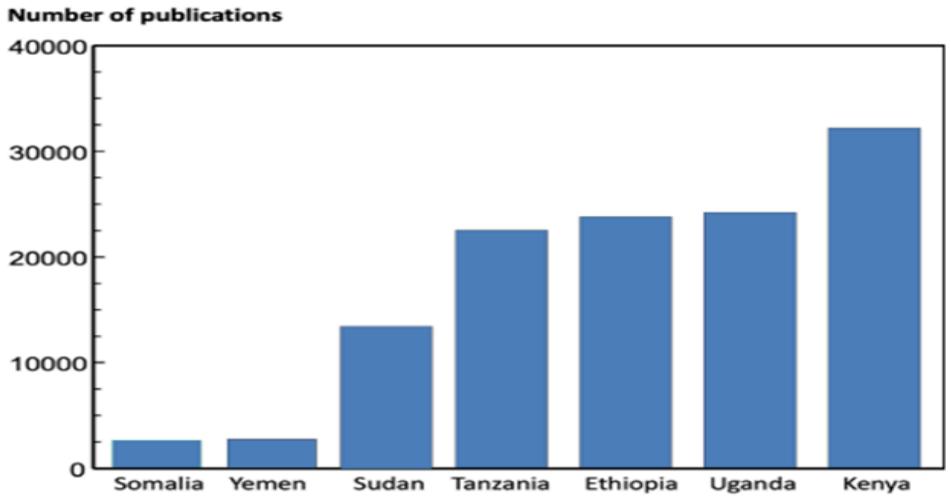


***Figure 1**: Health-related research output for seven countries including Somalia/Somaliland*

Source: Bile et al (2022).

The graph shows how the number of publications in the tow countries is low compared to the nieghborod countries.

1.3 Statement of Research Purpose and Objectives

This research aims to gain insight into the issues that limit research and publication activities inside Somaliland's higher education system. By researching this topic, essential

[2] Researchers based on this only health-related research, and based on specific search string relevant to their research.

contributions to the field of international higher education can be made in various ways. First, it aims to shed light on the challenges contributing to low research output in Somaliland's higher education institutions, which is vital for the country's continuous growth. Understanding these impediments will allow for the development of solutions to overcome them and increase research productivity. Second, answering this question and understanding the underlying reasons might provide policymakers with helpful answers and recommendations. By identifying the specific challenges researchers and institutions face, policymakers can implement targeted initiatives and policies to foster a more conducive research environment. Finally, in line with to Jones (2014), this research aims to fill a vacuum in the current literature on peripheral institutions in the higher education landscape that may be identified for potential collaboration by foreign partnering universities, non-governmental organizations (NGOs), and humanitarian organizations.

1.4 Research Questions

This study investigates several particular questions to progress the underlying goal. These are as follows:

Q1. What are the main factors that limit research output in Somaliland's higher education system? The goal of this question is to identify the factors that either limit or increase faculty research production.

Q2. What are the possible solutions that can be used to tackle this problem? This inquiry aims to propose possible solutions and alternative policy recommendations to solve the problem.

1.5 Thesis Outline

In addition to the introduction, this thesis is divided into six chapters. The second chapter reviews the existing literature on the topic, examining all major challenges that hinder research productivity in general and identifying gaps in the current research. The third chapter outlines the study's conceptual framework, lists the primary dependent and independent variables, and discusses the research hypotheses. The fourth chapter summarizes Somaliland's history while explaining and highlighting the surrounding framework. This is significant because it provides an overview of the study location so that scholars from other countries may understand it. It also gives a summary of the country's education system. The fifth chapter explains the study's methodology, including the research design, general research strategy, sampling choice, data collecting, research role and ethics, and analytic approach. Chapter Six discusses the findings from quantitative surveys and qualitative expert interviews, exploring the transformation of Somaliland's higher education research productivity, navigating policy and practical challenges in research productivity, and discussing policy-driven approaches to shaping Somaliland's higher education. The thesis is concluded in the last chapter, which also provides a summary of the findings and recommendations for policy.

Chapter Two: Literature Review

Universities are multidimensional institutions and have distinct societal functions and goals. Among these, research is a critical component of higher education. Basic research, or research conducted primarily for advancing knowledge for its own sake, has always been central to university goals (Bentley et al., 2015). As the primary knowledge-producing institutions in any community, universities are well-positioned to utilize their research and education capacities to encourage more inventive and dynamic economic growth (Schalkwyk et al., 2018).

While universities' fundamental objective is to research and develop knowledge, there are substantial hurdles in conducting and publishing research in Africa and many low- and middle-income nations (Pfajfar & Shoham (2014). A number of reasons are studied in the literature. Pfajfar & Shoham (2014) conducted a study in MENA to understand the challenges in conducting research. They noted that the most often reported problems in conducting research in the region are data access, data collection issues, the region's variety, and a lack of research support infrastructure.

Two primary components are the focus of the remaining portion of the literature. The first section investigates universities, covering a range of topics. It provides a historical perspective on African higher education, demonstrating its history and relevance for scholars living in Sub-Saharan Africa. It also investigates relevant policies, like the ideas of "publish or perish" and "up-or-leave policy,". Finally, it looks at the significance of publications in academia.

The second section of the literature focuses on the main obstacles that could limit or improve researchers' and scholars' productivity in their research. This section explores several

variables that affect the output of research, such as the availability of financing, training opportunities, and data accessibility.

2.1 Higher Education in Africa

2.1.1 Historical Glimpse

During the first decades of the twentieth century, higher education was mostly reserved to the affluent members of the society, generally men, with only a tiny percentage of the general population had access (Mohamedbhai, 2014). However, a tremendous transition happened in the second half of the twentieth century progress (Mohamedbhai, 2014). Higher education experienced democratization, embracing inclusion and shifting from exclusive to being more accessible to a larger spectrum of people (Mohamedbhai, 2014). African Higher education institutions (HEIs) have grown in quantity and diversity, from roughly 30 at independence in the 1960s to over 600 by the 2000s (Zeleza 2016). Enrollment in higher education has also expanded, from fewer than 200 thousand in the 1970s to more than 5 million in the 2000s (Mohamedbhai, 2014). This move constituted a watershed event in higher education, from elitism to widespread involvement (Mohamedbhai, 2014).

In Africa, higher education institutions have existed for millennia, long before Europeans arrived (Mohamedbhai, 2014). These include the University of al-Karawiyyin in Fez, Morocco; Al-Azhar University in Cairo, Egypt; Timbuktu University in Mali (Mohamedbhai, 2014), and Fourah Bay College (1827) in Sierra Leone; the University of Cape Town (1829) in South Africa, Liberia College (1862), and Makerere University (1922) in Uganda. According to the research, by the years between 1960 and 1970, these universities were succeeding (Hayward & Ncayiyana, 2014). Teaching and research were of excellent standard, classes were small and student-centered, discussion was valued, both authorities and donors generally well-supported

higher education, and a lot of professors had a role in policymaking and conducting studies on the nation's most significant issues. (Hayward & Ncayiyana, 2014).

However, dramatic changes in the environment and perception of higher education occurred across much of Sub-Saharan Africa in the mid-1970s (Hayward & Ncayiyana, 2014). Economic difficulties have afflicted many African countries, prompting some regimes to consider colleges as sources of unwanted criticism and sites of opposition (Hayward & Ncayiyana, 2014). Many governments were concerned about the perceived high expenditures of colleges, pushing them to examine the lives of teachers and students. Universities' perceived usefulness was suddenly reduced (Hayward & Ncayiyana, 2014). Most countries suffered economic problems, which had significant implications for higher education financing (Hayward & Ncayiyana, 2014). This Economic crisis has also impacted the research, quality of education, and higher education faculty members (Hayward & Ncayiyana, 2014).

Also, most external funding, including the World Bank and UNESCO, declined in this period (Hayward & Ncayiyana, 2014). Based on World Bank studies, these donors concluded that educational development activities in Africa should prioritize attaining "education for all", emphasizing elementary education rather than university education (World Bank, 1988). Following the World Bank's decision, several foreign donors, including UNESCO, adopted this strategy and followed this lead (Hayward & Ncayiyana, 2014). One of the significant issues of Africa's higher education system has been the change in priority from higher education to elementary education. Class sizes grew, college tuition rates rose, and numerous significant developments occurred in Africa and other countries, including the US, during this period. Many higher education institutions need to cope with rising demand and decreasing governmental financing to adapt to this (National Science Foundation, 2018).

2.1.2 Academic Profession

These dramatic changes in the higher education system - mainly the rising number of students, new teaching methods, limited research funding, and expansion of both undergraduate and graduate programs - impact not only how these institutions work but also how the academic professionals work in this sector and lead to significant changes in the academic landscape. Due to this, the workforce of faculty members in many universities has undergone significant changes, and just under half of their faculty members are now full-time employees on tenure-track or tenured lines, compared to well over half thirty years ago (Hearn & Burns, 2021). This established contingent faculty - a teaching-focused workforce (Kezar & Maxey, 2013, as cited by Xu & Solanki, 2020). The main reason for this contingency lecturer is to teach undergraduate classes and to decrease the teaching loads toward the tenure faculty members. Since then, the number of these contingency faculty has increased widely. For instance, by 2015, the percentage of full- and part-time non-tenure-track faculty members in the USA had increased to 57% compared to only 34% in 1975 (Shulman et al., 2017).

The concern of these contingency faculty positions raises questions about whether they can deliver high-quality education (Xu & Solanki, 2020). According to some researchers, contingency faculty members may be advantageous to undergraduate students (Figlio & Schapiro, 2017; Zaman, 2004). They stress that, particularly in introductory college courses, the attributes that make a great researcher might not match those required to be an effective instructor (Xu & Solanki, 2020). Rather than imparting the newest, most advanced knowledge, the emphasis of these courses is mainly on building a solid foundation in a subject (Xu & Solanki, 2020). However, other studies assert that outstanding scholars in academia can educate using cutting-edge research expertise (Hajdarpasic et al., 2015; Brew, 2013). Consequently, they

have the capacity to not only achieve remarkable success in their own research but also to develop into outstanding instructors, offering students a comprehensive learning opportunity (Xu & Solanki, 2020).

2.2 Publication in Academia

Historically, scientific publications have been essential to advancing science. Over the last fifty years, the number of publications has evolved into a standard metric for assessing academic ability (Eshchanov et al., 2021). Researchers are receiving Ph.D. and D.Sc. degrees based on the number of articles they publish in scholarly publications, and governments and research organizations are using this signal more and more as a crucial recruitment and promotion criterion (Eshchanov et al., 2021). A small or nonexistent research record has cost many brilliant academic promotions or wage increases, which puts a great deal of pressure on academics to produce (Eshchanov et al., 2021). One of the key indicators of academic talent that helps researchers advance in their careers, keep their positions, and secure funding for their institutions is how frequently they publish (Eshchanov et al., 2021).

Elliott (2013) as cited in Mossa, (2018) refers to publications as the "currency for academic careers," contending that "they are probably the single most important factor in deciding if an assistant professor gets tenure and promotion, whether funding is won, or whether a young scholar gets a postdoctoral research position or lectureship."

2.3.1 *'Publish or Perish' Policy and 'up-or-leave' Policy*

Academic institutions use the number of publications as a measure of competency across the globe; in fact, a growing number of universities use this as their primary recruitment criterion. Academics who do not frequently publish or whose priorities are teaching

undergraduates, for example, may eventually find themselves out of competition (Eshchanov et al., 2021). The academic pressure to consistently publish research papers in scholarly outlets in order to maintain and grow one's career is known as '*publish or perish'* (Eshchanov et al., 2021). The phrase "*publish or perish*" has become well-known in the academic community.

Advocates contend that this has improved academic output by encouraging higher publishing rates and increasing the sharing of knowledge among different researchers. According to them, the publication helps to retain faculty members, especially those at universities, continuously involved with relevant studies in their fields of expertise (Amutuhaire, 2022). According to this point of view, hiring, promotion, recognition, and retention decisions made by administrators or academics are mostly influenced by the scientific research they produce (Amutuhaire, 2022).

On the other hand, opponents critisized that the "publish-or-perish" culture has created a culture where getting publications is the only goal, not expanding human knowledge, but rather building one's curriculum vitae (CV) through publications (Lambovska & Todorova, 2021).

2.3 Research Hurdles: Insights

For both higher education institutions and the nation at large, the importance of research and publishing cannot be sufficiently emphasized. This is because publications stimulate economic growth and play a vital role in promoting scientific advancements (Hatemi-J et al., 2016). In terms of publication output, the United States has historically led the globe (Xu & Reed, 2021). Nonetheless, other countries have been working to advance their scientific capabilities as a result of globalization (Xu& Reed, 2021). There are still big differences in the amount of publications produced among countries, even with the current trend toward

internationalization and mobility (Xu& Reed, 2021). Although the precise causes of this variance difference are mostly unclear (Man et al., 2004), scholars and researchers have invested a great deal of time in studying the different elements that affect publishing levels in different countries as well as in individuals.

In this part of the literature, the researcher will go through the most important factors that can contribute to boosting or reducing the research output.

2.2.1 Research funding

The impact of grants on research outcomes has been the subject of extensive investigation within academic circles. Different scholars with different views dedicated their efforts to understanding the relationship between research output and research funding. The majority of previous studies mention a positive relationship (Arora & Gambardella, 2005; Cattaneo et al., 2014; Jacob & Lefgren, 2012; Carvalho & Hassinger, 2021).

Arora and Gambardella (2005) examine how funding affects the research output of young US economists. The researchers focus on those who get funding from the National Science Foundation (NSF) in the United States and find that the funding has a positive impact on scientific output (Arora & Gambardella, 2005). Jacob and Lefgren (2012) use a quasi-experimental study design to understand the causal impact of the research output of individual researchers who receive funding from the National Institutes of Health (NIH). The findings demonstrate that NIH research funding results in one more publication over the next five years, which corresponds to a 7 percent increase (Jacob & Lefgren, 2012). Individual grants, according to Ganguli (2011), offer a huge boost to researcher publications, more than doubling their output, and Benavente et al. (2012) find an impact of around two more publications in the

six-year period following grant receipt. In their study, Rosenbloom et al. (2015) investigate the influence of federal and non-federal R&D funding on knowledge generation in the discipline of chemistry, as measured by publications and citations. Their findings show a strong and positive causal association between funding and knowledge development, highlighting the importance of financial assistance in advancing research in these disciplines. An empirical study from Singapore examined the influence of a project-based competitive research funding plan for individual university professors on their scientific output (Carvalho & Hassinger, 2021). According to the study, research funding improves the scientific publishing output of sponsored university professors by 31%, which is equivalent to a 62% rise in contributions to conference proceedings and a 20% increase in publications in scientific journals (Carvalho & Hassinger, 2021). Studies also find that funding has a higher effect on early-career researchers compared to those in their middle-career stages (Arora & Gambardella, 2005).

Furthermore, funding has an impact on the researcher's later career publication. Professors who receive research grants experience a persistent and long-lasting positive effect on the overall quality of their published work (Carvalho & Hassinger, 2021). More Interestingly, studies also reveal that grants had an enormous impact on researchers, encouraging them to remain in academia (Ganguli, 2011). On the other hand, research grants impact collaboration; researchers who receive funding have more opportunities to work with each other than those without financial support (Maffioli & Ubfal, 2011). This represents a significant and useful contribution to the research environment as it actively encourages collaboration among academics.

In contrast to this positive relationship between funding and research output, some studies do not find any association between research funding and productivity. Lawson and

Finardi (2021) at the University of Turin in Italy reveal that funding is not associated with higher productivity. Ayoubi et al. (2019) state that receiving research funding enhances the likelihood of co-authoring with co-applicants but has little effect on individual output.

It is also worth mentioning that while funding is an important aspect of research output and works as a catalyst for a researcher's productivity, according to the literature, there are factors that contribute to the likelihood of a research grant. These factors include previous publication records and quality of articles, as well as association with a prestigious university (Arora & Gambardella, 2005; Carvalho & Hassinger, 2021). Furthermore, the strength of the proposal itself plays a key impact in deciding success (Arora & Gambardella, 2005; Carvalho & Hassinger, 2021).

2.2.2 Academic precarity

Precarious work, or employment characterized by temporary contracts, low wages, and a lack of employee representation, is on the rise (Weingarten et al., 2021). There is a considerable discussion and lack of a unified definition of the concept of precarious work according to the literature, and it has been frequently used in sociology, economics, and political science, as well as in the media (Benach et al., 2014). Precarious work is defined as unstable and insecure in terms of continuity and duration of work, limits workers' ability to make arguments for change, and does not provide protection from workplace abuses and hazardous working conditions (Allan et al., 2021). A comprehensive systematic review of 63 research papers from four continents provided insight into the multidimensional nature of precarious employment (PE) and its various definitions in different nations (Kreshpaj et al., 2020). The examination of the research highlighted three broad characteristics of PE through a careful theme analysis: employment

insecurity, income insufficiency, and a lack of rights and protection (Kreshpaj et al., 2020). These findings highlight the widespread issues that people working in insecure jobs confront across the world. Precarity is a different type of work from full-time, permanent, and ongoing employment (Allan et al., 2021).

From an operational standpoint, precarity should increase flexibility while decreasing expenses (Weingarten et al., 2021), and some studies argue and discuss precarious work on this point and see precarity as positive (Coupe, 2006; Leung, 2009). However, from the perspective of all other social sciences, the vast majority of previous studies highlight the negative impact of precarious work (Llosa et al., 2018; Bhattacharya et al., 2021; Aerden et al., 2016). Precarity Impacts mental health, Job satisfaction, continuity of work, motivation, collaboration, and, more importantly, the career development and performance of the employees.

In a more recent meta-analysis that focuses just on mental health, researchers discover positive links between work instability and depression, anxiety, and emotional weariness, as well as negative associations between job insecurity and life satisfaction and overall mental health (Llosa et al., 2018). Workers who are job insecure are more likely to have more days of poor physical and mental health, as well as more days with activity constraints due to health issues (Bhattacharya et al., 2021). Additionally, flexible and precarious work arrangements are associated with lower levels of job satisfaction (Aerden et al., 2016) and are positively associated with employees' withdrawal behavior by increasing job insecurity (Zheng et al., 2021).

Academic precarity is defined as the situation in which researchers and academics with a doctoral degree hold a temporary position with no commitment from their employers to renew or alter those positions into long-term or permanent contracts (OECD, 2021). Academics in

insecure positions sometimes have inadequate access to research funds, support mechanisms, networks, leadership roles, or other comparable situations that might advance science while improving one's career (Albayrak-Aydemir & Gleibs, 2022). In recent years number of insecure academic jobs, particularly zero-hour contracts for hourly-paid teaching and short-term contract research, has grown In the Higher Education (HE) sector (Ana and Dewan, 2014). This might be attributed to rising demand and decreased funding from the state (National Science Foundation, 2018).

The presence of precarious employment poses several challenges for academics, encompassing issues such as challenging and poor working conditions (Allmer, 2018; Miller & Struve, 2020), blurred boundaries between work and personal life (Bozzon et al., 2017), unfair and unrealistic work expectations (Allmer, 2018; Miller & Struve, 2020), and the potential for mental health concerns (Rogler, 2019).

Not only that, but the presence of precarious employment and job insecurity impact the performance of academics. For example, an empirical study by Ferreira and Delgado(2023) at a Portuguese public university's engineering faculty, where precarious contracts are common among researchers, finds precarity affects researcher output while also creating obstacles to the faculty's capacity to use its staff resources properly. Ajayi (2020) examines the link between academic staff productivity and job security in Southwest Nigerian tertiary institutions. The results of the study show that academic staff productivity is low, and job security is emerging as a crucial factor impacting academic staff productivity.

Although the majority of the researchers argue that job security and tenure track improve productivity and that precarity hurts both academia and industry (Ferreira and Delgado, 2023;

Ajayi, 2020; Allmer, 2018; Miller & Struve, 2020; Aerden et al., 2016), other scholars hold the opposite perspective. For example, Ichino and Riphahn (2005) observed 545 white-collar workers (545 men and 313 women) after they signed a permanent contract between January 1993 and February 1995. The findings demonstrate that once job protection is provided after probation, the number of days of absence per week increases dramatically. Coupe (2006) examined 1000 economists over 30 years and found that those who performed well in their early professional stages were more likely to be promoted. However, when economists were given tenure, their research output declined (Warzynski et al., 2006). Similarly, Engelhardt and Riphahn (2005) discovered that temporary workers devote more effort than permanent employees: Their likelihood of working unpaid overtime outnumbers that of permanent employees by 60%. Similarly, the results of Backes-Gellner and Schilnghoff (2004) show that academic productivity tends to decline for professors after they are promoted to full professor. A particularly fascinating study carried out by Leung (2009) investigates the effect of academic tenure on professors' research production. The study examines the academic careers of 934 researchers and their articles from 1973 to 2008 and discovers a substantial fall in production immediately following tenure. On average, the number of publications generated falls by 20% compared to the projected value if tenure is not awarded (Leung, 2009).

2.2.3 Ph.D.

2.2.3.1 Holding PhD

Another impact of research output can be attaining a Ph.D. and receiving formal training for research methodology. Obtaining a PhD is commonly considered the highest level of training

within the academic community. As a result, discussing the function of a PhD in relation to whether or not it improves individual performance becomes an intriguing topic.

Researchers studied how the publication during the Ph.D. has an impact on the researcher's future productivity. For example, Horta and Santos (2016) investigate the influence of publishing during the Ph.D. period on researchers' future research-creation, impact, and collaboration. The findings reveal that researchers who publish during their Ph.D. have better research output and productivity, as well as more yearly citations and citations throughout their career, than those who do not publish during their Ph.D. (Horta & Santos, 2016). Similarly, Munkácsy et al. (2022) explored whether research output before the Ph.D. degree has a connection with subsequent research productivity and found a positive correlation.

2.2.3.2 The country where the PhD studies Happened

Additional researchers have extended the discourse to see whether the country of study has an impact on the researcher's productivity. Gonzalez-Brambila and Veloso (2007) investigated the research output of Mexican researchers to see if the country of Ph.D. had an effect on research productivity. Although the total impact was small, the findings imply that researchers in social sciences and humanities who received their Ph.D. in Europe and the United States are marginally more productive than those who earned their Ph.D. at local universities. In another recent study conducted by Morales and Paredes (2023), the variations of researcher output among 863 researchers from 24 public and private universities in Perú were examined. The study compares the output of researchers with doctorates from European and North American universities to those with doctorates from Peru. According to the findings, researchers

with a Ph.D. from European and North American colleges do more research and are more likely to publish in top-tier journals (Morales and Paredes, 2023).

2.2.3.3 University Granting PhD

Another dimension that needs careful consideration when it comes to comparing research productivity in relation to Ph.D. programs is the institution that grants the Ph.D. This dimension holds significant relevance, and several studies examined the institution and research outcome (e.g., Conley and Önder, 2014; García-Suaza, 2019). García-Suaza et al. (2019) investigated the impact of department rank and advisor match on the early-stage productivity of recent Ph.D. economics graduates. Their data indicate a positive correlation between these factors and graduate academic output.

However, it is worth mentioning that other research has provided opposing viewpoints. Conley and Önder (2014), for example, conclude that departmental rank is not significantly related to research output. A potential explanation for this difference in findings can be attributed to the scope of the studies. Garcia-Suaza's study encompassed economists from both the USA and globally, whereas Conley and Önder's study solely focused on schools within the USA. This distinction suggests that while the USA may not exhibit significant variations among its schools, comparing institutions across different countries might yield diverse outcomes. However, further study is needed to acquire a full understanding and reconcile these contradicting data.

2.2.4 Access to Literature and Data

The accessibility of literature and data provide significant benefits for a variety of research-related endeavors. These include the ability to replicate analyses, investigate secondary

hypotheses, develop and evaluate innovative statistical techniques, aid in teaching efforts, inform the design of future trials, perform meta-analyses, and potentially mitigate issues such as error, fraud, and selective reporting (Vickers, 2006). The availability of data promotes study reproducibility and enables validation, replication, reanalysis, reinterpretation, and inclusion into meta-analyses (Bloom et al., 2014).

Apart from enhancing the reliability and replicability of studies, open data access can facilitate knowledge advancement in multiple other manners (National Academies of Sciences, Engineering, and Medicine, 2018).

According to research access to literature and the availability of data are essential components of research and scientific developments, as well as drivers of economic progress (Anane-Sarpong et al, 2018 ; Batuo, 2018)

2.2.5 Technology and IT

Over recent years, and since the 21st century, the rapid progress in technology, particularly the Internet and information technology, has undeniably brought about significant transformations in the modern workplace (e.g., Dewan and Kraemer, 2000). The influence of Information Technology (IT) on knowledge generation is of supreme significance, particularly in scientific research, where the acquisition and development of knowledge are heavily reliant on access to adequate equipment, resources, and the collective knowledge and competencies of fellow researchers (Ding et al., 2010). Information Technology (IT) plays a pivotal role in augmenting these critical components (Ding et al., 2010).

Previous studies examining the association between Information Technology (IT) and research productivity have consistently provided evidence supporting the notion that IT

positively influences research productivity (Hesse et al., 1993; Wash et al., 2000; Kyrillidon, 2001; Zhang, 2001; Winkler et al., 2010). These investigations have consistently revealed a direct correlation between the extent of IT utilization by researchers and their level of productivity. For example, Manda and Nawe (2008) conducted research in Tanzania that included five public universities with varying levels of electronic information resource access. The study aimed to investigate the association between information technology (IT) and research output among Tanzanian researchers and find a positive correlation between the use of electronic information resources and overall research output and publication outcomes. Winkler et al. (2010) examine the relationship between IT and research productivity among life scientists. The study utilizes data from the Survey of Doctorate Recipients (SDR) and institutional-level information to explore the positive correlation between IT adoption and research productivity. The findings suggest that incorporating IT tools and technologies into their research practices enhances the productivity levels of life scientists. Ding et al. (2010) discover a similar association. Over a 25-year period, the researchers examine a random sample of 3,114 life scientists actively engaged in research at 314 institutions in the United States. The study finds that having BITNET, a computer network, on a scientist's campus improves productivity and cooperation.

A significant aspect to consider when discussing the impact of information technology on research productivity is collaboration. Information technology has greatly influenced the collaboration among researchers working across different continents, leading to significant improvements in research output. Informational technology also has an impact on the collaboration between different researchers (Ding et al., 2010), and several research studies have found a significant increase in the number of collaborative articles written by individuals

connected with diverse academic institutions and from different countries (e.g., Jones et al., 2008).

2.2.6 Other factors

One must understand that, despite their importance, the factors mentioned above do not fully capture all of the different aspects that affect research output and publication within the academic community. The academic field is complicated and diverse, and numerous other elements also have a role in the productivity of researchers' scholarship.

According to the literature, *Individual characteristics* like age and gender are some of the other main factors that contribute to and have an impact on one's research productivity. Numerically, Gender can have a noticeable impact on the publication, which can occasionally work against women (Beaudry & Larivière, 2016; Larivière et al., 2013). Several studies argue that male professors tend to publish more than their female colleagues across a variety of disciplines (Acker, 1977; Gul et al., 2016; Hedjazi & Behravan, 2011) and that being a man can boost publication. Men are also more cited (Larivière et al., 2013). Various studies in academia aim to clarify the fundamental reasons for women's comparatively lower intellectual productivity over the course of their lives (Aparna, 2022). These factors include differences in family responsibilities, different approaches to time management, unequal distribution of resources, different forms of academic cooperation, and instances of bias against women in the peer review process (Sá, 2020). Nonetheless, some research claims that women's productivity rates are equal to men's, indicating that gender has little or no impact on the productivity of research (Khalil & Khalil, 2019).

More interestingly, few researchers challenge these findings and argue that although women have fewer publications than their male colleagues, women sometimes have a higher citation index than men (Hildrun et al., 2012) and they typically care more about the quality of publications than the quantity (Beaudry & Larivière, 2016).

Age is another factor of individual characteristics that is thought to have a substantial impact on research output. However, different studies suggest various findings about age. On the one hand, researchers indicate that age and research production are positively correlated (e.g., Khalil & Khalil, 2019). Their findings indicate that when people age, they tend to produce more research. However, other research, such as that done by Bland (2005), did not find any statistically significant evidence to support the idea that the age of a researcher has an impact on the quality of their work. These findings suggest that faculty members' research output may not be significantly influenced by their age.

The *academic disciplines* are another significant and noteworthy element; some studies have focused further on this (e.g., Gaus et al., 2020). According to some research, for instance, researchers in the exact sciences (medicine and engineering) publish more than those in the social sciences when it comes to research output (Heng, 2020). Other factors that merit attention and are positively correlated with the research output include the level of English language proficiency (e.g., Man et al., 2004), and geographical factors (e.g., Baruch, 2016; Mammides et al., 2016).

2.2.7 Summary

Research plays an important role for universities and in society as a whole, and publication in recent years is important and is one of the main criteria to measure how things go

in different organizations/universities. Not only that, but publications also became the main requirement for jobs in academia. However, there are still challenges for academic professionals working in sub-Saharan Africa, specifically the scholarly publication.

In this chapter, the researcher reviews the main factors that, in some way or another, can impact the research output. Out of these, some factors stand out as primary obstacles, including funding, employment precarity, Ph.D. and specialized training, access to data and literature, and technology.

In addition to these factors, the researcher reviewed several individual characteristics that may influence the research output and publication. These include age, gender, proficiency in English, and geographical aspects.

2.4 Knowledge Gap

Although there has not been much research done in Somaliland overall, it's clear that there has not been much done on the country's higher education system. The doctoral dissertation by Jones (2014), which focuses on Academic Staff Views of Higher Education Quality in Somaliland, is a noteworthy study in this field. Jone’s study investigates academic staff members' perceptions of institutional quality, particularly as they relate to peripheral institutions such as those in Somaliland. Jones’s (2014) closes a significant gap and advances a scientific understanding of the issues at hand by examining the variables that academic experts believe impact Somaliland's educational quality.

This thesis fills a significant knowledge gap about the main causes of the lower research publications among researchers and academics in Somaliland, which is a critical first step toward

resolving the country's limited research landscape. It is noteworthy that, to the best of the author’s knowledge, this is the first study that directly looks at the problem.

Chapter Three: Conceptual Framework

3.1 Defining terms

3.1.1 Higher Education

Higher education (Tertiary education) refers to all forms of official post-secondary education, such as universities, colleges, technical training institutes, and private and public vocational schools (World Bank, n.d).

3.1.2 Precarity

Even though the concept of precarity has been discussed extensively in the literature, it is clear that the definition of precarity is still not well-defined, which results in the interchangeable use of multiple related terms (Kreshpaj et al., 2020). It is defined as uncertain and unpredictable employment in terms of quantity and continuity, limits employees' ability to advocate for change, and offers inadequate/no protection against mistreatment at work or hazardous working conditions (e.g., Kalleberg, 2009). Contrary to full-time, permanent, and stable employment, precarious work involves economic insecurity, such as low income or restricted access to benefits like health insurance and retirement plans, gives workers very little power, and lacks workplace protections and rights, which may expose people to hazardous working conditions (Allan et al., 2021).

In academia, precarity is defined as the situation in which researchers and academics with a doctoral degree hold a temporary position with no commitment from their employers to renew or alter those positions into long-term or permanent contracts (OECD, 2021).

3.1.3 Ph.D.

A PhD is an advanced educational achievement that individuals and professionals usually pursue following the completion of a master's degree (American University, 2022).

3.1.4 Tenure

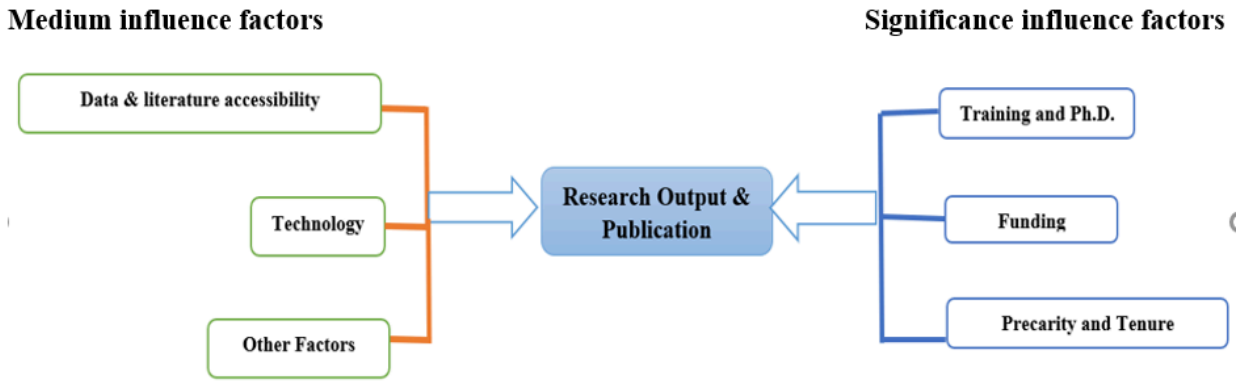
The American Association of University Professors (AAUP) defines tenure as a permanent appointment that can only be terminated for specific reasons or exceptional circumstances, including financial constraints or program discontinuation (AAUP, n.d.). It highlights the academic achievements as well as the expertise of the professor.

A tenured professor is a professor who is employed on a full-time basis and has satisfactorily completed a specific period of experience for tenure evaluation, gone through an extensive review process spanning several months, successfully passed rigorous assessment by fellow academics, and as a result, has been awarded a tenured position (Decker, 2023).

3.2 Conceptual Framework

Adopting a conceptual framework is crucial for gaining a more thorough knowledge of the main barriers limiting a country's research output. Several elements and aspects that affect the research landscape can be analyzed and arranged using this approach.

Within the existing body of literature, numerous theories are available to assist researchers in identifying the factors that influence the productivity of faculty research and to define the motivational influences that drive faculty members to engage in research pursuits (Kuralay, 2019).



Source: Constructed by the author referencing Kuralay (2019).

Figure 2: *Conceptual framework*

3.3 Research Hypothesis

To determine a suitable answer to the research's primary question, "What are the main factors that limit research output in Somaliland's higher education system?" The objective is to test multiple hypotheses relating to the publication and research output.

Hypothesis 1: Insufficient research funding significantly limits research output and publication.

Inadequate funding or limited financial resources have a negative effect on academic researchers' productivity and decrease the number of their published works (Arora & Gambardella, 2005; Cattaneo et al., 2014; Jacob & Lefgren, 2012; Carvalho & Hassinger, 2021). Funding also has an impact on the researcher's later career publication (Carvalho & Hassinger,

2021) and collaboration (Maffioli & Ubfal, 2011) and works as a catalyst for a researcher's productivity.

Hypothesis 2: Precarity and temporary employment status significantly limit research output and publication.

Precarity and temporary employment without job security are major productivity killers for academic researchers and have a negative impact on the number of publications (Ferreira & Delgado, 2023; Ajayi, 2020; Allmer, 2018). This problematic circumstance is one of the primary causes of the decline in publication rates in higher education. Researchers frequently struggle to maintain a continuous research program and build long-term initiatives because of the unpredictability and precariousness of temporary employment.

Hypothesis 3: Lack of data accessibility significantly limits research output and publication.

Access to literature and the availability of data are essential components of research and scientific developments, as well as drivers of economic progress (Anane-Sarpong et al, 2018; Batuo, 2018)

Hypothesis 4: Lack of training and PhD significantly limits research and publication in Somaliland.

Limited availability or lack of Ph.D. holders and inadequate training among the academicians working in higher education negatively influence research output (Horta & Santos, 2016; Munkácsy et al., 2022)

Hypothesis 5: Limited access to technology and IT significantly hinders research output and publication.

Limited access to technology and information technology (IT) significantly holds back research productivity and the ability to publish findings and has a negative impact on the publication of the researchers (Hesse et al., 1993; Wash et al., 2000; Kyrillidon, 2001; Zhang, 2001; Winkler et al., 2010).

Chapter Four: Contextual Framework

4.1 Historical Tapestry: Somaliland

After gaining independence from Britain on June 26, 1960, the British Somaliland Protectorate territory—now known as Somaliland—is the first place where the first Somali flag was flown (Kaariye, 2021). After an enduring period of seventy years under British rule, Somaliland achieved its long-awaited independence on June 26, 1960 (Kaariye, 2021). On July 1 of the same year, it unites with Italian Somalia to form the great Somali Republic (Kaariye, 2021).

***Figure 3**: Map displaying Somaliland's location in Horn of Africa*[3]

Establishing a republic that would unite all Somalis and include a variety of areas under various colonial occupations was the main goal of this unification (Muhumed, 2017). These

[3] https://theatlasnews.co/analysis/2024/01/24/understanding-africa-the-history-of-somaliland/

included Djibouti, which was occupied by France, Italian Somalia, British Somaliland, Reserved Areas (Ogaden) combined with Abyssinia (Ethiopia), and the Northern Frontier District (NFD) combined with Kenya (Muhumed, 2017). At this time, the idea of pan-Somalism—which emphasized the need for a single Somali identity and common goals among the Somali people—reached its peak.

The prime minister of Somaliland during its independence, Mohamed Ibrahim Egal, confirmed that discussions regarding the conditions of the union agreement took place in the parliament of Somaliland (Muhumed, 2017). They submitted a proposal with twenty-three articles that they planned to ratify collectively (Muhumed, 2017). The joint session of the national assembly, which was made up of 90 members from Somalia and 33 members from Somaliland, did not consider their proposition when they traveled to Mogadishu (Muhumed, 2017).

The unification process between Somaliland and Somalia entailed several key conditions. One such condition was that if the president of the republic originated from one side, the prime minister would be selected from the opposing side, ensuring a balanced distribution of power (Muhumed, 2017). Additionally, both factions were to have equal representation in terms of parliamentary seats and cabinet positions, promoting fairness and inclusivity(Muhumed, 2017). Furthermore, if one side assumed control of the republic's capital, the other side's capital would accommodate foreign consulates, maintaining diplomatic presence for both factions (Muhumed, 2017). These conditions aimed to establish a unified Somali state that prioritized power-sharing, equal representation, and diplomatic accessibility for all parties involved (Muhumed, 2017).

However, the Somali MPs and delegates rejected all of these demands and insisted on the immediate and complete amalgamation of the two states (Muhumed, 2017). After that unification, the southern region received all the vital roles, including the president, the prime minister, prominent cabinet positions, and army commanders (Muhumed, 2017). Only a small fraction of the ministerial positions, specifically four out of the total fourteen, were assigned to politicians hailing from the northern region, which encompassed Somaliland (Muhumed, 2017). Somalilanders experienced tremendous disappointment and skepticism in the early aftermath of the union, as demonstrated by several incidents that brought their intense dissatisfaction to the public (Muhumed, 2017). One notable occurrence is a failed military coup in December 1961, carried out by military officials from Somaliland (Muhumed, 2017).

While many Somalilanders still hold a deep sense of disappointment regarding the union, on October 15, 1969, the president was killed by his bodyguard, and a military regime led by Mohamed Siad Barre overthrew the elected government in a coup d'état on October 21, 1969 (Kaariye, 2021). Despite wok had been done, the military administration caused immense misery by seriously violating human rights during its time in power (Kaariye, 2021). Particularly over the last ten years (1981 - 1991), there has been a great deal of suffering and hardship due to severe oppression and acts of brutality (Kaariye, 2021). During this time, different military opposition formations developed including the Somali Salvation Democratic Front, known as the SSDF, and the Somali National Movement (SNM) (Kaariye, 2021).

The Somali National Movement (SNM) became a powerful opposition force after a wave of widespread arrests, detentions, extrajudicial executions, confiscations of private property, and mysterious disappearances of civilians in the northern region known as Somaliland

under the military regime[4] . A group of intellectuals and scholars from the former British Somaliland Protectorate created the SNM on April 6, 1981, in London (Kaariye, 2021). As the SNM worked to undermine the regime's power and promote the rights and ambitions of the people of Somaliland, this event represented a turning point in the resistance movement against the repressive government (Kaariye, 2021).

In 1991, after ten years of violent struggle, the SNM overthrew the military government and took over the administration of the former British Somaliland Protectorate (Phillips, 2013). On May 18, 1991, leaders of the Somali National Movement (SNM) and elders from northern clans met in Burco[5] for the 'Grand Conference of the Northern Peoples' (Bradbury et al., 2003). During this meeting, they agreed to cancel the 1960 Act of Union, which had previously joined the former Italian Somalia and the British Somaliland Protectorate (Bradbury et al., 2003). As a result, on this historic day, the Republic of Somaliland was founded. This new republic encompasses the five previous regions of northwest Somalia, as well as the territory that was once part of the British Protectorate (Bradbury et al., 2003). Somaliland's borders, established by international treaties made between 1888 and 1897, are shared with Djibouti to the north, Ethiopia to the west, and Somalia to the east (Bradbury et al., 2003).

Since declaring independence again, Somaliland has achieved peace and stability for over 30 years. The government of Somaliland faced significant challenges but managed to rebuild the economy after the war. However, until now the UN does not recognize as independent state.

[4] International Crisis Group (ICG), "Somaliland: Democratization and Its Discontents. https://saxafimedia.com/somaliland-democratization-and-its-discontents/

[5] Somaliland's second capital.

4.1.1 Demographic information

Nearly half (48 percent) of Somaliland's population consists of individuals under the age of 15, while an equal percentage falls within the working age range of 15 to 64 (Ministry of Planning and National Development, 2020). The average household size in Somaliland is six people (Ministry of Planning and National Development, 2020). About 30 percent of households are nuclear families that may include foster children or orphaned children (Ministry of Planning and National Development, 2020). Approximately 71 percent of households own mobile phones, and within nomadic societies, 54 percent of households possess basic cell phones that are connected to FM radio (Ministry of Planning and National Development, 2020).

Somaliland has made economic progress, mainly driven by the export of livestock. Following its claim of independence, the government's revenues have increased rapidly. However, despite these advancements, Somaliland still faces significant poverty due to limited trade opportunities and foreign investment. The country's GDP in 2018 was estimated at 2.5 billion USD, with a GDP per capita of 566 USD (Ministry of Planning and National Development, 2020). The local economy benefits from remittances from the diaspora and the export of livestock to Gulf States such as Saudi Arabia and Oman (Ministry of Planning and National Development, 2020). Unfortunately, the lack of international recognition hampers Somaliland's ability to enter into bilateral agreements for infrastructure development and attract direct investment and aid from major donors (Ministry of Planning and National Development, 2020). Nonetheless, the establishment of the Somaliland Development Fund in 2012 provides support for the country's development goals through funding projects aligned with the National Development Plan (Ministry of Planning and National Development, 2020).

4.2 Education Overview

The overall level of educational access is limited. Approximately half of the female household members and 43 percent of male household members have received some form of primary education (Ministry of Planning and National Development, 2020). In contrast, only 30 percent of children attending primary school are of the appropriate age for that level, and a mere 11 percent of children attending secondary education are of the appropriate age for that level (Ministry of Planning and National Development, 2020).

To gain insight into the educational background of the country, the researcher divided the country's educational system into four stages: pre-colonial education, colonial education, post-colonial education, and the country's current education system.

4.2.1 Pre-colonial Education

During this time, education was not structured like it is today. It was either informal or mainly centered around religious teachings (Morah, 2000), and was a kind of education that suite the lifestyle of the nomadic herdsmen in the region (Jones, 2014). Religious Koranic schools played an important role in the educational landscape of Somaliland (Morah, 2000). These institutions largely focused on transmitting traditional Islamic knowledge, which included disciplines like Islamic philosophy, Arabic language, Arabic literature, and Sharia law (Morah, 2000). As a result of this importance, practically every educational institution currently has a department dedicated to Islamic and Arabic studies (Jones, 2014). Furthermore, mosques are common on campuses, as are opportunities for students to participate in Koranic recitations and Islamic-themed clubs (Jones, 2014).

4.2.2 Colonial Education

As the late nineteenth century approached, there was a significant shift in Somaliland's education system. The introduction of the Western educational system marked a substantial shift in the educational environment (Melesse & Obsiye, 2022). The British, who ruled Somaliland, strongly supported the establishment and implementation of Western education systems in the region (Melesse & Obsiye, 2022). This shift marked the establishment of the first public school in Berbera in 1898, followed by the construction of schools in Bulhar and Zeila in 1905 (Aderemi, 1982 as cited by Melesse & Obsiye, 2022). During this time, the colonial authority attempted to establish a structured educational system with an emphasis on reading and mathematics (Melesse and Obsiye, 2022). The major goal of colonial education was to train administrative staff for the British protectorate, and primary education served as the highest level achievable by making the English language the main medium of education (Melesse & Obsiye, 2022). Despite the colonial government's efforts to implement the new educational system, it encountered strong opposition from the local community (Ahmed & Bradford, 2011; Samatar, 2001). The majority of community leaders, who were mostly religious, had a negative view toward colonial schooling, because they were perceived as symbols of colonialism, and they believed that introducing "secular" education might potentially convert students to Christianity (Samatar, 2001). This negative view toward colonial education finally resulted in the death of the local District Commissioner in Burco[6], forcing the authorities to suspend the school project (Cassanelli & Abdikadir, 2008).

In 1929, British officials shifted their strategy by providing cash to Somali sheikhs in select private Islamic schools on the condition that they teach reading, writing, and arithmetic (in

[6] Somaliland's second Capital City

Arabic) in addition to religion (Cassinelli & Abdikadir, 2008). Later, in 1933, the British donated funds to allow young men to study at Gordon College in Sudan, where five Somalis enrolled. In 1950, there were only two intermediate schools and plans for a secondary school (Cassanelli & Abdikadir, 2008) and acceptance of Western education among the Somali community has grown over time.

4.2.3 Post-colonial Education

According to Cassanelli and Abdikadir (2008), three important challenges faced the education sector in the 1960s: (1) how to unify the different school systems of the former British [Somaliland] and Italian colonies [Somalia] into a single national system, (2) guaranteeing a sufficient number of well-trained Somali teachers to meet the staffing requirements of the education system, (3) reform an education system that has historically favored an elite group of the population into one that is inclusive and meets the educational needs of the Somali people as a whole.

Incorporating past colonial systems required careful consideration of not only structural and curriculum variances, but also cultural practices and traditions. For example, in Somalia, girls and boys frequently attend the same schools, which was not common in Somaliland until the unification (Cassanelli & Abdikadir, 2008). Furthermore, students in Somaliland pay their own school fees, whereas education in Somalia was free (Cassanelli & Abdikadir, 2008). Furthermore, school administration was less centralized in Somaliland, with more local control, which probably certainly contributed to the lower dropout rate (about 15% in Somaliland versus up to 75% in Somalia) (Cassanelli & Abdikadir, 2008). Finally, primary schools in Somaliland lasted three years, with Arabic acting as the first language of teaching and English serving as the

instructional language after the second year (Cassanelli & Abdikadir, 2008). In contrast, in the southern region, basic education lasted four years, with Italian serving as the instructional language after the second year (Cassanelli & Abdikadir, 2008).

Later, under Siyad Barre's regime, the use of the Latin script for Somali language education, as well as intensive literacy campaigns, made a significant contribution to the region's general educational development (Samatar, 1998 as cited by Jones, 2014). During the military dictatorship (1969-1991), compulsory primary and secondary school facilities developed, with many based on self-help initiatives (Eno et al., 2014) and the literacy among somalis increased from % to 55% (Abdi, 1998). Intensive teacher-training programs were designed for various school levels, and the College of Education and other state projects were tasked with producing primary and secondary school teachers in one of the most rigorous and intensive teacher-training programs in Somali education history (Eno et al., 2014). Since then, primary and secondary education flourished in post-colonial administrations until the Ethiopian-Somali war in the 1970s, when economic regression led to reduced government expenditure (Bekalo et al., 2003).

In contrast to the primary and secondary education, the field of higher education in the country was only starting to emerge at this time, and the first Somali National University was founded in 1970 (Hoehne, 2010). However, higher education was limited to Mogdisho, with little progress made towards providing higher education across the country. In 1990, just before the state collapsed, over 4000 students enrolled at the Somali National University, which had 11 faculties ranging from education to medicine and journalism (Hoehne, 2010).

4.2.4 Current situation (1990 to present)

In 1991, Somaliland regained statehood and self-declared independence. During this time, many schools and other educational institutions stopped functioning and suffered substantial damage as a result of the country's civil wars. These conflicts, combined with the regime's commission of crimes against humanity, resulted in the collapse of the educational infrastructure. The regime's actions forced a vast majority, more than 80%, of the country's intellectual elite and scholars to emigrate (Heritage Institute, 2013). Based on all these, the process of restoring the country's educational system proved exceedingly complicated.

In the beginning, while schools and buildings showed the damage of the civil war, many Quranic and primary schools resumed their programming (Ibrahim, 2019). The country also has established its government system, maintained peace and security, and made significant improvements in social and economic sectors, including education (Ministry of Education and Higher Studies, 2017 as cited by Melesse & Obsiye, 2022).

According to Somaliland in figures booklet (2022), in the year 2022, there were a total of 1,894 Quranic schools, with 6,491 teachers (30% of whom were female), and a student population of 192,970 students (47% of whom were girls).

The number of primary schools in the year 2022 was 1475, and the number of Secondary schools was 213 schools (Somaliland in figures booklet, 2022). As shown in Figure 2, 75% of these primary schools are owned by the government while in secondary schools this percentage is only 55%.

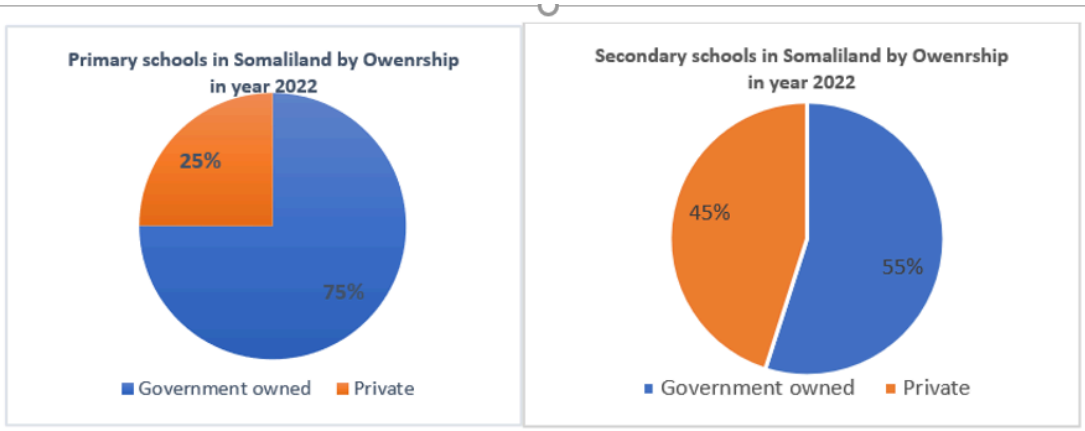


Figure 4: *Schools in Somaliland per ownership*

Source: Somaliland in figures booklet (2022)

4.2.5 Higher Education

Amoud University, located in the Awdal region, was founded in 1998 and became the country's first University in Somaliland (Ibrahim, 2019). The University also produced the country's first in-house graduates in 2003 (Ibrahim, 2019). Since then, the number of Universities were increasing and currently, Somaliland has around 30 registered universities throughout all areas, according to the Ministry of Education (Nasir, 2014 as cited by Ibrahim, 2019).

In the year 2022, the total number of students enrolled in higher education was 30, 944 (Somaliland in figures booklet, 2022). The figure below provides a comprehensive overview of the student population in Somaliland Universities over the specified timeframe, highlighting the growth and changes in higher education enrollment during this period.

Year	**Number of Students in Somaliland Universities**
2018	24401
2019	27905
2020	24092
2021	27027
2022	30944

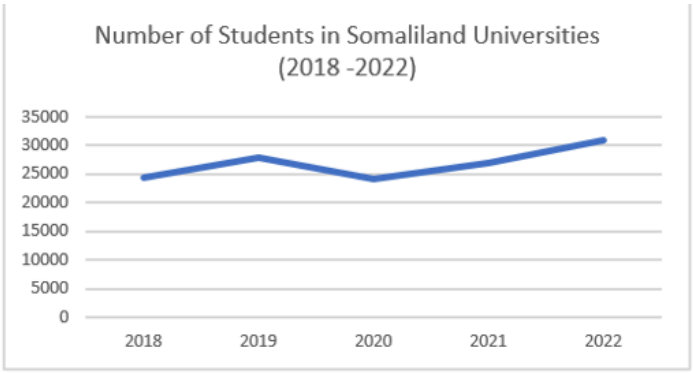


Figure 5: *Somaliland in Figures booklet (2022)*

Chapter Five: Research Methodology

5.1 Overall Research Design and Selected Methodology

The study utilizes a mixed-methods approach that combines qualitative and quantitative methods. Mixed methods research involves the integration of methodologies from diverse paradigms or utilizing multiple processes within a single paradigm (Thurston, Cove, & Meadows, 2008). This Methodology Provides a detailed and complete analysis of the problem, taking into account all relevant aspects and factors involved (Neuman, 2014). In other words, a mixed-method provides a comprehensive picture of a subject by combining data from surveys regarding the presence of particular characteristics among a population with insights from observations or interviews (Wasti, et al., 2022). This approach adds more detailed and wide-ranging information to the study, making it more comprehensive (Wasti, et al., 2022).

To obtain comprehensive data and a contextual understanding of the research issue without drawing unjustified conclusions, the "building blocks" theory will be employed in constructing the mixed research method/mode (El-ficky, 2021).According to David Whetten (1989), building block theory consists of four basic components: constructions, propositions, logic, and boundary conditions/assumptions. Constructs describe which concepts are crucial for explaining a reality, how and why these concepts connect, and in what situations these relationships and concepts will function (Herkimer, 2011). Propositions are hypothesized connections between concepts using logical reasoning (Herkimer, 2011). Assumptions serve as boundary conditions that specify when and where a theory can be applied, whereas logic serves as the "explanation" at the center of a theory (Herkimer, 2011). The basic goal is to record as

much information as you can while preserving the authenticity and steering clear of generalizations (El-Vicky, 2021).

Using mixed methods research is especially helpful because it allows for thoroughly examining the complex subject being studied. By combining qualitative data (e.g., interviews) with quantitative data (e.g., surveys), the researcher can gain a deeper understanding of the topic. This approach helps to capture a wider range of information, including expert perspectives and numerical measurements, resulting in a more comprehensive analysis.

Thus, this research methodology enables the collection of various data types well-suited to answer the research questions. In addition, the researcher used the information from the interviews to create a questionnaire, which has two benefits. First, it enables gathering insights into the critical issues encountered by those with daily personal contact with the topic, such as lecturers and experts in research institutes. Their opinions are crucial in understanding the problem. Second, this technique may be a triangulation, allowing the researcher to validate the gathered data by surveying more academics and researchers.

5.2 Qualitative Methodology

5.2.1 Data collection (Qualitative strategy)

Due to the limited literature in the context of Somaliland, and more specifically the higher education system in the country, the study depends on primary data collected from semi-structured interviews. The researcher carried on in-depth interviews with different lecturers in different universities in Hargeisa. The interview duration of the study ranged from 30 minutes to 45 minutes maximum. According to Neuman (2006), in-depth interviews are a great way for

getting complete firsthand knowledge from relevant individuals on the issue. To verify the accuracy and consistency of the findings, the acquired data was triangulated. This strategy involves cross-referencing and analyzing many sources of information to improve the validity and dependability of the findings.

Taking into account the goals of the study, the researcher carefully prepared interview questions ahead of time. Nonetheless, when further clarification is needed, the researcher skillfully employs follow-up questions to dig further into particular areas and obtain deeper responses from the subject. A particular number of questions served as the framework for this study, and are listed in Appendix E.

5.2.2 Sample selection

To ensure a comprehensive perspective, the researcher selected 12 participants from academia and industry with extensive topic knowledge. Those from academia, a total of ten participants, are those currently involved in teaching universities or have a leadership position in the local universities.

To be eligible for an interview, these lecturers should:

A) Have at least two years of teaching experience, and
B) Either hold a PhD, or currently pursuing a PhD, or have a Master's degree with at least one publication.

Lecturers who have a bachelor's degree and those who have a master’s degree and do not have a publication are not included.

The researcher also interviewed two participants who are not currently involved in teaching but are working as researchers for research institutions. This strategy is aimed at exploring perspectives beyond universities and involving other stakeholders in the study. Furthermore, early interviews have revealed that a considerable number of highly qualified persons are leaving academia to work at research institutions. This phenomenon has motivated the researcher to investigate the causes of such a pattern and determine whether it has any consequences for the study subject at hand.

***Table 2**: List of the study participants*

Code	Interviewee postion	Date of Interview	Format
01	University Lecturer	3st Aug 2023	In-person interview
02	Director of postgraduate studies	3st Aug 2023	In-person interview
03	Dean of School of Business and Economics	6th Aug 2023	In-person interview
04	University Lecturer	12th Aug 2023	In-person interview
05	Independent researcher	14th Aug 2023	In-person interview
06	University Lecturer	19th Aug 2023	In-person interview
07	Director of academic affairs	20th Aug 2023	In-person interview
08	University Lecturer	28th Aug 2023	In-person interview
09	Independent researcher	28th Aug 2023	In-person interview
10	University Lecturer	25th Dec 2023	Zoom meeting
11	University Lecturer	15th Jan 2024	Zoom meeting
12	University Lecturer	15th Jan 2024	Zoom meeting

5.2.3 Human Subjects Protection

According to marshal and rosman (2014) the researcher must protect the subjects in the research from any harm. The researcher took significant steps to reduce any potential harm and to ensure the confidentiality of the participants. The researcher emphasized the need of safeguarding the participants' confidentiality and anonymity. To do this, each participant was allocated a pseudonym that replaced their real names. This ensured that their identities were kept private and secure throughout the study.

Before beginning data collection, the researcher received approval from the university's Institutional Review Board (IRB) and obtained informed consent from relevant stakeholders. Specifically, the researcher ensured that the participants in the study were well-informed and given their agreement to participate before any interviews began. The researcher trusts that they have taken all necessary steps to ensure fair and respectful treatment of all participants in this study.

According to Creswell (2014), obtaining informed consent entails more than just having individuals sign a form. It entails the researcher completing a consent form and making sure the participant understands the purpose of the form and the purpose of the research being conducted. Thus, the the researcher gave sufficient details about the study to the participants, and checked wether the participants fully undrestand the study by asking questions. The researcher also clarified that the participation of the study is voluntary, and they have the right to withdraw from the study at any time, and the interviews are recorded for research purpose.

5.2.3 Translation of data from Somali to English

To guarantee optimal communication and understanding, the interviews were done in Somali, as all participants, including the researcher, were native speakers of the language. The

researcher then transcribed the audio recording while preserving the Somali language. Lastly, the researcher translated the Somali transcriptions into English to make the data accessible for analysis and interpretation. This multi-step procedure maintained the integrity of the participants' original language while enabling a thorough analysis of the research findings.

5.2.4 Data analysis strategy and trustworthiness

For the qualitative data the researcher used thematic analysis (Marshal & Rosman). This helps to understand and identify the common themes and later on the researcher used these themes to triangulate with the survey. First the researcher translated all the interviews in to english and combined one document. Then the researcher followed all the interviews are highlighted the repeated themes.

5.3 Quantitative methodology

For precise measurement, and more deductive methodology, the researcher also used a quantitative approach. That being said, quantitative data were required from 100 participants. Surveys were conducted through structured questionnaires through Google Forms and take 8-10 minutes to complete. The researcher distributed the survey links mainly through universities but also through networks in social media. The google forms are directly send to directors of different universities to share the faculties teaching their universities. For the social media, the researcher mainly used Facebook.

To guarantee the eligibility of those submitting the survey had adequate knowledge and experience, the researcher asked eligibility questions in the first section of the survey. These requirements are as follows:

To be eligible to fill out the survey, the respondents must fill in at least one of the below three criteria:

a) Currently working in Somaliland Universities as a lecturer or have a leadership position.

b) Currently working as a researcher at an institution based in Somaliland.

c) Have at least taught one semester at a university located in Somaliland for the past seven years.

According to the collected data, only 5 respondents do not fulfill these requirements and are excluded from the analysis.

The questionnaire is divided into several sections. The first section contains eligibility questions. These inquiries assist in determining whether a participant satisfies the prerequisites for study participation. The second section collects background data. It contains information about age, gender, country of education, highest level of education, affiliated institution, primary occupation, and publication record. Through comprehension of these facets of the participant's profile, the researcher can acquire a significant understanding of their experiences and history.

Proceeding with the survey, the funding for research is the subject of the third section. It looks at issues around funding for scientific projects. The next sections of the questionnaire address a variety of interesting topics, such as data accessibility, training and PhD, technology use, and precarity—the term for job insecurity and uncertainty.

5.3.1 Sample overview

Age

59% of the surveyed individuals fall within the range of 25 – 30 years old showing a notable representation of academic researchers and lecturers in higher education. 32% of them aged between 31 – 40 years old, 8% aged 41-50, and only 1% of the participants older than 50 years.

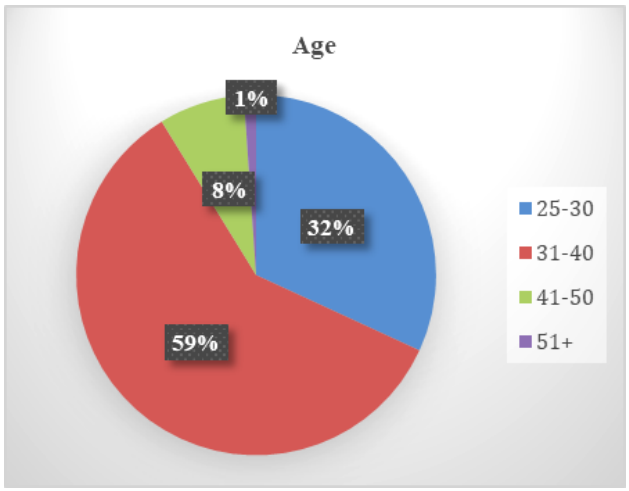


Figure 6: *Age of the participants*

Gender

The surveyed participants are predominantly male. According to the data, as shown in Figure 2, 96% of the surveyed individuals were male and only 4% were female. This is due to the low number of female workers in higher education in the country.

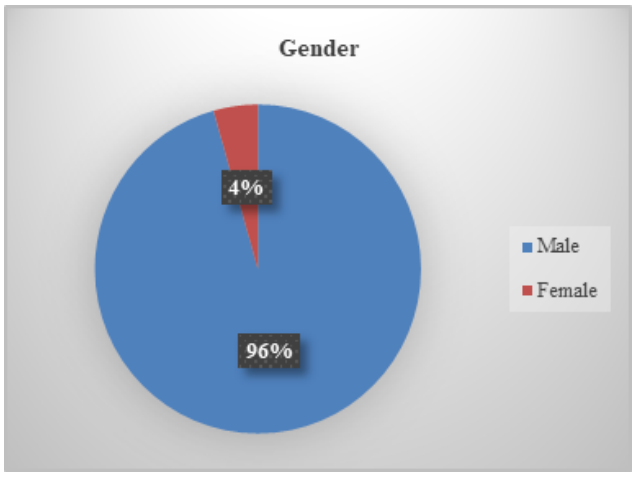


Figure 7: *Gender of the participants*

Affiliated Institution

98% (about 85 individuals) of those surveyed are currently working in Universities. 2% of those who take part of the survey are working as researchers in local research institutions.

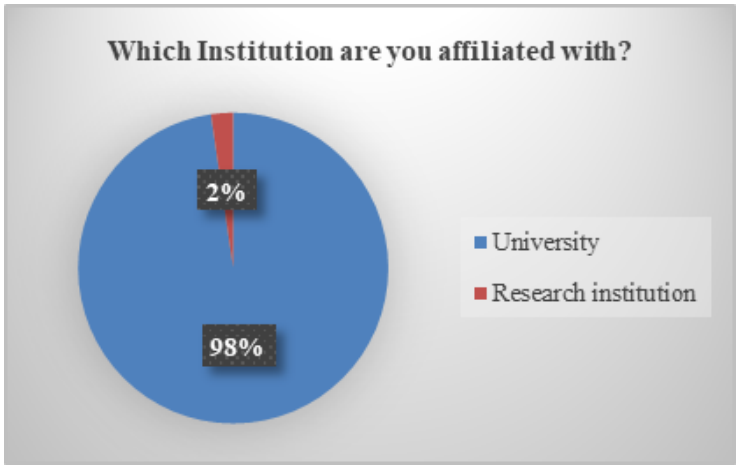


***Figure 8**: Affiliated institutions*

Educational level

When observing the educational qualifications of the participants, 87% of them have a master's degree, making the largest group of respondents to the poll. 9% of the participants hold Ph.D. candidates and 1% are Ph.D. holders. 3% of those hold a bachelor's degree.

About 67% of the participants received their highest education in Africa, 6% of the participants obtained their highest education in the Arab world, only 9% obtained their highest education in Europe or the USA and about 23% obtained from other continents.

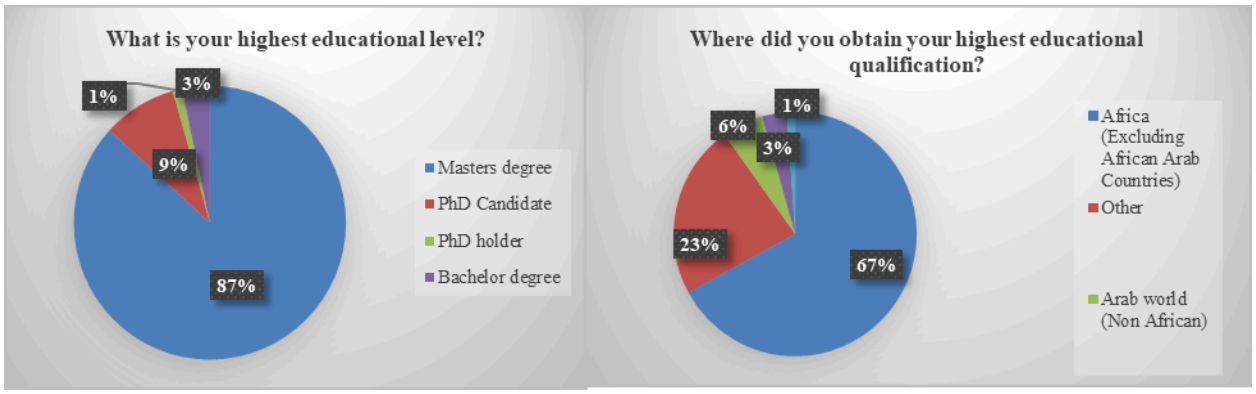


***Figure 9**: Educational Level of the Participants*

Primary Occupation

According figure 5, more than half of the surveyed participants (53%) mentioned there primary occupation is university lecturer (teaching position), 15% have Academic Leadership positions (Teaching + Management - including Dean and department directors), 14% work in the Private sector (Including the NGOs and International Organizations), 11% Government (Public Sector), 4% work as Researcher, and 1% other occupations.

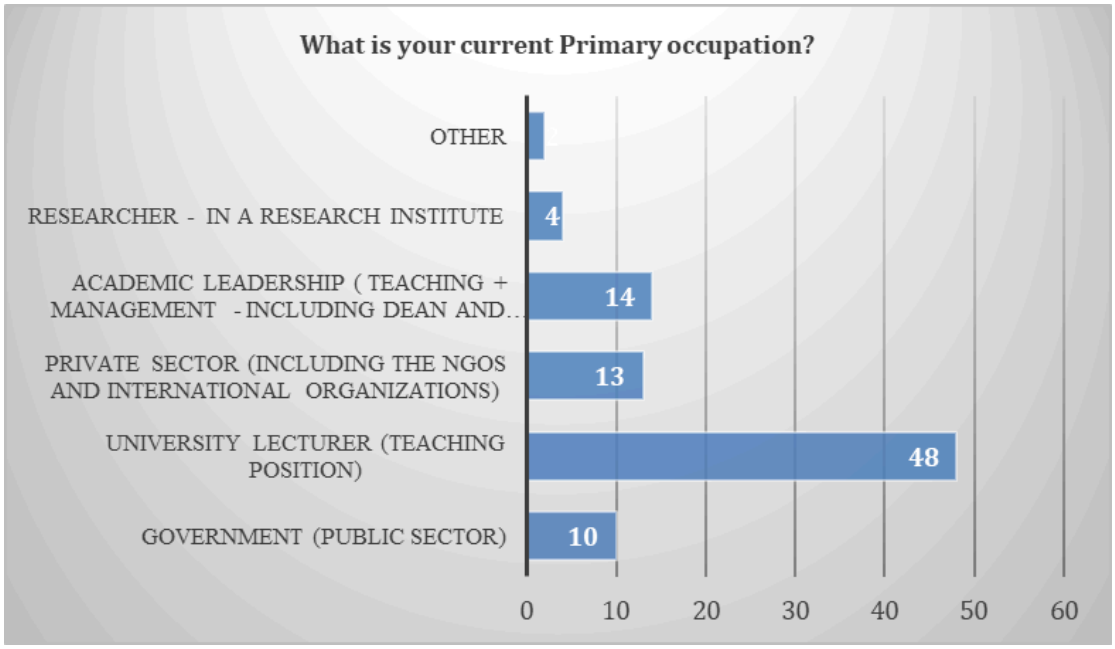


Figure 10: *Primary occupations*

Publication History

The majority of respondents, or roughly 63% of those surveyed mentioned that do not have any publication in academic journals. Only 37% of the surveyed stated that they had a publication history.

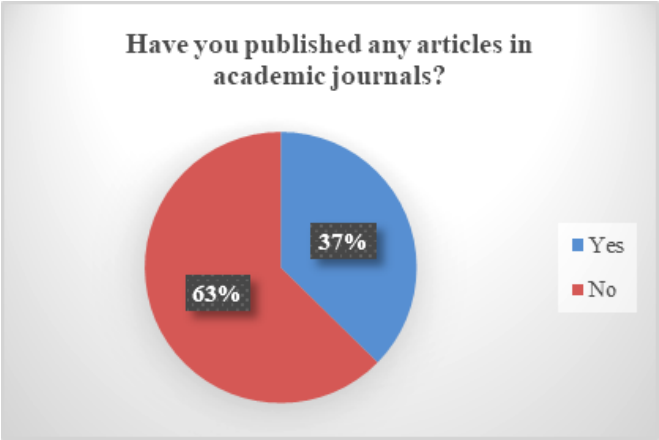


Figure 11: *Publication history of the participants.*

5.3.2 Quantitative Data analyze

To analyze the quantitative data from the surveys, a descriptive statistical analyzes approach was used (Neuman, 2014). This includes understanding the descriptive part of the data including the age, gender, publication history and other demographical aspects of the data.

5.4 Study Limitations

The study recognizes several limitations that need to be addressed. The first limitation of this study was finding the background information. During the study it was very challenging to find reliable academic documents.

Second, it was not easy for the researcher to survey or interview females working in academia as all the interviewed participants are male and only 5% of those surveyed are females. This is due to the very low number of females working in country's higher education. Third, the lack of international recognition in somanlialnd make it difficult to find resources that separte from somalia, and many of the published work use somaliland and somalia as a one, which makes difficult to find these resources separately.

Chapter Six: Finding and Discussions

The study focuses on the primary constraints limiting Somaliland's research output. It was conducted on university lecturers and researchers working in the local institutions. Based on the literature reviewed above and the hypothesis outlined in the conceptual framework, this research focuses mostly on how funding, technology, data accessibility, Research training (PhD), and precarity affect the nation's research output.

This chapter will provide and discuss the study's findings in depth, focusing on both the qualitative and quantitative data. These findings are crucial in understanding the current state of research output in Somaliland and can serve as a foundation for future improvements and initiatives.

6.1 Hypothesis 1: **Insufficient research funding significantly limits research output and publication.**

As discussed in the literature, the common challenge of inadequate funding or limited financial resources is a shared experience among academic researchers. This challenge not only hampers productivity but also decreases the number of published works, as echoed by several studies (Arora & Gambardella, 2005; Cattaneo et al., 2014; Jacob & Lefgren, 2012; Carvalho & Hassinger 2021).

Similar to what we have in the literature, the survey's outcome shows that insufficient funding is one of Somaliland's main constraints on research output. As shown in Figure 12, more than 83% of the participants stated (Strongly agree or agree) that research funding significantly constrains research productivity in Somaliland's higher education. 12% disagree, and 5% stated that funding does not impact research productivity.

A staggering 89% of participants cited the limited availability of research grants and scholarships as a major hindrance to their research output. This scarcity of funding also impacts the acquisition of necessary research equipment and materials, a concern echoed by the same percentage of respondents.

Overall, 80% of the respondents stated they had never received any funding from their current institution, and only 20% stated they had received some funding. However, these numbers also indicate the potential for change and improvement in the future.

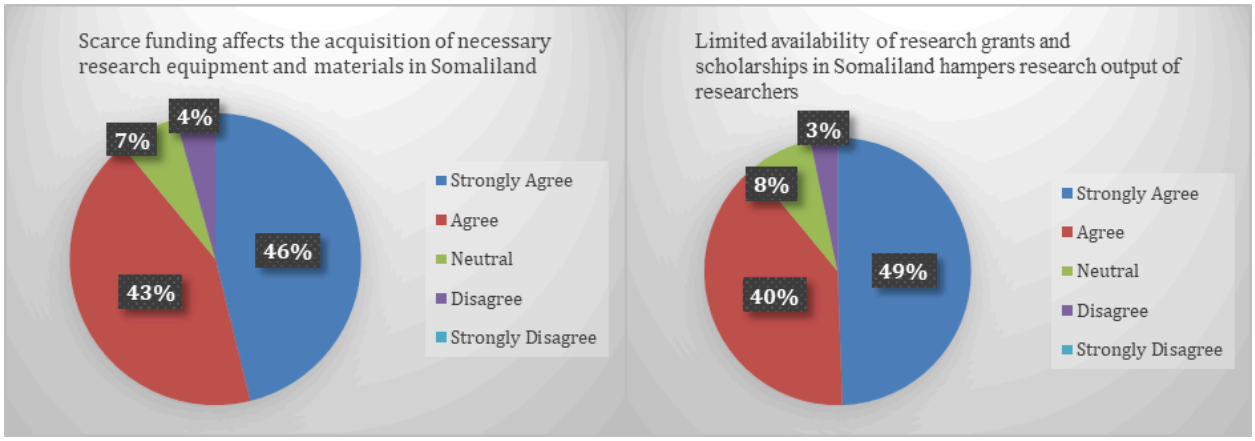


***Figure 12**: Funding vs. the research equipment and research output in Somaliland*

The same results were noted in the qualitative data. On the field, all the interviewed participants agreed that funding is a big challenge for the country's research output. An interviewee noted the following:

> *Funding is one of the biggest challenges that restricted the research in Somaliland. It is not only one of the challenges, but I would count the biggest one.*
>
> *(University Lecturer, 3rd Aug 2023)*

Another interviewee stated the following:

Most of the universities in the country do not provide any research funding. Recently, University of Hargeisa has started several minor research funding among the lecturers. Research needs funding, and without this, it is very hard to even think about publication. This becomes challenging for lecturers who are working part-time. I remember one time I received the opportunity to attend a research in Uganda, and it took me time to convince the university to provide a support for my travel. This is a very big challenge.

(Independent resarcher, 25th Aug 2023)

Same of the above two responses, most of the interviews stated that funding is a big challenge for the country's research output. This agrees with the idea of the researchers who argue that lack of funding decreases the publication output (e.g. Arora & Gambardella, 2005; Cattaneo et al., 2014; Jacob & Lefgren, 2012; Carvalho & Hassinger, 2021).

To dig deeper into this, and see if this lack of funding has any impact on the career of the lecturers working in the academia, the researcher also asked some specific questions on how this impacts the later career of those working in the academia. This is because some of the past studies argue that funding impacts the later career of researchers by encouraging them to remain in academia (e.g. Ganguli, 2011). If the funding encourages them to stay in academia, will also lack of funding discourage qualified researchers in Somaliland from staying?

One of the interviewees noted the following:

I can say the lack of research funding causes not only a problem in the decline of publication and research but also discourages them from staying in academia. For example, I know many qualified researchers, who moved outside academia

due to this. If the lecturer is teaching classes, doing research, receive funding and support for their research, it will be interesting.

(University Lecturer, 19th of Aug, 2023).

Such a response emphasizes how the lack of funding is not only the main reason for the country's research output limitation but also another factor that discourages qualified researchers from staying in academia.

6.2 Hypothesis 2: Precarity and Precarity and undetermined Tenure Status significantly limit research output and publication.

According to the literature, academic researchers' productivity is severely hampered by precarity and temporary work without job security (Ferreira & Delgado, 2023; Ajayi, 2020; Allmer, 2018). As shown in Figure 13, most respondents (about 89%) agree or strongly agree that the absence of secure employment positions in universities affects the commitment and long-term engagement of researchers in Somaliland. This underscores the urgent need for secure employment positions to foster a more productive research environment.

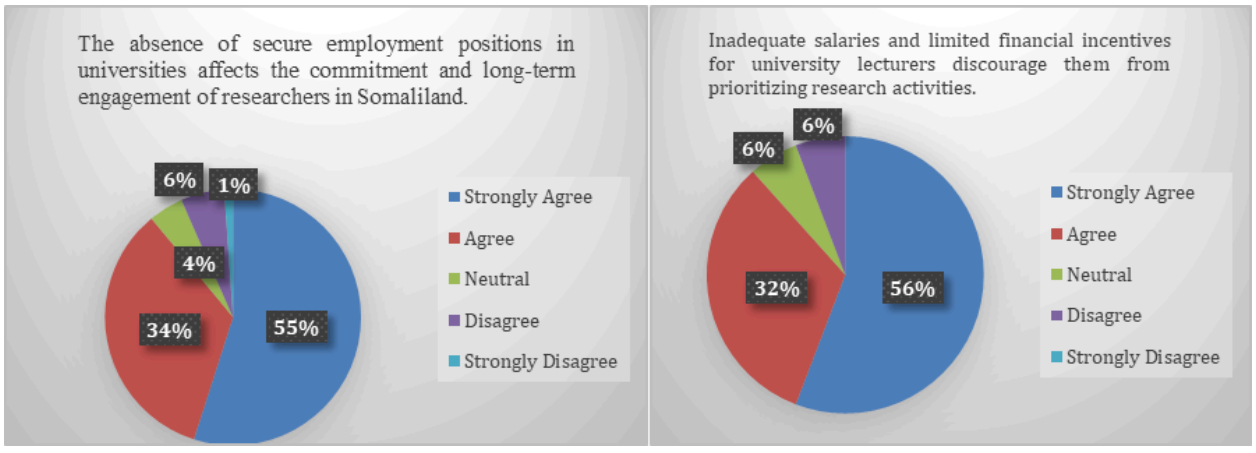


Figure 13: *Precarity of researchers in Somaliland and research activities*

More than half of the surveyed participants (56%) had a part-time or no-contract job (Not signed any contract at the start of their current job), as shown in Figure 14. 16% of the participants had an annual contract, and 28% had a permanent one. Most interestingly, university lecturers have the highest precarity among other occupations. More than half of those working in academia (University lecturers plus those with academic leadership positions), 56% (38 of 62), have part-time or no-contract jobs.

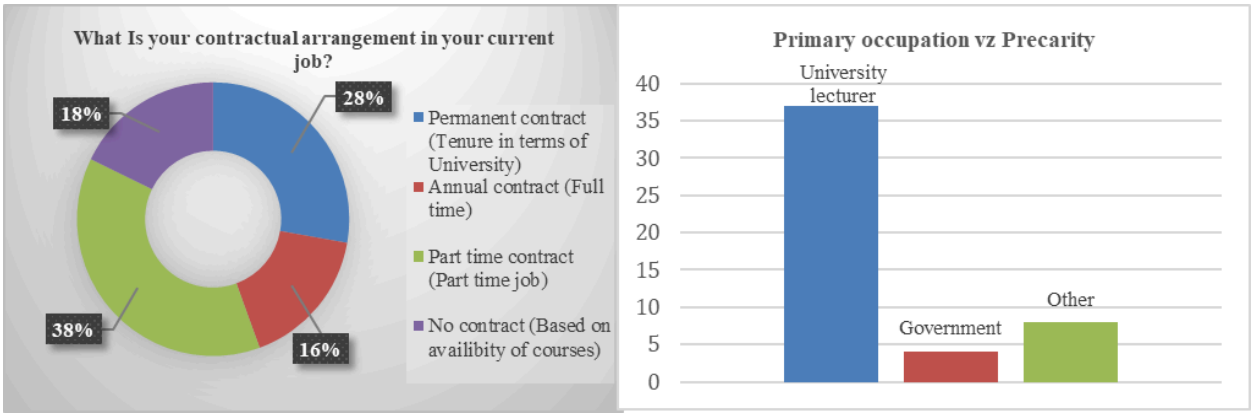


Figure 14: *Contractual arrangement among participants and comparison of precarity among different sectors*

The same results were noted from the field. Most interviewees agreed that precarity is a big challenge in the country's research output. A university lecturer noted the following:

> *There is a precarity among the higher education in the country. For example, I can say that 99% of the staff at the university where I work are part-time workers. The 1% that are full-time staff are the administrative staff like me. Most of the time there is no annual or long-term contractual agreement for hiring. We check the available courses we provide for the semester, and then we check who we can hire for those available courses.*
>
> *(University Lecturer, 12th Aug 2023)*

Another interviewee, who is also a dean at one of the universities emphasized the precarity among the lecturers is prominent in higher education:

> *In this university, where the number of lecturers is hundreds, we only have three to four full-time lecturers. That is why most of them work full-time for other places, including the government, and NGOs. Universities in Somaliland do not provide stable employment among lecturers and this somehow or another loss of interest in research among scholars.*
>
> *(University Lecturer, 6th of August)*

This is another response that truly stresses the word Academic precariat and how the precarity among employees impacts the research output.

> *If lecturers are not sure whether they receive an opportunity to teach the next semester or not, there is no way they will think about a publication and research. The idea is not about the research funding, it is also about the chance of employment.*
>
> *(University Lecturer, 6th of August)*

Such responses agreed how the lecturers working in universities have faced challenges in precarity, and how the lack of contract is a big challenge for research output among the scholars.

6.3 Hypothesis 3: Lack of data accessibility significantly limits research output and publication.

Data accessibility and availability of literature are not just crucial, they are the lifeblood of scientific and research advancements and economic growth (Anane-Sarpong et al., 2018; Batuo, 2018). To determine and provide a sufficient answer for this hypothesis, the researcher

asked several different questions and focused on different angles. About 86% of those who responded to the survey strongly agreed or agreed that Researchers in Somaliland encounter challenges in obtaining reliable and comprehensive datasets for their studies. This shows how data accessibility is not just a challenge, but a barrier that hampers higher education research. Having reliable data—whether primary or secondary—is a critical challenge in Somaliland.

On the other hand, 87% of the participants stated that the limited availability of subscriptions to academic journals and databases restricts researchers' access to relevant literature.

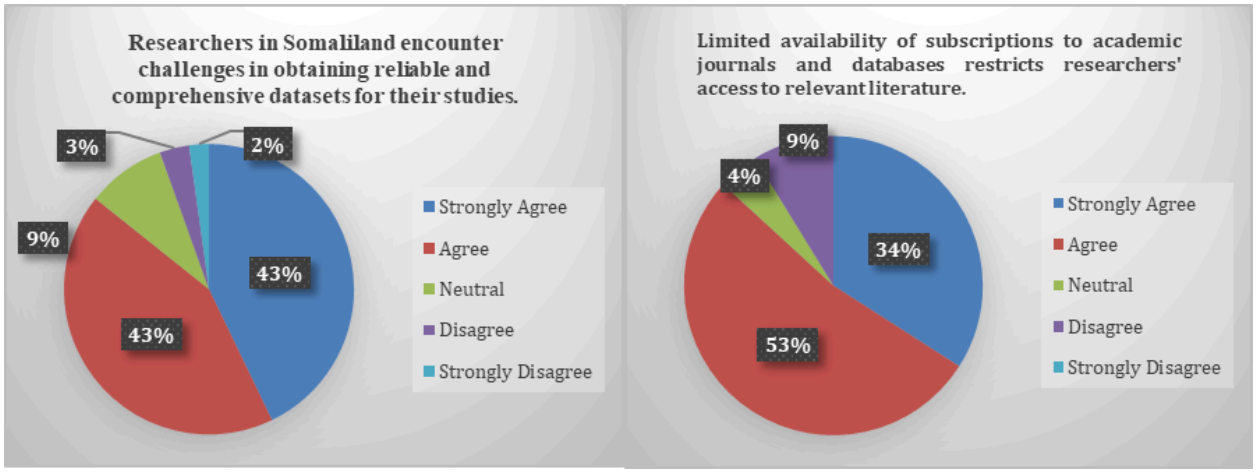


***Figure 15**: Data accessibility vs research output*

The data collected via interviews further stress this. Most of those interviewees had the same responses on this. They agree that universities do not provide any subscription to paid academic journals and online databases.

An interviewee responded to this during the interview

> *The university does not provide any subscription to academic journals and online databases. I mean This is a very big challenge as a researcher and as a student. Imagine that you do not have access the academic papers that are relevant to*

your research! Imagine, if the students are struggling with some of their assignments on this. There are a bunch of free online resources that can be used, but also as an academician, it is important to have access on paid journals and databases to increase the reading of literature.

(University Lecturer, 25th Dec 2023)

Such responses agree with both the literature and the responses from the survey. This clarifies how access to literature and data is one of the main reasons that hinder the country's research output.

6.2.4 Hypothesis 4: Lack of training and PhD significantly limits research and publication in Somaliland.

General literature suggests that limited availability or lack of Ph.D. holders and inadequate training among the academicians working in higher education negatively influence research output (Horta & Santos, 2016; Munkácsy et al., 2022). The findings of the quantitative survey agree with these previous studies. 75% of those who responded to the survey stated that the scarcity of Ph.D. holders in Somaliland's higher education institutions contributes to the low research output in the country. Also, 87% of the respondent's state that Inadequate training programs on research methodologies and academic writing skills impact the limitation of quality/quantity of research produced in Somaliland.

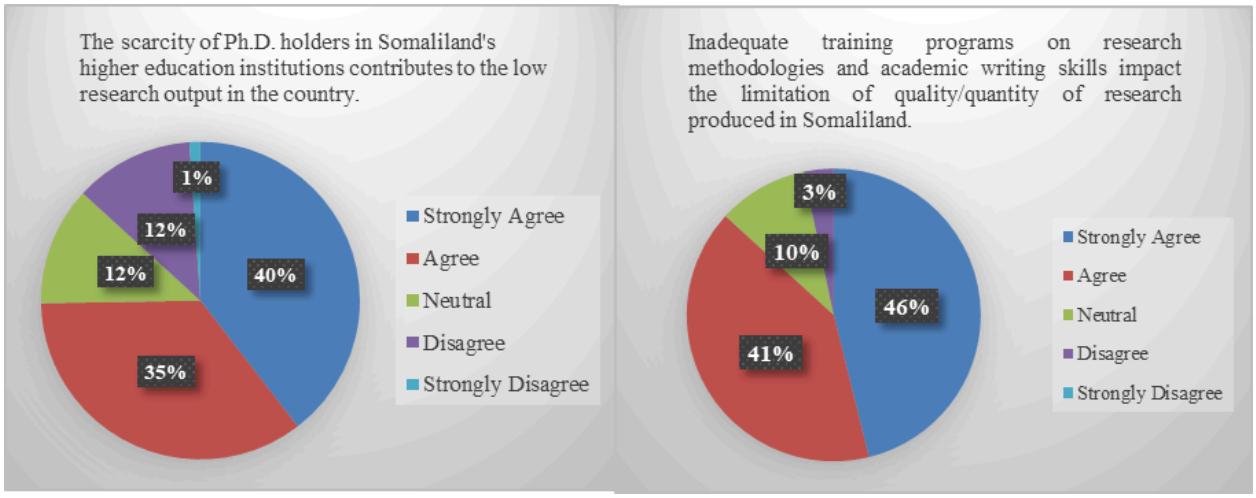


***Figure 16**: Training and Ph.D. vs research output*

The data collected for interviews also stressed this fact. Most of the interviewees agreed that the limited number of PhD holders in Somaliland is a factor that contributes to the limited publication.

A university lecturer noted the below:

> *In this University we have only 5 PhD lecturers. This is not even 3% of the total number of lecturers teaching in the university. The other thing is that having a Ph.D. is not a requirement to work in Somaliland Universities. No doubt increasing the number of Ph.D. holders in the country's higher education will somehow boost the publication and research output.*
>
> *(University Lecturer, 3rd of Aug 2023)*

6.2.5 Hypothesis 5: Limited access to technology and IT significantly hinders research output and publication.

According to numerous studies (Hesse et al., 1993; Wash et al., 2000; Kyrillidon, 2001; Zhang, 2001; Winkler et al., 2010), researchers' publications struggle with limited access to technology. This considerably reduces research productivity and the capacity to publish findings. According to the responses, 57% of participants stated they do not have a professional email address associated with their organizations. Of those, 88% have their primary occupation in academia. This shows how basic access to technology in Somaliland's higher education is low.

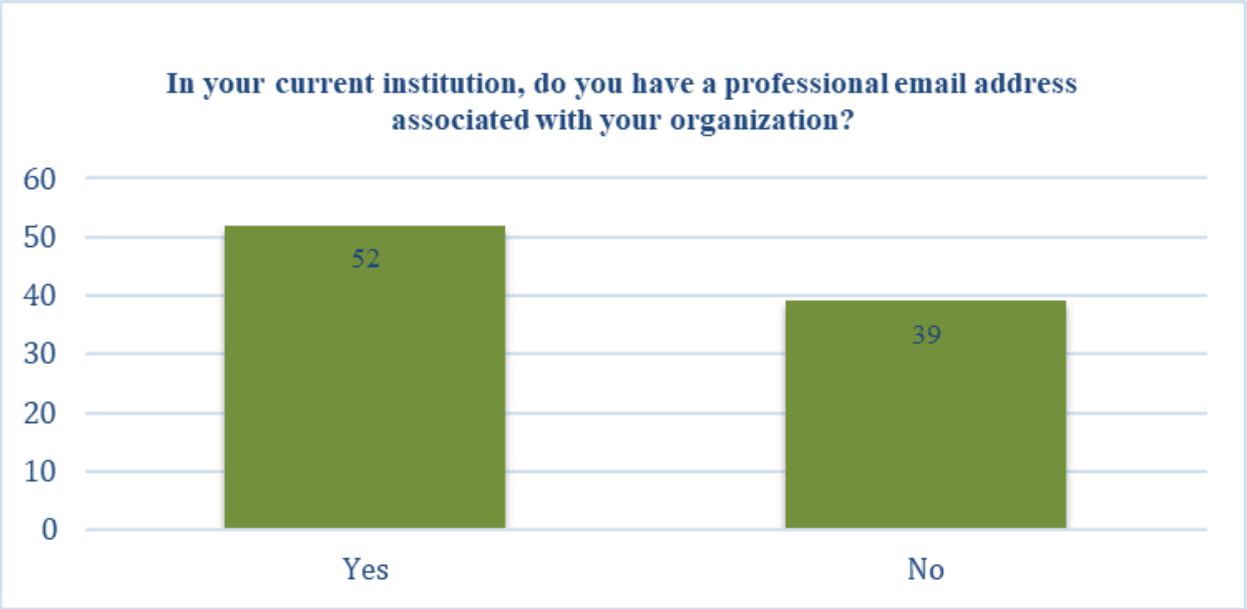


***Figure 17**: Accessibility of Professional email address*

As shown in Figure 18, 69% of the respondents stated that they don't have access to subscriptions to statistical software such as Stata and other paid software used for research and data analysis.

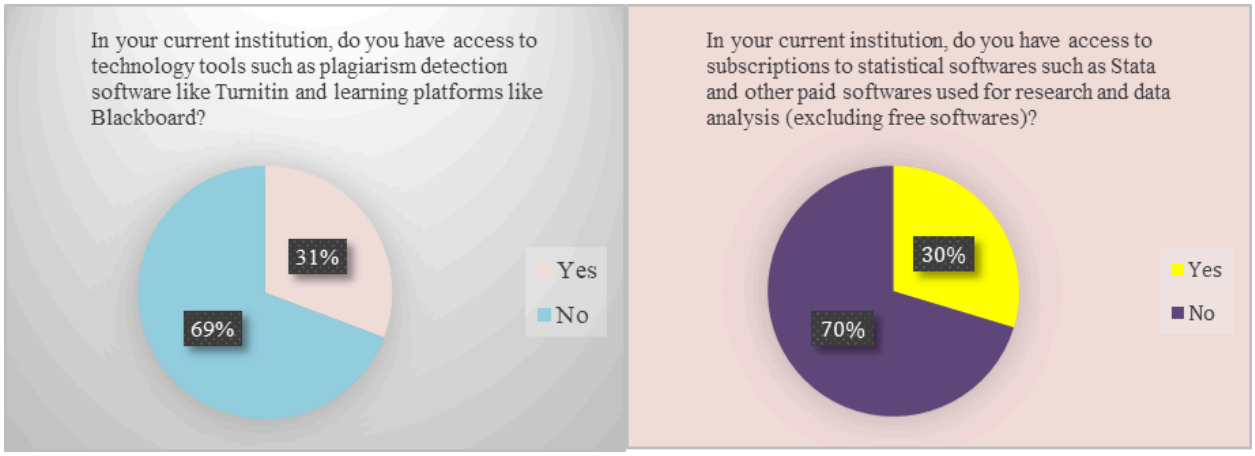


Figure 18: *Accessibility of Plagiarism detection and paid statistical software*

Chapter 7: Conclusion and Policy Recommendation

Research productivity has emerged as one of the key factors determining the knowledge level and prestige of higher education institutions (HEI). Research production is extremely valuable to society (Saleh, 2021), and in the scientific community, it is considered to have a major impact on personal status, academic recognition, job advancement, and financial assistance (Saleh, 2021). For these reasons, understanding the fundamental causes of research productivity and investigating methods to improve it is of great interest to researchers, policymakers, and faculty members (Kuralay, 2019). This study aims to understand the main factors that limit the research output in Somaliland. Based on a mixed-method approach, this study explains why research is very limited in Somaliland and the main factors contributing to this limitation.

7.1 Policy Recommendations

Based on the findings of the research and expanding the rationale beyond the gaps in the literature, the following four crucial policy recommendations are proposed:

- **The government and academic institutions should attempt to support research funding and inspire researchers.**

The results show that a major obstacle and why local researchers fail to carry out any study is a lack of funding. The government should set aside a budget for public universities to address this problem, publish more articles, and inspire researchers.

Numerous nations across the globe have implemented this policy recommendation. Although it cannot be compared to Somaliland in Germany, it is one worth mentioning.

Kenya is an example of a nearby nation. Kenya presently funds research and innovation with 0.8% of its GDP, making it the country that spends the most on R&D after South Africa (National Commission for Science, innovation and Technology, 2024). Germany is another good example. German government directly funds around 270 public higher education institutions, and over 1,000 non-university research institutes (Federal Ministry of Education and Research, 2022).

Budgeting for both public and private universities may be challenging, but beginning with the public institutions and subsequently adding the private ones could assist and potentially resolve the problem. Conversely, universities themselves should contribute to the ongoing support of researchers by providing funding to help them enhance their performance and production.

- **Universities should decrease the precarity among their staff and focus more on providing full-time, permanent workers.**

Precarity is another significant concern in the country, mostly affecting the productivity of researchers and academics working in higher education. According to the research findings, the majority of university instructors are in precarious employment and operate on a part-time or no-contract basis. To enhance the research output and publication rate among academic researchers, universities must provide steady jobs and issue contracts to individuals they hire. As the researcher discussed in the literature having full time employment increase the research productivity of researchers. Thus increasing the tenure of those teaching universities, will increase the research productivity. However, there must be a continuous requirement for research productivity after the tenure so that the productivity do not decline after this stage.

- **Universities should promote equity, diversity, and opportunities for women**

The number of females working in higher education is critically low. Thus increasing, and giving equal opportunity is another important factor the universities should consider. Although this is not a factor that impacted the research output in the country, increasing the diversity will contribute to the boost of the country's publication.

- **Universities should Prioritize Journal Access and Research Technology**

Utilizing technology and having access to academic journal subscriptions is an additional recommendation. It will be challenging to boost the nation's research output without access to an online database. Universities should attempt to approach international donors for assistance or set aside funds for journal subscriptions to address this issue.

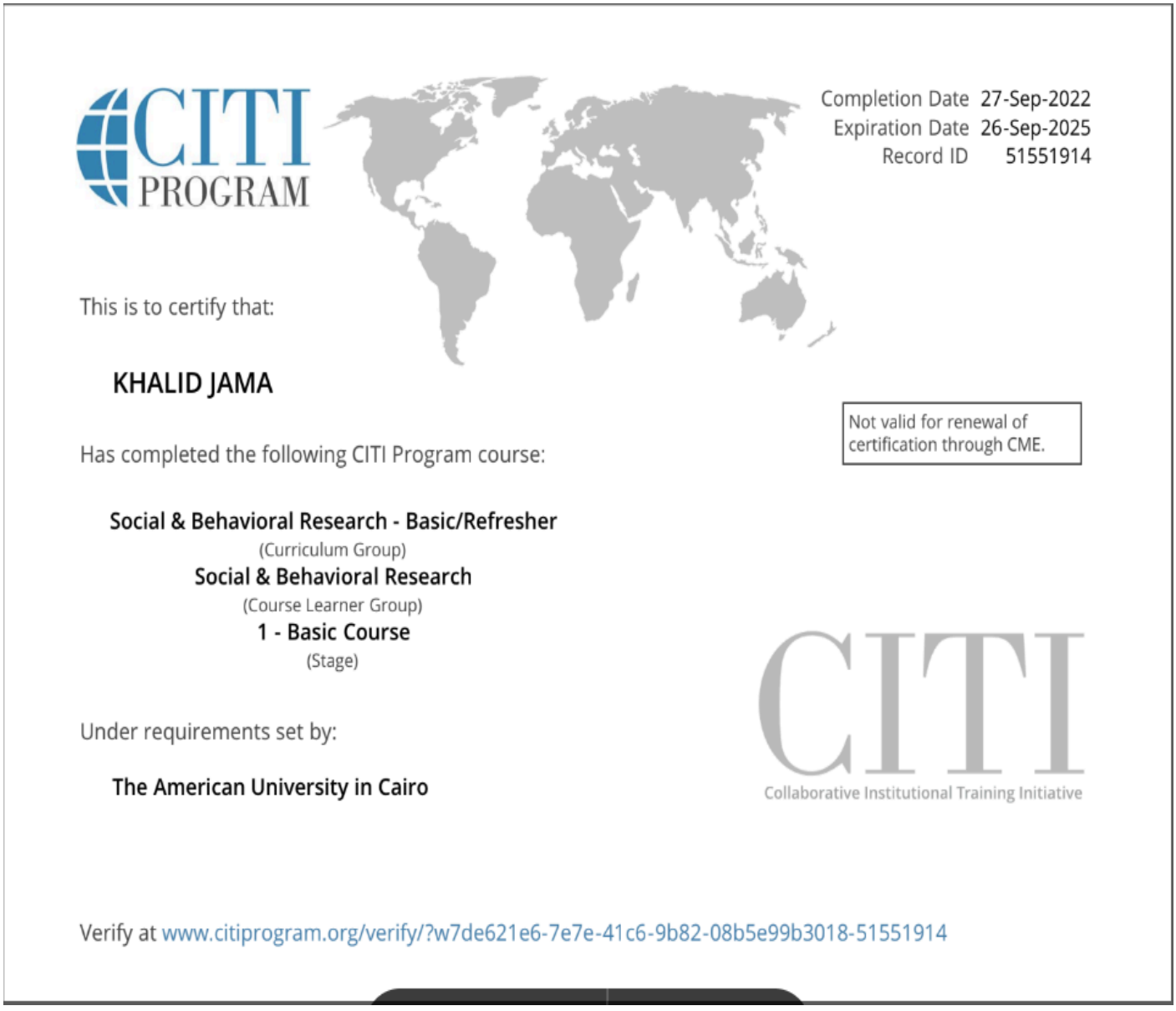
7.2 Implications for future research

While this study assesses the factors that limited the research output of the country, there are still pathways for future research. Findings from this study are precarity, lack of funding, limited PhD holders, Data and literature accessibility, and Technology. Are there any other factors that contribute to this limitation? For example, according to research, age and research production are positively correlated (e.g., Khalil & Khalil, 2019). The finding of this research indicates when people age, they tend to produce more research. According to the findings of this research, more than 90% of the study sample are aged less than 40 years. Does this have an impact on research limitations? Further studies will be needed to understand more about this limitation.

7.3 Concluding remarks

What are the main factors that limit research output in Somaliland's higher education system? According to the research findings, Lack of funding, Precarity in higher education, the limited number of PhD holders in the universities, and accessibility of data and technology are the main reasons that contribute to the decline of the country's research output. While this is true, there may be other factors that contribute to this limitation. The political situation within the country and the lack of Somaliland's worldwide recognition could potentially contribute to these limitations.

Appendix A: CITI Training Certificate



CITI PROGRAM

Completion Date 27-Sep-2022
Expiration Date 26-Sep-2025
Record ID 51551914

This is to certify that:

KHALID JAMA

Not valid for renewal of certification through CME.

Has completed the following CITI Program course:

Social & Behavioral Research - Basic/Refresher
(Curriculum Group)
Social & Behavioral Research
(Course Learner Group)
1 - Basic Course
(Stage)

Under requirements set by:

The American University in Cairo

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?w7de621e6-7e7e-41c6-9b82-08b5e99b3018-51551914

Appendix B: Informed Consent (Qualitative part)

THE AMERICAN UNIVERSITY IN CAIRO
INSTITUTIONAL REVIEW BOARD

Documentation of Informed Consent for Participation in Research Study

Project Title: Bridging the Knowledge Gap: Understanding Factors Restricting Research and Publication in Somaliland's Higher Education.

Principal Investigator: Khalid Aden Jama, Graduate Student, Master in Public Policy.

E-mail: khalidlito@aucegypt.edu

Telephone: +201099882392

*You are invited to participate in a study on Understanding the Factors Limiting Research in Somaliland's Higher Education: The aim of the study is to understand the main challenges of conducting research in Somaliland. The study will focus on why the number of publications among universities and research institutions is very low.

*The results of the research will be published in a specialized journal or a scientific conference, or perhaps both. The expected duration of participation in this research is around 20 to 30 minutes.

*The study procedures are interviews in a conversational form, of daily experiences, with lecturers who teach local universities and independent researchers who work in research institutions.

There is no risk to be incurred by participants as part of this study.

*This study will help generate knowledge and inform governmental policy on main reasons why research in higher education is so low. It will try to evaluate obstacles preventing conducting rigorous research.

*No Medical Treatment is to be provided as part of this study

The information that you will provide in this research will be confidential and your identity will be anonymous. In the research report, code names will be used to avoid direct identification. The interviews will be taped on the researcher's Mobile and the tapes kept confidential with an access security code. The data will be kept for a period of 3 years to 4 years.

*The expected risks from this study are very minimal. Questions about the study, the rights of the participants in it, or research related injuries should be directed to: Khalid Aden Jama, Hargeisa, Somaliland Tel:+252634066088; Egypt Tel:+201099882392

Participation in this study is only a voluntary act, as abstention from participation does not include any penalties or loss of any benefits you are entitled to. You may also stop participating at any time without penalty or loss of these benefits.

Do You agree to participate in this research?

Yes:

No:

Signature: ……

Participant's name: ……. ....

Date: ...../...../.....

Notes: This consent form is to be administered orally both Somali and English language by the researcher to the participants. This is because all the participants including the researcher himself are Somalis.

Appendix C: Informed Consent (Quantitative part)

THE AMERICAN UNIVERSITY IN CAIRO
INSTITUTIONAL REVIEW BOARD

Documentation of Informed Consent for Participation in Research Study

Project Title: Understanding the Factors Limiting Research in Somaliland's Higher Education: Implications for Policy.

Principal Investigator: Khalid Aden Jama, Graduate Student, Master in Public Policy.

E-mail: khalidlito@aucegypt.edu

Telephone: Tel:+252634066088; Egypt Tel:+201099882392

*You are invited to participate in a research study on Understanding the Factors Limiting Research in Somaliland's Higher Education: Implications for Policy. The aim of the study is to understand the main challenges of conducting research in Somaliland. The study will focus on why the number of publications among universities and research institutions is very low.

*The results of the research will be published in a specialized journal or a scientific conference, or perhaps both. The expected duration of participation and filling the questionnaire in this research is around 8 to 15 minutes.

*The study procedure is submitting a Google form questionnaire of daily experiences with lecturers who teach at local universities and independent researchers who work in research institutions.

There is no risk to be incurred by participants as part of this study.

*This study will help generate knowledge and inform governmental policy on main reasons why research in higher education is so low. It will try to evaluate obstacles preventing conducting rigorous research.

*No Medical Treatment is to be provided as part of this study

The information that you will provide in this research will be confidential and your identity will be anonymous. In the research report, code names will be used to avoid direct identification. The responses will be kept on the researcher’s google drive and will be kept confidential with an access security code. The data will be kept for a period of 3 years.

*The expected risks from this study are very minimal. Questions about the study, the rights of the participants in it, or research related injuries should be directed to: Khalid Aden Jama, Hargeisa, Somaliland Tel:+252634066088; Egypt Tel:+201099882392

Participation in this study is only a voluntary act, as abstention from participation does not include any penalties or loss of any benefits you are entitled to. You may also stop participating at any time without penalty or loss of these benefits.

Do You agree to participate in this research?

Yes:

No:

Signature: ……

Participant's name: ……. ....

Date: ...../...../.....

Appendix D: IRB Approval

THE AMERICAN UNIVERSITY IN CAIRO
INSTITUTIONAL REVIEW BOARD

Case# 2023-2024-110

To: Khalid AdenJama

Rana Hendy

Menna Youssef

From**: Heba Kotb Chair of the IRB Date 29/1/2024**

Re: IRB approval

This is to inform you that I reviewed your revised research proposal entitled

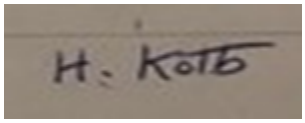
"**Bridging the Knowledge Gap: Understanding Factors Restricting Research and Publication in Somaliland's Higher Education**"

It required consultation with the IRB under the "expedited" category. As you are aware, there were minor revisions to the original proposal, but your new version addresses these concerns successfully, your proposal used appropriate procedures to minimize risks to human subjects and that adequate provision was made for confidentiality and data anonymity of participantsin any published record. I believe you will also make adequate provision for obtaining informed consent of the participants. This approval letter was issued underthe assumption that you have not started data collection for your research project. Any data collected before receiving this letter could not be used since this is a violation of the IRB policy.

Please note that IRB approval does not automatically ensure approval by CAPMAS, an Egyptian government agency responsible for approving some types of off-campus research. CAPMAS issues are handled at AUC by the office of the University Counsellor. The IRB is not in a position to offer any opinion on CAPMAS issues, and takes no responsibility for obtaining CAPMAS approval.

This approval is valid for only one year. In case you have not finished data collection within a year, you need to apply for an extension.

Thank you and good luck



Heba Kotb

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Appendix E: Interview Guide Questions

Section1: Background information
Participants age: _____
Participants Gender: _____
Highest level of Education: _____
Current Occupation: _____
Affiliated University/ Research institution: _____
Number of years of teaching: _____

Section2: Study Questions

1. Are there any cultural of social factors that may cause conducting research more challenging? If yes, would it be possible to elaborate more on that?

2. In general, what you can say about the four main challenges for conducting in research?

3. Based on your years of teaching, how lack of funding in research can discourages for research institutions and universities in Somaliland to conduct a research?

4. Have you encountered any difficulties in collaborating with local researchers?

5. Have you encountered any difficulties in accessing data for your research?

6. In your experience how lack of trained researchers or PhD holders in the higher education systems in the country can impact research outcomes?

7. Are there any specific research topics that you believe would be beneficial to study in?

8. Do you have any publications?
   A) If yes, where did you publish it (for example the journal name)?
   B) If yes, what were the biggest challenges you faced in conducting research in Somaliland?
   C) If No, would it be possible to mention why?

9. What recommendations do you think can improve the current situation of conducting research in the country universities?
10. Do you have any other comments?

Thank you so much for your time!

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