



GOVERNMENT OF UGANDA



MAKERERE UNIVERSITY

# STATE OF DOCTORAL EDUCATION AND TRAINING IN UGANDA



## RESEARCH REPORT

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## PROJECT TEAM

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		Professor Fred Edward K Bakkabulindi	He spearheaded the search for and review of literature. Apart from designing of data collection tools, he spearheaded the collection of documentary evidence. He led interview teams to Islamic University in Uganda (IUIU); Kampala International University (KIU); Makerere Colleges of Engineering, Design and Art (Mak CEDAT), Health Sciences (Mak CHS); and School of Statistics and Planning (SSP) in the Makerere College of Business and Management Sciences (Mak COBAMS) and Institute of Education Research (IER) of the Makerere College of Education and External Studies (Mak CEES). He was part of the FGD with NCHE; and the interview teams to Mak DQA and Mak DRGT. He co-spearheaded the generation of knowledge products and report writing.
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## LIST OF ABBREVIATIONS AND ACRONYM

ANIE	African Network for Internationalisation of Education
CAPREx	Cambridge Africa Partnership for Research Excellence
CARTA	Consortium for Advanced Research Training in Africa
CEPIDE	Capability Enhancement Project for Innovative Doctoral Education at Ugandan
<b>Universities</b>	
CHET	Centre for Higher Education Transformation
DAAD	Deutscher Akademischer Austauschdienst-German Academic Exchange Service
EC	European Commission
ECR	Early Carer Researcher
EHEA	European Higher Education Area
EPE	Enhanced Postgraduate Environment
EPRC	Education Policy Review Commission
ERA	European Research Area
EUA	European University Association
EURODOC	European Council of Doctoral Candidates and Junior Researchers
HERANA	Higher Education Research and Advocacy Network in Africa
LERU	League of European Research Universities
MoES	Ministry of Education and Sports
MoU	Memorandum of Understanding
MPhil	Master of Philosophy
NCHE	National Council for Higher Education
NDP	National Development Plan
NORAD	Norwegian Agency for Development Cooperation
NORHED	Norwegian Programme for Capacity Development in Higher Education and Research for Development
NPA	National Planning Authority
OECD	Organisation for Economic Co-operation and Development
PPP	Public Private Partnership
QA	Quality Assurance
R & D	Research & Development
RIF	Research and Innovation Fund
SIDA	Swedish International Development Cooperation Agency
STI	Science, Technology and Innovation
STEM	Science, Technology, Engineering and Mathematics
UHEQF	Uganda Higher Education Qualifications Framework
UNCST	Uganda National Council for Science and Technology
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UoA	Unit of Analysis
UOTIA	Universities and Other Tertiary Institutions Act

# Executive SUMMARY

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## INTRODUCTION

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The need for critical high-level knowledge and skills to power Uganda's growing economy through research and innovations is widely acknowledged in both policy and scholarly discourse. However, there is shortage of a critical mass of doctorates to train innovative researchers and undertake translatable research in Uganda. Concern about deficiency in the quantity, quality, relevance and productivity of doctorates in Uganda have become persistent. This signifies the need for more, better trained doctorates in Uganda. The way doctorates are trained affects the quality of a country's research and innovation system and every other level of the education system. Capability Enhancement Project for Innovative Doctoral Education at Ugandan Universities (CEPIDE) is designed to build capacity for innovative doctoral education and training in Uganda. CEPIDE undertook a study to uncover conditions of doctoral education and training in Uganda to generate evidence-based information to guide decisions on what needs to be done in order to produce more and quality doctorates to meet the high-level knowledge and skills demand in Uganda's growing economy.

## PURPOSE AND OBJECTIVES

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The purpose of our study was to assess the state of doctoral education and training in Uganda. Specifically, we examined national structures, policies and frameworks guiding doctoral education and training in Uganda; and institutional structures, policies, processes and practices of doctoral education and training. We sought to answer the following broad research questions: What is the extent to which national structures, policies and frameworks provide for innovative doctoral education and training in Uganda? Do institutional structures, policies, processes and practices support innovative doctoral education and training in Ugandan universities? Our "unit of analysis" (UoA) was a given doctoral programme offered in an institution/university in Uganda. Using the seven Principles of Innovative Doctoral Training (European Commission [EC], 2011) as the analytical lens, we sought to answer the following questions as a breakdown of our broad research questions: Was the doctoral programme striving for research excellence? Was the doctoral programme being offered in an attractive institutional environment? Was the doctoral programme offering students interdisciplinary research options? Was the doctoral programme giving students exposure to industry? Was the doctoral programme giving students opportunities for international networking? Was the doctoral programme giving students transferable skills training? Did the doctoral programme have adequate quality assurance (QA) mechanisms? We answered these questions at two levels of analysis: Systems (national) level analysis of structures, policies, frameworks and regulations guiding doctoral education and training in Uganda; and institutional level analysis of the doctoral programmes offered.

## METHODS/APPROACH

First and foremost, we embarked on extensive review of literature to generate understanding of the context of doctoral education and training. We explored the contexts of doctoral education and training globally, and in Africa in order to make sense of local issues and experiences in Uganda (Chapter Four). We explored trends depicting the need for the doctorate (Section 4.1); international frameworks and declarations guiding doctoral education and training (Section 4.2); changes in the doctoral education and training landscape over the recent decades (Section 4.3); and the current state of research on doctoral education and training (Section 4.4). In the context of Uganda in particular (Chapter Five), we explored current research on doctoral education and training in Uganda (Section 5.1); the context of higher education in Uganda (Section 5.2); historical developments in doctoral education and training in Uganda (Section 5.3); national level structures and institutional structures to support doctoral education and training in Uganda (Sections 5.4 & 5.5); and how doctoral education and training in Uganda aligns with Uganda's national development agenda (Section 5.6).

We executed the study of the state of doctoral education and training in Uganda through Participatory Action Research (PAR). By using PAR we envisioned capacity building for innovative doctoral education at Ugandan universities by working together with policy makers at the national and institutional level, and policy and programme implementers at the institutional level. We collected data through documents review, interviewing and Focus Group Discussions (FGD). At systems level, we reviewed laws, plans, policies and reports, and held FGD with NCHE. At institutional level, we collected data from 14 institutions offering doctoral education and training in Uganda. We reviewed institutional plans, policies and reports and held in-depth interviews with a total of 49 participants. We analyzed data using thematic framework analysis. We summarized data into cells: rows for cases and columns for codes. The seven Principles of Innovative Doctoral Training provided the pre-determined themes for our analysis. We looked for repeated patterns of meaning (similarities and differences). We thus generated typologies, interrogated theoretical concepts and mapped connections between categories to explore relationships and causality. This enabled us to give descriptions of particular cases and to explain reasons for the themes that emerged to generate understanding of the state of doctoral education and training in Uganda.

## KEY FINDINGS

### 1. Doctoral education and training capacity in both public and private universities/institutions in Uganda is low.

This is evidenced by the low completion and through put rates. Only about 1,197 PhDs have been awarded in Ugandan universities/institutions between 1970-2020. The total of PhDs awarded by public universities in Uganda between 1970-2020 is 1,025, of these, 923 (90.2%) were awarded by Makerere University (Table 5.17). Private universities awarded only 172 (9.8%) PhDs between 2001-2020 (Table 5. 29). Therefore, only Makerere University has some capacity for doctoral education and training.

## 2. There is gender inequality against females in doctoral education and training in Uganda.

Doctoral education and training in Uganda is male dominated. Of the 1,025 PhDs awarded by public universities between 1970-2020, only 240 (23.4%) were female. Of the 172 PhDs awarded by private universities between 2001-2020, only 42 (24.4%) were females (Table 5.30).

## 3. Doctoral education and training in Uganda is biased in favour of STEM fields in public universities, but biased in favour of non-STEM fields in private universities.

In private universities, of the 172 PhDs awarded between 2001-2020, only 19 (11%) were awarded in STEM fields (Table 5.31). In public universities, 699 (68.1%) of the 1,025 PhDs awarded between 1970-2020 were in STEM fields, only 326 (31.9%) were in non-STEM fields (Table 5.19). This is an indicator of lack of capacity for science education in private universities/institutions in Uganda.

## 4. There is misalignment between aspirations and commitments to attain research excellence expressed in written documents and the actual practice at the units offering doctoral education and training in Uganda.

The NCHE has set minimum standards and benchmarks to ensure research excellence in doctoral programmes. However, the NCHE underscores institutional autonomy and expects institutions/universities offering doctoral education and training to come up with their preferred models of doctoral programmes depending on their capacity in terms of infrastructure, facilities and staffing. Thus, there were variations across institutions in terms of course loads, length of study and programme design. Majority of the PhD programmes offered were PhDs by research only. Given the mono-disciplinary focus of the traditional PhD, opportunities for nurturing research excellence by giving doctoral students exposure to study in more open research environments were missed. Some of the programmes were being offered without written curricula, or their curricula were not yet approved by NCHE. The curricula for some of the PhD programmes were too loaded as per NCHE guidelines, while some PhD programmes had less load as opposed to what NCHE guidelines demand. Although PhDs by research only are still the predominant model of doctoral education, universities/institutions were progressively embracing the taught PhD (PhD by course work and research), regarding it superior to the traditional PhD by research only in instilling research excellence.

## 5. The quality of the postgraduate training environment in Ugandan universities/institutions is low.

With the exception of some STEM-based units mainly at Makerere University, absence of an Attractive Institutional Environment for doctoral education and training was overt. This was reflected by the following:

- Constrained doctoral supervision capacity. Commitments and standards set at the systems level to ensure appropriate staffing for doctoral programmes had not translated into actual practice. All universities/institutions offering doctoral education and training decried the acute shortage of doctoral supervisors and mentors.
- Lack of government funding for doctoral education and training. Doctoral programmes rely entirely on inadequate, restrictive, undiversified and therefore, not sustainable funding from development partners and donors, and student tuition fees. Only in few instances, some institutions sponsored staff for PhD studies under staff development programmes.

- The available infrastructure in terms of space facilities like lecture rooms and offices was largely inadequate.
- Facilities for PWDs were not well developed or non-functional. Many institutions/universities offering doctoral education and training were not prepared to enrol PWDs on doctoral programmes. Some of the universities/institutions or units were non-compliant in regard to the benchmarks and minimum standards set by the NCHE to cater for PWDs.

#### **6. Doctoral programmes offered at Ugandan universities/institutions are largely academic-discipline based.**

Commitment to ensure that PhD programmes are embedded in open research environments and culture in order to appropriately align doctoral programmes to national development goals through cross-disciplinary interactions is explicit in written documents at both systems and institutional level. However, except for some few STEM fields, cross-disciplinary research practices were not widely spread, and not institutionalized. The traditional discipline-based academic culture militated against cross-fertilization in doctoral education and training through cross-disciplinary research options.

#### **7. 'Industry' in Uganda is detached from doctoral education and training.**

Government of Uganda recognizes the poor Exposure to Industry in HEIs as reflected by a mismatch between university admissions and national skills gaps. Aspirations and commitments to ensure exposure to industry in all levels of HE in Uganda was explicit at the systems level. However, at the institutional level, institutionalized mechanisms to link doctoral programmes to the relevant industry were not well developed, particularly in the non-STEM disciplines. In the STEM disciplines, mainly the applied fields, linkages to the relevant industry were largely by default, but not by design and institutionalization. Therefore, opportunities for cross-fertilization to enhance the relevance of doctorates in the world out-side academia risk being missed.

#### **8. International networks to foster productive interactions in doctoral programmes are low and predominantly North-South.**

The most prominent aspect of international networking embedded in doctoral programmes in Uganda was North-South international partnership programmes through which institutions/universities accessed funding for running the programmes. However, such partnerships were more prominent in Makerere University, more so, in STEM fields. All aspects of international networking in doctoral programmes depended entirely on funding arrangements under international partnership programmes. In universities/institutions or programmes where international partnership programmes were not prominent, doctoral students were self-financed, and therefore, did not get opportunities for international exposure. This lowers the international competitiveness of doctorates trained in Uganda. International students support services were inadequate. As such, many international doctoral students did not have access to student support services, suffered linguistic and other problems.

#### **9. Transferrable Skills Training is generally lacking in doctoral education and training**

Government's commitment to foster transferable skills training in Uganda's education system is explicit and has been operationalized in the National Development Plan III (2020-2025). However, integration of transferrable skills training and discipline specific research training was a challenge in most doctoral programmes offered. Therefore, haphazard attempts were



made at integrating transferable skills training into doctoral education and training curricula. Institutionalized mechanisms to develop, assess, examine and evaluate transferable skills were not noticeable in doctoral programmes offered in Ugandan universities/institutions. Focus was mainly on the development and assessment of discipline specific expertise.

## 10. There is insufficient Quality Assurance at the doctoral level of education

Government of Uganda acknowledges the weak QA systems and low quality of education in the country, and hence, the need for strong QA measures at all levels of education. The NCHE has set benchmarks and minimum standards for running doctoral programmes. However, the minimum standards for the taught PhD in terms of course load/number of credit units (CU) are contradictory. In the benchmarks, the number of credit units set is 90 (CUs) which is too low, while the UHEQF puts the credit units at 540 CUs. Nevertheless, NCHE practically accredits institutions and their programmes to ensure compliance with the benchmarks and minimum standards. Universities/institutions offering doctoral education and training equally express commitment to ensure QA in the doctoral programmes they offer at least in written documents such as policies, guidelines and plans. However, written aspirations and commitments to assure quality had not translated into actual practice. Both external and internal formal structured programmatic evaluation and assessments had not been carried out. NCHE had not yet carried out comprehensive audits and tracer studies to determine the quality of outputs from doctoral programmes offered in Uganda. At the institutional level, structured, institutionalized feedback mechanisms were not embedded in doctoral programmes. Most doctoral programmes had neither undertaken self-assessments and evaluations nor tracer studies, and therefore got feedback haphazardly. Determining the quality of the graduates in terms of their suitability to the relevant industry was more elusive.

## CONCLUSIONS

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Doctoral education and training in Uganda is still largely traditional. There is misalignment between aspirations and commitments to develop doctoral education and training expressed in written documents and the actual conditions of doctoral education provision in the universities/institutions. Our findings have highlighted systemic constraints that may affect innovative doctoral education and training in Uganda. Unless addressed, it is unlikely that doctorates trained in Ugandan universities/institutions will be more relevant to national development needs and internationally competitive. The prominent systemic constraints are:

### *Funding constraints*

Funding from development partners and donors is inadequate, restrictive, unsustainable and undiversified. Overreliance on funding from donors and development partners impacts negatively on provision of a vibrant research eco-system. This translates into low quality post graduate environment in Ugandan universities/institutions. Thus, Ugandan universities/institutions, in their current state, except for few STEM based units in Makerere University, have inadequate staff and infrastructural capacity necessary to develop innovative doctoral education and training. Inadequate exposure to rich research environments constrains the nurturing of research excellence and the innovative capacity of the doctorates; leads to low throughput rates; and lowers the quality and relevance of doctoral research outputs. Many institutions/universities offering doctoral education were not prepared to enrol PWDs on doctoral programmes due to inadequate infrastructure, thus raising access and equity concerns.



### *Lack of diversification of doctoral programmes*

The dominant doctoral programmes offered are PhDs by research only. The conventional traditional PhD by research only model limits opportunities for cross-fertilization, and therefore lowers the relevance of the PhD outside specific disciplinary boundaries. This scenario alludes to gaps in doctoral programme design in Ugandan universities/institutions. Due to the mono-disciplinary focus of the traditional PhD, opportunities for nurturing research excellence by giving doctoral students exposure to study in more open research environments risk being missed.

### *Inadequate doctoral supervision and mentorship capacity*

Shortage of the critical mass of academic staff with PhDs in Uganda translates into acute shortage of doctoral supervisors and mentors. Universities/institutions have no option but to retain inadequately prepared supervisors who lack adequate capacity for supervision and mentorship. There is insufficient institutional support for doctoral supervision, for example, there are no institutionalized mechanisms to build the capacity of inexperienced supervisors such as recent PhD graduates. This affects the quality of doctoral supervision and mentorship. Constrained doctoral supervision capacity leads to low completion rates, low through-put rates of PhDs and lowers the quality of the doctorates and doctoral research outputs.

### *Lack of exposure to the relevant industry*

Lack of institutionalized mechanisms to link doctoral programmes to the relevant industry, particularly in the non-STEM disciplines, lowers opportunities for cross-fertilization through boundary spanning. Non-existent doctoral Alumni/Alumnae networks curtails the opportunity to use Alumni/Alumnae data to redesign doctoral curricula to address skills gaps. At the same time, knowledge sharing between the relevant industry and the academia is limited. Thus, the relevance of the doctorates and doctoral research outputs in the world out-side the academia remains uncertain. Mechanisms to support integrated learning and research training in collaborative academia-industry settings are needed to accentuate the worthwhileness of the doctorates and doctoral research outputs outside the academia.

### *Inadequate international networking*

All aspects of international networking in doctoral programmes depended entirely on funding arrangements under international partnership programmes. This translates into very low ratio of international academics and very low international student ratio. Insufficient international knowledge sharing limits full development of the knowledge creation capacity of doctoral students; sharing of good practices for doctoral programme development; and further development of knowledge products. This makes doctorates trained in Ugandan universities/institutions less competitive internationally. Excessive reliance on funding through North-South international partnership programmes is not sustainable. Unequal, unfair, politically and culturally biased power relations in the international knowledge eco-system entrenched by the North-South divide puts Ugandan universities/institutions at a disadvantaged position.

### *Inadequate cross-disciplinary research training*

The traditional discipline-based academic culture militates against cross-fertilization in doctoral education and training through cross-disciplinary research. Structural constraints such as resource limitations, cultural mismatch between academia and the industry, lack of trust and organizational secrecy limit cross-disciplinary research. Opportunities for cross-fertilization to make doctorates more relevant outside specific academic disciplines were missed.

### *Insufficient transferable skills training*

The traditional mono-disciplinary PhD by research only programmes entrench lopsided nurturing of academic research skills. Mechanisms to develop, assess, examine and evaluate transferable skills were not clearly embedded in doctoral programmes. The current assessment and examinations procedures and practices are insufficient, they do not provide for comprehensive evaluation of doctoral learning outcomes. Consequently, doctoral candidates are bound to remain ill-prepared to fit in other settings.

### *Insufficient QA for the doctoral level of education*

There were no institutionalized mechanisms to assess the quality and socio-economic relevance of PhD outputs in Uganda. Structured, institutionalized feedback mechanisms were not embedded in doctoral programmes. Most doctoral programmes had neither undertaken self-assessments and evaluations nor tracer studies, and therefore got feedback haphazardly. The lack of institutionalized evaluative mechanisms and failure to audit doctoral programmes consistently translates into several challenges affecting the quality of doctoral education provision in Uganda. Thus, the quality of the doctoral research environment and doctoral supervision and mentorship in Ugandan institutions/universities is low partly due to insufficient QA.

## **RECOMMENDATIONS**

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After careful considerations of our findings, we make the following recommendations for innovating doctoral education and training in Uganda.

### **1. Integrate doctoral education and training into national development planning**

Government of Uganda should integrate doctoral education and training in national development planning within the context of the policy objective of increasing the percentage of the GDP spending on research and development (R&D). To achieve this the Government of Uganda should create an interconnected national strategy for dealing with production of high-level knowledge and skills by bringing together the various elements of planning for research and high-level skills for national economic and social development of the relevant ministries and government agencies; set national targets for producing doctorates; and invest significantly in doctoral education and training.

### **2. Apply strong quality assurance measures to doctoral programmes**

To ensure that investments in doctoral education and training are appropriately managed and that doctoral education and training is fit for purpose, the following actions should be undertaken: Government of Uganda, through the NCHE, should introduce a sufficient and well-structured legal framework necessary for programmatic, personal and institutional evaluation; NCHE should undertake comprehensive audits and tracer studies to determine the quality of doctorates and doctoral research outputs; NCHE should demand doctoral programmes to undertake formative and summative evaluations for ongoing programme improvement; universities/institutions should take responsibility to operationalize the UHEQF into learning outcomes frameworks and assessment; evaluative frameworks and mechanisms to assess the quality of doctorates and the socio-economic relevance of doctoral research outputs should be developed.

### 3. Create enhanced post graduate environment (EPE) in HEIs in Uganda

Diverse and inclusive environments of high quality with structures that support doctoral students should be created. The EPE should provide a wide range of opportunities that facilitate personal, professional, and career development, and mobility for doctoral students. The following strategies could be adopted to achieve this: Differentiate the university system by function and degrees, not all universities should offer doctoral degrees; The role and funding of Graduate Schools should be underscored; Establishment of Centres for Doctoral Training as additional support structures to give across-campus support for doctoral students; Creation of doctoral training partnerships or strengthening the few existing ones; Universities/institutions should create learning communities or community of scholars to provide a stimulating research environment for doctoral students; Dedicated posts for mentoring doctoral students such as graduate assistantship should be institutionalized.

### 4. Diversify doctoral programmes

The conventional, traditional PhD by research only has become inapt to the current labour market needs of the knowledge economy; solving the issue of graduate employability outside of the academia; and easing knowledge transfer between the industrial/professional world and the academia. Therefore: Universities/institutions should shift from offering the traditional PhD by research only to the taught PhD or PhD by course work and dissertation. Other models of the doctorate such as the PhD by publication, the integrated PhD, and a wide array of Professional and Practice-based doctorates should be offered. The new forms of doctoral programmes are more responsive to the demands of the knowledge economy.

### 5. Expose doctoral candidates to the relevant industry and other employment sectors

Exposure to the relevant industry is essential in enhancing doctoral students' attractiveness to industry and developing more favourable attitudes to university-industry collaboration, and for more positive orientations towards careers in industry. This can be achieved through the following strategies: The government of Uganda should catalyse cultural change in doctoral programme design by awarding funding to doctoral programmes that are cross-disciplinary and preparing students for both academic and non-academic careers through linkages with the relevant industry; MoUs should be signed to strengthen and elaborate the relationship between universities/institutions and the relevant industry; Universities/institutions should develop doctoral programmes that support integrated learning in collaborative industry settings; Universities/institutions should use Alumni/Alumnae networks for mentoring and career planning and conduct tracer studies to collect Alumni/Alumnae data to redesign their doctoral curricula to make doctoral programmes more relevant.

### 6. Provide international exposure for doctoral students

Relevant international cooperation models that can foster training of internationally competitive and locally relevant doctorates should be institutionalized. Strategies that can be adopted to achieve this include: The government of Uganda, through the NCHE, should create a national prestigious fellowship programme which includes a maximum of two years of study at a foreign HEIs; Domestically supported joint degrees or double degree doctoral programmes or sandwich doctoral programmes as instruments of internationalisation should be instituted; Universities/institutions should design blended doctoral programmes; Universities/ institutions should nurture intra-regional cooperation in doctoral programmes to ensure greater relevance locally.

## **7. Embed transferable skills training in doctoral programmes**

To address the critical skills gap in doctoral graduates, transferable skills training should be embedded in doctoral programmes in addition to discipline specific research training. The following strategies can be used to achieve this: Government of Uganda, through the NCHE, should develop a national strategy to train a critical mass of doctoral supervisors; The UHEQF should be reviewed and used to align doctoral education to the demands of the knowledge economy by highlighting transferable skills; Universities/institutions should operationalize the UHEQF into learning outcomes frameworks to guide processes such as doctoral programme design, doctoral supervision, assessments and examinations, and evaluation of doctoral programmes; Supervisors should ensure dual focus on the development of discipline specific research competence and transferable skills in the doctoral supervision process; Comprehensive assessment tools for measuring and evaluating transferable skills in addition to discipline specific knowledge and skills should be developed and used in doctoral assessments and examinations, and evaluation of doctoral programmes.

## **8. Affirmative action to address access and equity concerns.**

Currently, as our findings indicate, doctoral education and training in Uganda is male dominated and biased in favour of STEM fields. Urgent affirmative action is needed to support females and non-STEM fields through targeted funding schemes. PWDs need urgent affirmative action to make the institutional environments inclusive.

# CHAPTER ONE

## INTRODUCTION

### 1.0 Introduction

In this document, we report on a baseline study of doctoral education and training in Uganda. This study is part of a bigger project named Capability Enhancement Project for Innovative Doctoral Education at Ugandan Universities (CEPIDE). In this chapter, we give the background to the CEPIDE project. We start by introducing the project (Section 1.1), before giving the specific objectives of the project (Section 1.2), we then give the outputs, outcomes and impact that we envisage from CEPIDE (Section 1.3), and outline how CEPIDE is implemented (Section 1.4). We end the chapter by outlining the structure of this report (Section 1.5).

### 1.1 About the Project

Capability Enhancement Project for Innovative Doctoral Education at Ugandan Universities (CEPIDE) is a project under Makerere University's Research and Innovation Fund (MaK-RIF). Makerere University received special funding from the Government of Uganda to support high impact research and innovations that inform national development priorities. The objective of the fund is to increase the local generation of translatable research and scalable innovations that address key gaps required to drive Uganda's development agenda. The fund illustrates the increasing importance that the Government of Uganda attaches to research and innovation as a catalyst to Uganda's progression towards middle income status as expressed in *Uganda Vision 2040 (Government of Uganda [GoU], 2013)*. CEPIDE is designed to enhance capacity for innovative doctoral education in Ugandan Universities. The broad aim is to build institutional and individual capabilities of doctoral supervisors at Ugandan universities by engendering a shift from traditional modalities to innovative approaches of doctoral education. This is envisaged to contribute towards producing doctorates that are able to undertake translatable research, train innovative researchers with 21<sup>st</sup> century transferable knowledge and skills - a cadre of doctorates who have the capability to contribute to improving Uganda's innovative capacity in the global economy and to solve local societal problems more directly.

### 1.2 Specific Objectives of CEPIDE

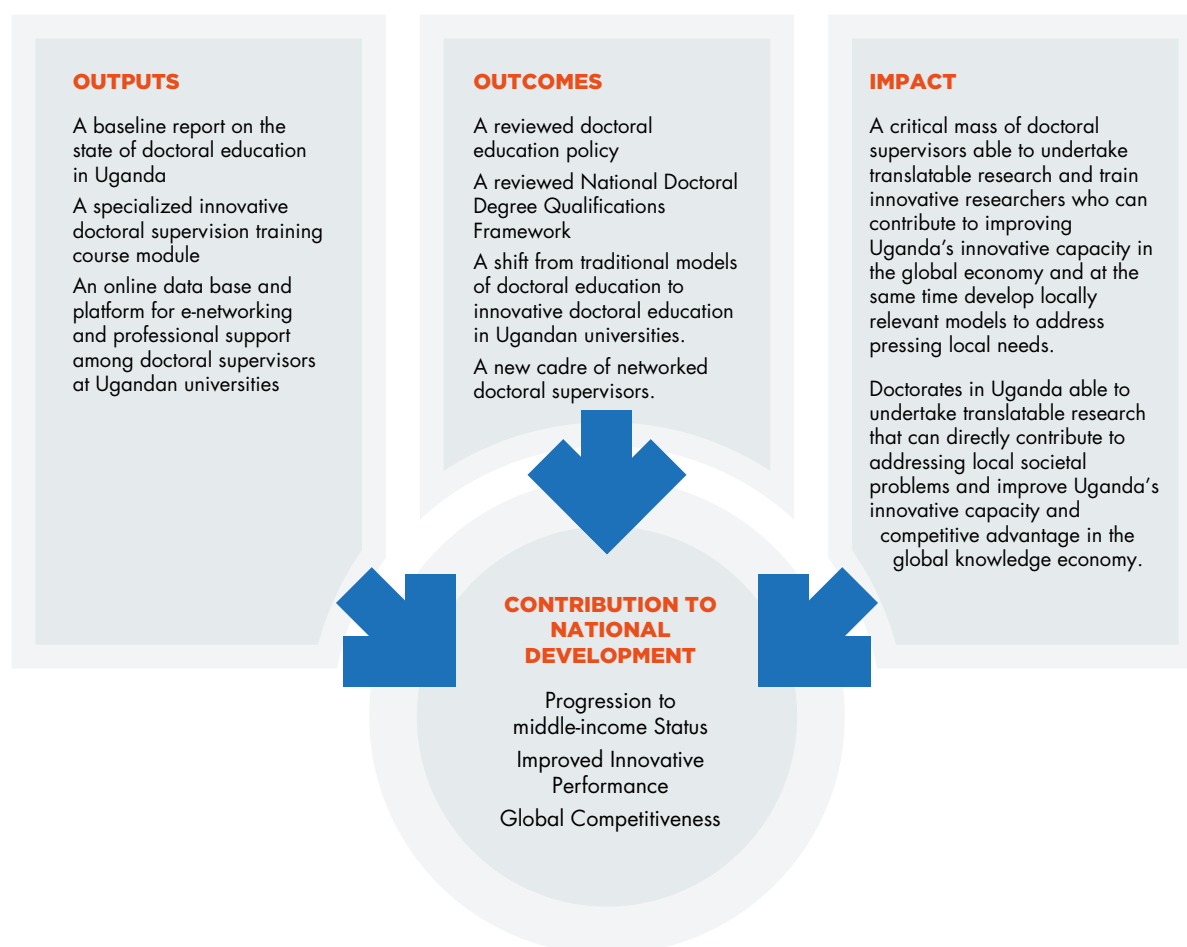
Paradigm shift from the traditional, essentially theoretical and academic modalities of doctoral education to innovative doctoral education is a prerequisite for addressing the quantity, quality and relevance imperatives in doctoral education and training. This requires research and interventions to build capacity for innovative doctoral education in Uganda. Therefore, the specific objectives of CEPIDE are:

1. To undertake a baseline study of the state of doctoral education in Uganda by 2020.
2. To design and implement a specialized blended capacity building training course for supervisors of doctoral candidates at Ugandan universities by 2021.
3. To create a data base and platform for building a networked community of innovative doctoral supervisors to foster knowledge sharing and professional support among doctoral supervisors at Ugandan universities by 2021.

### 1.3 Envisaged Outputs, Outcomes and Impact of CEPIDE

Currently, much attention is focused on academic research for the identification of challenges in doctoral education theoretically, specifically on issues of supervisory practices and institutional constraints. Little or no attention is paid to the identification of opportunities and interventions to address the tripartite imperatives of quantity, quality and relevance of doctorates in Uganda. It is envisaged that through CEPIDE, an Enhanced Postgraduate Environment (EPE) will be created in Ugandan universities. A new cadre of doctorates able to undertake translatable research and develop innovative models to address local societal needs and to improve Uganda's innovative capacity will be trained at Ugandan universities. Multiplication in numbers of doctorates with transferable high-level knowledge and skills, able to undertake translatable research and train innovative researchers will increase the likelihood of attaining the envisioned middle-income status, improving Uganda's innovative capacity and competitive advantage in the global economy. This is a pathway to the realization of *Uganda Vision 2040 (GoU, 2013)*. For the Higher Education sector in Uganda, increase in the number of better trained, networked PhD holders will alleviate the current acute staffing problem.

**Figure 1.1 Summary of the Envisaged Outputs, Outcomes and Impact of CEPIDE**



## 1.4 Implementation of CEPIDE

Implementation of CEPIDE is in two phases. In Phase One 2019/2020, we have carried out a baseline study of the state of doctoral education and training in Uganda. We intended to uncover and understand the underlying conditions contributing to deficiencies in the tripartite imperatives of quantity, quality and relevance of doctorates in Uganda. Thus, the baseline study forms the basis for subsequent interventions to shift from the traditional modalities of doctoral education to innovative doctoral education. Hence, we are writing a course module for specialized, blended capacity building training for supervisors of doctoral candidates at Ugandan universities. In Phase Two 2020/2021, we shall implement a specialized blended capacity building training course for supervisors of doctoral candidates at Ugandan universities; and create a data base and an online platform for e-networking, knowledge sharing and professional support among doctoral supervisors in Ugandan universities. The data base and online platform for e-networking and professional support among doctoral supervisors in Ugandan universities will be essential for monitoring and evaluation of progress of our efforts in the future.

## 1.5 Structure of the Report

In Chapter One we have given the background to CEPIDE project. In Chapter Two, we give the background to the base line study of the state of doctoral education and training in Uganda. In Chapter Three we outline the methodology of the baseline study. We then explore the global context of doctoral education and training in Chapter Four. In Chapter Five, we explore the Ugandan context of doctoral education and training in particular. We then give the findings of the baseline study of the state of doctoral education and training in Uganda in Chapter Six. We end the report with the discussion of our findings, conclusions and recommendations for innovating doctoral education and training in Uganda in Chapter Seven.

# CHAPTER TWO

## BASELINE STUDY OF THE STATE OF DOCTORAL EDUCATION AND TRAINING IN UGANDA

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### 2.0 Introduction

Having outlined the background to CEPIDE), we now specifically give the background to the baseline study of the state of doctoral education and training in Uganda in this section. We start by giving the background to the study (Section 2.1), followed by the statement of the problem (Section 2.2). We then give the purpose and specific objectives of the study (Section 2.3). Lastly, we explain the analytical framework we used as a lens in the study of the state of doctoral education and training in Uganda.-

### 2.1 Background to the Study

Throughout history, universities have performed basic functions that are implicit in the roles assigned to them by society through political power or economic influence. These include, but not limited to, generation and transmission of ideology, selection and formation of the dominant elites, production and application of knowledge and training the skilled labour force. These functions result from the specific history of education, science, culture and ideology in each country. Emphasis put on these functions vary according to specific institutions, countries and historical periods. In the recent decades, knowledge production and application are taking centre stage as a defining function of the university (Castells, 2017a, b). Knowledge is increasingly treated as a strategic resource and a productive asset in the contemporary era of “the fourth industrial revolution”, “the new/knowledge society” or “informationalism” (Castells, 1998, 2001, 2010).

The striking characteristics of the new knowledge society are acceleration, glocalization, risk, complexity/non-linearity/circularity, and reflexivity. Acceleration refers to exponential growth and change in politics, culture, the economy, intellectual life, social life and technological innovations. Glocalization is a new ecology of time-space that prizes local relevance and global competitiveness amidst cooperation and competition. Risk is uncertainty and high level of risks in undertaking social, political, economic reforms and technological innovations. Complexity/non-linearity/circularity refers to sophistication, openness and interactions with the environment. Reflexivity is the democratization and marketization of knowledge production and innovation systems, interactions between expert and local environments, deconstruction and re-construction of structures, values, practices and institutions, fall of traditional class and gender distinctions (Carayannis & Campbell, 2012; Scott, 2006).



Thus, intelligence and intellectual labour (information) have replaced physical labour as the fundamental sources of value and profit. More than ever before, there is increasing recognition that productivity and competitiveness for countries, as well as institutions is dependent on high level knowledge and information (Castells, 2017a, b, 2010). This picture has been painted by Castells who succinctly notes:

in the current condition of the global knowledge economy, knowledge production and technological innovation become the most important productive forces. Therefore, without at least some level of a national research system composed of universities, the private sector and public research centres, no country can really participate in the global knowledge economy (Castells, 2017a, p. 61).

Universities are the privileged social institution for the education and training of high-level knowledge and skills and the production of knowledge through scientific research. Educating and training the creative and innovative workforce requires nurturing of four types of proficiencies in learners: expert knowledge in a given field of study or discipline, ability to pursue research and development (R&D), ability to engage in interactive problem solving and the capacity to adapt to changes in information communication technologies (Tierney & Lanford, 2016). The apex training product of a university - the Doctorate, is uniquely placed in the knowledge eco-system: the doctorate is a key qualification that defines the quality of a country's knowledge/research eco-system. Therefore, the ability of any university to produce knowledge workers with such desired proficiencies is highly dependent on the doctoral education system.

In Uganda, just like in the rest of sub-Saharan Africa, focus has been on primary education, secondary education and the undergraduate level of higher education. Interest in the third cycle of higher education, particularly doctoral education is yet lukewarm in both policy discourse and scholarly pursuits. However, concern about the numbers, quality, relevance and productivity of doctorates in Uganda have been echoed. A comprehensive survey of the careers and productivity of doctorates by the Uganda National Council for Science and Technology (UNCST, 2012) highlights significant deficiencies in the number and the productivity of doctorates in Uganda. Equally, Kasozi (2019) brings to light deficiency in the number of doctorates and doctoral education modalities. These reports illuminate fundamental questions which need to be addressed: What makes producing more doctorates difficult in Uganda? How should doctoral education and training transform so it better supports the country's needs?

The resounding question Ortega and Kent (2018) pose comes to the fore: What do we want our doctorates to know and to be able to do? While increasing the number of doctorates will address the quantity imperative, numbers are not a sufficient condition; the quality of the doctorates, their relevance to Uganda's development agenda and their international competitiveness should be the focus in expanding doctoral education. So, how well do doctoral programmes offered in Ugandan universities prepare the students? Currently, there is lopsided emphasis on the scholarly component of the doctorate. Trafford and Leshem (2008, 2009) identify the scholarly/academic components as contribution to knowledge, identification of knowledge gap, conceptual framework, conceptual conclusions, research design, research questions answered, appropriateness of methodology, coherence of argument, engagement with theory, clarity of presentation and correctness of field work. Innovating doctoral education with a focus on R&D and transferable skills training in addition to scientific excellence and rigor (the scholarly component) is vital. The issue of capability building for systemic and institutional transformation for innovative doctoral education is of particular importance in this regard.

## 2.2 Statement of the Problem

CEPIDE was impelled by the acute shortage of a critical mass of doctorates with requisite knowledge and skills sets to undertake translatable research and train innovative researchers in Uganda. There were only about 37 researchers per million inhabitants in Uganda by 2010, 26 by 2014, well below the world average of 1,083 (UNESCO, 2015). About 1,000 PhD holders in various disciplines are unevenly distributed across the academia, government ministries, agencies and research institutes, 80% of these are at Makerere University. A glaring deficiency in the number of doctorates (quantity) and the productive capacity (quality, relevance, competitiveness) of doctorates in Uganda is evident (Kasozi, 2019). This scenario is a huge bottleneck to progressing towards the achievement of a middle-income status and improving Uganda's innovative capacity in the global economy, and therefore attainment of the national development aspirations expressed in *Uganda Vision 2040 (GoU, 2013)*. Yet, doctoral education, the engine for producing researchers, is still largely traditional, essentially theoretical and academically oriented in Ugandan universities. The fundamental philosophy that guided traditional modalities of doctoral education sought to enshrine scholarship and excellence in the pursuit of knowledge for the sake of knowledge and prepare doctorates for careers in the academia. Such a narrow philosophy has become entirely inappropriate in the dynamic 21<sup>st</sup> century competitive knowledge economy which demands transferable high-level knowledge and skills; in addition, careers for doctorates have become more fluid (Denecke, Kent & McCarthy, 2017; Ortega & Kent, 2018). Doctoral education ought to prepare candidates to be productive in careers both within and beyond the academia (Cross & Backhouse, 2014). The need to build capacity for innovative doctoral education in Ugandan universities to address the quantity, quality and relevance imperatives is apparent.

## 2.3 Purpose of the Baseline Study of the State of Doctoral Education in Uganda

The purpose of our study was to assess the state of doctoral education and training in Uganda.

The specific objectives are:

1. To examine national structures, policies and frameworks guiding doctoral education and training in Uganda.
2. To examine institutional structures, policies, processes and practices of doctoral education and training at Ugandan universities.

## 2.4 Research Questions

The following are the research questions we sought to answer:

1. What is the extent to which national structures, policies and frameworks provide for innovative doctoral education and training in Uganda?
2. Do institutional structures, policies, processes and practices support innovative doctoral education and training in Ugandan universities?

## 2.5 Analytical Framework for the Baseline Study

The seven Principles of Innovative Doctoral Training (European Commission [EC], 2011) provided the analytical framework for the baseline study of the state of doctoral education and training in Uganda. The principles stipulate that an innovative doctoral programme should strive for research excellence; should be offered in an attractive institutional environment; should offer its students interdisciplinary research options; should give students exposure to the relevant industry; transferrable skills training; and have adequate quality assurance mechanisms.

**TABLE 2.1**

*The Seven Principles of Innovative Doctoral Training*

### 1. Research Excellence

Striving for excellent research is fundamental to all doctoral education and from this, all other elements flow. Academic standards set via peer review procedures and research environments representing a critical mass are required. The new academic generation should be trained to become creative, critical and autonomous intellectual risk takers, pushing the boundaries of frontier research.

### 2. Attractive Institutional Environment

Doctoral candidates should find good working conditions to empower them to become independent researchers taking responsibility at an early stage for the scope, direction and progress of their project. These should include career development opportunities....

### 3. Interdisciplinary Research Options

Doctoral training must be embedded in an open research environment and culture to ensure that any appropriate opportunities for cross-fertilization between disciplines can foster the necessary breadth and interdisciplinary approach.

### 4. Exposure to Industry and other Relevant Employment Sectors

The term 'industry' is used in the widest sense, including all fields of future workplaces and public engagement, from industry to business, government, NGO's, charities and cultural institutions.... This can include placements during research training; shared funding; involvement of non-academics from relevant industry in informing/delivering teaching and supervision; promoting financial contribution of the relevant industry to doctoral programs; fostering alumni/alumnae networks that can support the candidate (for example mentoring schemes) and the program, and a wide array of people/technology/knowledge transfer activities.

### 5. International Networking

Doctoral training should provide opportunities for international networking, that is, through collaborative research, co-tutelle (co-teaching), dual and joint degrees. Mobility should be encouraged, be it through conferences, short research visits and secondments or longer stays abroad.

## 6. Transferable Skills Training

Transferable or soft skills are skills learned in one context (for example research) that are useful in another (for example future employment whether that is in research, business etc.). They enable subject- and research-related skills to be applied and developed effectively. Transferable skills may be acquired through training or through work experience. It is essential to ensure that enough researchers have the skills demanded by the knowledge-based economy. Examples of transferrable/soft skills include communication, teamwork, entrepreneurship, project management, interpersonal relations and ethics.

## 7. Quality Assurance

The accountability procedures must be established on the research base of doctoral education and for that reason; they should be developed separately from the quality assurance in the first and second cycle. The goal of quality assurance in doctoral education should be to enhance the quality of the research environment as well as promoting transparent and accountable procedures for topics such as admission, supervision, awarding the doctorate degree and career development. It is important to stress that this is not about the quality assurance of the PhD itself rather the process or life cycle, from recruitment to graduation.

*Source: EC (2011)*

We derived the constructs that we used in the development of the analytical framework for the baseline study of the state of doctoral education in Uganda from the Seven Principles of Innovative Doctoral Training. We summarise the analytical framework in Table 2.2.

**TABLE 2.2**

*Analytical Framework for the Baseline Study of the State of Doctoral Education and Training in Uganda*

Principle	Constructs
Research Excellence	Academic standards for the program and its curriculum Critical mass of academic staff Creativity among doctoral students Critical thinking among doctoral students Autonomy of doctoral students Academic risk taking by doctoral students
Attractive Institutional Environment	Infrastructure Adequacy of academic staffing Instructional facilities Financial health Facilities for People with Disabilities (PwDs) Organizational issues
Interdisciplinary Research Options	Multi-displinary in doctoral education and training Inter-displinary in doctoral education and training Trans-displinary in doctoral education and training (Cross-displinary in doctoral education and training)

Exposure to Industry and other Relevant Employment Sectors	Industry placements Co-funding with industry Co-teaching with industry partners Co-supervision with industry partners Alumni/Alumnae networks Knowledge sharing with industry
International Networking	Internationalization at home: exposure to international literature, short courses, financing home international events International partnership programs: joint research projects, funding academic trips, visiting international scholars, long term placements abroad Diversity management: multi-culturalism
Transferable Skills Training	Soft skills for self-management: entrepreneurship, self-awareness, time management, ethics Soft skills for relating with others: communication skills, stress management, emotional intelligence, empathy, interpersonal relations, conflict management, team work, project management, strategic planning, resource mobilization
Quality Assurance (QA)	QA of the inputs: the program and its curriculum, academic staff, financing QA of processes: selection, admissions, doctoral pedagogy, assessment and examinations, supervision, mentorship QA of outputs: the doctorate/graduands, research outputs Feedback: evaluation/assessment/continuous improvement

*Source: Derived from EC (2011)*

We used the analytical framework at two levels of analysis: Systems (national) level analysis of policies, frameworks and regulations guiding doctoral education and training in Uganda, and Institutional level analysis of the innovativeness of the doctoral programmes offered in universities / institutions providing doctoral education and training in Uganda.

# CHAPTER THREE

## METHODOLOGY FOR THE BASELINE STUDY

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### 3.0 Introduction

Having given the background to the baseline study of the state of doctoral education and training in Uganda (Chapter Two), we now address the question of how we undertook the study. We start by explaining the research paradigm and design (Section 3.1), followed by the unit of analysis we collected data on (Section 3.2), the data sources and data collection methods (Section 3.3), and research instruments we used (Section 3.4). We explain our data collection and data management procedure in Section 3.5 and Section 3.6 respectively. We end the chapter with ethical considerations (Section 3.7).

### 3.1 Paradigm and Design

We undertook the base line study of the state of doctoral education and training in Uganda through Participatory Action Research (PAR). PAR is a subset of Action Research (AR) and entails systematic collection and analysis of data for the purpose of taking action and making change by generating practical knowledge (MacDonald, 2012). Ontological commitments that underpin action research encompass action being value laden and morally committed, congruent with the postmodern tradition that embraces a dialectic of shifting understandings where objectivity is impossible and multiple or shared realities exist. The epistemological assumptions underpinning Action Research embrace knowledge creation as an active process; knowledge is viewed as uncertain depending on individual experiences (Kindon, Pain & Kesby, 2007). Thus, PAR's philosophy embodies the concept that people have a right to determine their own development and recognizes the need for people to participate meaningfully in the process of analysing their own problems, over which they have power and control in order to transform or cause change.

In the baseline study, we followed the tenets of PAR involving a cyclic process of research, reflection and action leading to further inquiry and action for change (Pain, Whiteman, Milledge, & Lune Rivers Trust, 2011). This was an educational process for the participants and us the researchers whereby we analysed the conditions of doctoral education and training in Uganda through collective discussions and interactions. In PAR, collective inquiry builds ownership of information, and therefore, the research process becomes demystified, creating space for trust to be developed. In essence, PAR is a transformative and an empowering process in which researchers and participants co-create knowledge while developing a sense of community, educating each other by negotiating meanings and raising consciousness and promoting capacity development in all who participate. By using PAR we envisioned capacity building for innovative doctoral education at Ugandan universities by working together with policy makers at the national and institutional level, policy and programme implementers at the institutional level. We anticipate changing, generating and/or evaluating policies, structures, programmes and practices of doctoral education and training in Uganda.

### 3.2 Unit of Analysis

Our “unit of analysis” (UoA) was a given doctoral programme offered in an institution/university in Uganda. It was this doctoral programme whose innovativeness we examined using the seven Principles of Innovative Doctoral Training as the analytical lens. Was the doctoral programme striving for research excellence? Was the doctoral programme being offered in an attractive institutional environment? Was the doctoral programme offering its students interdisciplinary research options? Was the doctoral program giving its students exposure to industry? Was the doctoral programme giving its students opportunities for International Networking? Was the doctoral programme giving its students transferrable skills training? Did the doctoral programme have adequate quality assurance (QA) mechanisms embedded in it? How would we get answers to the above research questions? Those seven research questions led us to our data sources and data collection methods.

### 3.3 Data Sources and Data Collection Methods

First and foremost, we considered documentary sources on doctoral education and training in Uganda. Documents are key sites of institutional discourse; therefore, we checked each document for the presence of key discourses related to doctoral education and training. Our special interest was in finding out how the documents support or do not support doctoral education; innovative doctoral education in particular: What did documents such as laws, plans, policies and reports at the systems or national level pronounce about doctoral education and training in Uganda? Here we interrogated at least two laws; three plans; four policies; and one report. As we interrogated documents at the systems level, we were aware of their limitations such as they being unavailable; incomplete; and out of date among other challenges. Thus, we found it suitable to contact the over-arching body in charge of higher education in Uganda- the National Council for Higher Education (NCHE). Hence, we held a focus group discussion (FGD) with four officers from NCHE (Table 3.1).

At the institutional level, we interrogated what the documents such as policies, plans and reports stipulated about doctoral education and training. We reviewed at least five strategic plans; 14 policies; and six reports. As we interrogated these documentary sources, we were aware of their limitations such as they being unavailable; incomplete; and out of date among other challenges. Thus, we had to get live voices. But whose voices? If it were possible, the first voice would have been that of our “units of analysis”- the respective doctoral programmes. But because this was impossible, we had to look for the person nearest to a given doctoral programme, to talk to us for and on behalf of the doctoral programme. Thus, the coordinator of each doctoral programme became the voice of our first priority. We accordingly interviewed 11 participants with titles reflecting that they were coordinators of doctoral programmes, nine of them from public universities and two from private universities (see Table 3.1). In case a given doctoral programme did not have a Coordinator, the corresponding Head of department (HoD) or Chair would come in as the voice of our second priority, given that an academic programme by law (NCHE, 2012) belongs to a department. We accordingly interviewed seven participants with titles reflecting that they were HoDs or chairs of departments, six of them from public universities and one from a private university (see Table 3.1).

In case a given doctoral programme did not have a Coordinator, and the pertinent unit did not have departments, the Dean of the unit would come in as the voice of third priority. As we illustrate in Table 3.1, we accordingly interviewed one participant with the title of, dean/coordinator of a doctoral programme from a public university. Six of the participants were deans of school or faculty, four of whom were from public universities and two from private universities. Two of the participants were directors of research and both were from public universities. One participant from a private university was a coordinator of graduate studies in a faculty; two participants were coordinators of research and innovation in a faculty, and both were from private universities.



**TABLE 3.1***Distribution of Participants by Category*

Category	Public Universities	Private Universities	Total
National Council for Higher Education	NA	NA	04
Coordinators of Doctoral Programs	9	2	11
Heads/Chairs of Department	6	1	07
Dean of Faculty or School/Coordinator of Doctoral Program Coordinators	1	0	01
Deans of Faculty or School	6	2	08
Director of Research	2	0	02
Coordinator of Graduate Studies in a Faculty of School	0	1	01
Coordinators of Research & Innovation in a Faculty of School	0	2	02
Directors of Quality Assurance	2	4	06
Directors/Heads/Deans of Graduate Faculties or Schools	3	3	06
Deputy Principal	0	1	01
Total	29	16	49

Beyond a particular department, school or college, there were enforcers of policy on doctoral education and training in each institution. These are the graduate school and quality assurance units of a given institution. We deemed these a necessary source of information on all doctoral programmes in a given institution. As we illustrate in Table 3.1, we accordingly interviewed six participants who had titles of directors of graduate schools and/or related titles, three of them from public universities while another three belonged to private universities. Six of our participants were directors of quality assurance, two from public universities and the other four from private universities.

### 3.4 Data Collection Instruments

We used frame work analysis matrix for review of documents at the systems and institutional levels. We charted documentary information into a matrix with Principles of Innovative Doctoral Training as the pre-determined themes and the constructs derived as the pre-determined sub-themes. We designed a semi-structured FGD guide for FGD with officials from the NCHE. For interviews at the institutional level, we designed semi-structured interview guides for Coordinators of doctoral programmes; Heads of departments (HoD) or Chairs and/or Deans of schools and/or Deputy principals of colleges. We had another interview guide for enforcers of policy on doctoral education and training in each institution. These are the directors of graduate schools and quality assurance units in the respective institutions. In all the instruments we reflected constructs in the analytical framework (Table 2.2).



### 3.5 Procedure

We collected data in two phases: collection of preliminary data and actual data collection through documents review and interviewing. We collected preliminary information from the 14 universities/institutions providing doctoral education and training in Uganda to guide selection of participants. We assigned and facilitated research assistants to make prior visits to universities/institutions that offered doctoral education and training in Uganda with covering letters from the Chair of the Makerere Research and Innovations Fund (Mak-RIF) and the Principal Investigator (PI). We obtained preliminary information on the number and types of doctoral programmes offered in each of the 14 institutions and the contact details of the potential participants, that is, Coordinators of doctoral programmes, HoDs, Chairs and/or Deans of schools and/or Deputy principals of colleges, Heads/Directors of research and graduate schools/institutes/units and quality assurance units of a given institution. Each research assistant made requests and appointments for interview. In many cases, research assistants had to make more than one visit and sometimes had to make several email and telephone reminders for an appointment to be fixed.

For actual data collection, we reviewed documents at both systems and institutional levels. We searched web-sites, physical libraries and personal archives for relevant documents. We interviewed participants at the institutional level individually, face to face and through telephone calls. Each interview team had at least one senior member and one research assistant who were facilitated by CEPIDE with private chauffeur-driven transport to and from the venue. CEPIDE also facilitated each team with a voice recorder to complement the field notes taken by the interview team. We conducted some interviews by telephone due to COVID-19 lockdown restrictions. We conducted FGD with officials from NCHE via Zoom given the lockdown restrictions due to COVID-19 pandemic. Interviewing gave us the opportunity to access participants' ideas, thoughts, memories and experiences about doctoral education and training. We explored constructs derived from the Seven Principles of Innovative Doctoral Education to assist in uncovering the participant's perspectives and experiences. The interviewing process was participatory and therefore a learning experience for the research team and the participants in a reciprocal manner.

### 3.6 Data Management

We analysed data using thematic framework analysis. The defining feature of framework analysis is matrix display where data are summarized into cells (Gale, Heath, Cameron, Rashid & Redwood, 2013). A cell corresponded to where a given row met a given column. The rows were for cases (e.g., documents for documentary data analysis; and interview participants for interview data analysis) and the columns for codes. The Principles of Innovative Doctoral Training were the pre-determined themes. The framework provided a structure into which we systematically reduced data to enable analysis by case (i.e., row) and by code (i.e., column). We have summarized the steps we followed in the analysis of data using framework analysis in Table 3.2. We chose framework analysis because it is not aligned to any one particular philosophical, epistemological, or theoretical approach. It is a flexible tool that can be adapted for use in various forms of qualitative data analysis (Gale et al., 2013).

TABLE 3.2

*Steps we followed in Data Management using Thematic Framework Analysis*

**Step 1 Transcription of Data**

We transcribed the data from interviews and FGD into interview transcripts. We then organised textual data from documents review and the interview transcripts according to two levels of analysis: systems and institutional. The process of data transcription gave us the opportunity to deeply immerse in the data.

**Step 2 Coding of Data**

Team members read through the textual data line by line, applying a paraphrase or label (a code) that described what the member interpreted in the passage as important. We used the deductive approach as we went to the field with a priori categories corresponding to the constructs we derived from the Seven Principles of Innovative Doctoral Training. However, we were keen in identifying emerging codes and categories from the data.

**Step 3 Developing the Working Analytical Framework**

We combined emerging codes with the pre-defined codes, categories, sub-themes and themes to develop a comprehensive working analytical framework.

**Step 4 Applying the Working Analytical Framework**

We applied the working analytical framework by indexing the subsequent documents and interview transcripts using the existing categories and codes (the constructs in the analytical framework we derived from the Seven Principles of Innovative Doctoral Training).

**Step 5 Charting Data into the Framework Matrix**

We used spread sheets to generate matrices into which we charted the data. We summarized data from each document or interview transcript by category. This necessitated striking a balance between reducing the data on the one hand and retaining the original meanings on the other, the resulting chart included references to illustrative quotations.

**Step 6 Interpreting the Data**

At this stage we identified characteristics of the data, for example, similarities, differences and repeated patterns of meaning. We thus generated typologies, interrogated theoretical concepts or mapped connections between categories to explore relationships and/or causality. This enabled us to give descriptions of particular cases and to explain reasons for the emergence of particular themes. We allocated sufficient time for meetings and individual researcher time to conduct interpretation and writing up of findings.

*Source: Derived from Gale et al. (2013)*

### 3.7 Ethical Considerations

We ensured zero deviation from ethical norms through close monitoring and supervision. Each human participant was involved in the study on voluntary basis. During report writing, we ensured no disclosure of the identity of any participant except when quoting a written source that the participant had authored. We upheld respect of international human rights and dignity. We did not bribe anybody to access information from participants or other data sources. We avoided plagiarism by acknowledging and referencing all the secondary sources. We ensured that our project was environmentally friendly by incorporating use of digital and online strategy to data collection, analysis and dissemination of information wherever possible. Our physical workshops had more electronic presentations and less of hard paper work. In the selection of participants, we catered for gender balanced participation. At least 45 percent of the participants were deliberately female.

# CHAPTER FOUR

## GLOBAL CONTEXT OF DOCTORAL EDUCATION AND TRAINING: EMERGING TRENDS

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### 4.0 Introduction

Before giving our findings on the state of doctoral education and training in Uganda, we believe that a reflection on global historical, political, economic and geographic contexts of doctoral education and training is in order to make sense of our local issues and experiences. We begin this chapter with global trends depicting the need for the doctorate (Section 4.1). We follow this with an overview of international frameworks and declarations guiding doctoral education and training (Section 4.2). We explore changes in the doctoral education and training landscape over the recent decades (Section 4.3). In the last section (Section 4.4), we describe the current state of research on doctoral education and training.

### 4.1 Need for the Doctorate: Global and African Contexts

In this section (Section 4.1) we consider the output of doctorates vis-à-vis the demand for individuals holding doctorates. As the heading of the section suggests, we consider the global and African contexts respectively.

**4.1.1 Need for the Doctorate: Global Context.** By the global context, we mean the rest of the world beyond Africa. Over the last two decades, the demand for the doctorate has been expanding globally. Interest in the doctorate became more distinctive during the 1990s with the rise of the notion of the knowledge economy (Castells, 1991). Significant correlation has been shown to exist between doctoral education and training and the innovative performance of a country, and the efficiency of higher education systems (Teferra, 2015). As a result, doctoral education and training has gained prominence globally as a driver of R&D and innovations in key strategic areas of national innovation systems; and as a vehicle for addressing graduate employability concerns (Fillery-Travis et al. 2017; Matas, 2012).

Thus, the doctorate is progressively acknowledged as a key qualification that defines the quality of a country's knowledge eco-system. There is increasing recognition that the capacity of a country's knowledge system to remain competitive and sustainable depends on the capacity of that system to produce not only new, but relevant doctorates at a rate which is suitable for that system (Academy of Science of South Africa [ASSAf], 2010). As a result, doctoral education and training has gained importance globally as part of the competitiveness debate, nationally as a means of promoting industrial and social innovation and within universities as a key indicator of status and efficiency (Balaban & Wright, 2014; Samuel, 2016; Teffera, 2015). World over, a number of initiatives are being launched to reform doctoral education at all levels-institutional, national, regional and supra-national.

In Europe, reforms in doctoral education and training were instituted through the Bologna Process. Initially, more focus was on the first and second cycles of higher education. Doctoral education and training was not included in the Bologna process until 2003 when the notion of a “Europe of knowledge” brought doctoral education to the fore (Balaban & Wright, 2014, p.4). The Bologna Communiqué (Berlin) of 2003 (Bologna Process, 2003) included the doctorate as the 3<sup>rd</sup> cycle in Bologna Process and emphasized its importance for the Europe of Knowledge. Between 2004 and 2005 European Universities Association’s (EUA) project- Doctoral Programme for the European Knowledge Society funded by the EC was instituted. In 2005 the Salzburg ten basic principles of doctoral education were pronounced (Bologna Process, 2005a). After long disputes over conceptualization of a European doctorate with regard to the structure, time requirements and goal of the doctorate, in 2005, the Bologna Communiqué (Bergen) aligned the 3<sup>rd</sup> cycle (doctoral education) with the outcomes-based framework of the European Higher Education Area (EHEA), and called for increased numbers of ‘Early Stage Researchers’ trained in interdisciplinarity and the development of transferable skills to meet the needs of the wider labour market (Bologna process, 2005b). After 2005 there was implementation of strategies and principles agreed upon for reforming doctoral education and training during the Bologna process. European Union (EU) countries decided in the Bologna Treaty to invest 3 percent of each country’s gross national product in R&D by 2010 (EU, 2010). Such initiatives translated into increase in output of doctorates in Europe.

Doctoral education and training expanded in the US steadily after the second World War (WWII). Doctoral programmes are increasingly becoming market-driven in the context of the knowledge economy with emphasis put on professional and transferable skills training (Balaban & Wright, 2014). Balaban and Wright report on initiatives aimed at transforming doctoral education and training in the US; notable is the National Science Foundation’s interdisciplinary training program called the Integrated Graduate Research and Traineeship (IGERT). Consisting of 5 years funding from the National Science Foundation for doctoral programs, the IGERT has been shown to be successful in transforming doctoral education and training in the US. Aimed at catalysing cultural change in graduate education through collaborative research that transcends traditional disciplinary boundaries, IGERT funding was awarded to doctoral programs that are: engaging novel research themes, cross-disciplinary, team-based, building professional and personal skills into the curriculum, preparing students for academic and non-academic careers through linkages with the outside world and encouraging international components (National Science Foundation, 2005). Louw & Muller (2014) equally highlight on initiatives that were launched to support doctoral education and training in the US. Among these are the US councils of Graduate Schools PhD completion Project, the Woodrow Wilson National Fellowships Foundations Responsive PhD Initiative, the Carnegie Initiative on the Doctorate and the Graduate Education Initiative funded by the Andrew W. Mellon Foundation.

These initiatives have translated into changes in doctoral education and training modalities and notable increase in doctoral outputs in the US over the recent decades. For example, with doctoral education and training largely concentrated in over 60 research universities which are members of the American Association of Universities, in 2012 alone, US universities awarded 51,008 doctorates (National Science Foundation, 2013). Balaban & Wright (2014) report that professional skills development throughout the doctorate to prepare students for widening career paths is receiving a lot of attention in the US. However, according to them, finding a balance between disciplinarity and interdisciplinarity, fitting within the traditional university structure and sustaining funding have continued to remain major challenges affecting doctoral education and training in the US. Hence, as highlighted by Cyranoski, et al. (2011), the unprecedented expansion in doctoral education and training in the US has generated a lot of policy debates around issues such as the over production or over supply of PhDs, the quality and effectiveness of doctoral programmes, and their relevance for society and the labour market.

Asian nations such as China, Singapore and India have developed a new interest in universities and investments in knowledge production. This has translated into dramatic increase in PhD production, addressing the quantitative imperative, though quality and international competitiveness of the doctorates remain a major challenge (Cyranoski et al., 2011). For example, in India, there is major expansion of doctoral education to match the explosive growth of the economy; India took a decision to increase its numbers of doctoral candidates fivefold by 2015 from a base of 65,491 in 2005 (Louw & Muller, 2014). The government has made investments to attain the target of graduating up to 20,000 PhDs each year by 2020. Cyranoski, et al. (2011) report that China is overtaking the US to become the world's leading producer of PhDs. Remarkable innovations have been made to boost PhD production in China. Similarly, in Singapore, major investments and expansion in the university system and in science and technology have led to growth in PhD enrolments by 60 percent in all disciplines. However, some countries in Asia are suffering doctoral brain drain. As Sloan (2015) observes, "the increase in Asia's own scientific capability does not seem to have led to a greater propensity of Asian PhDs to return from the US... upon graduation . . . Chinese and Indian PhD students record the highest rates" (p. 250).

Cyranoski et al. (2011) compared doctoral outputs in the world to a "PhD factory," implying that there was over-production of PhDs in the eight countries (China, Egypt, Germany, India, Japan, Poland, Singapore & US) they reviewed. They hence rhetorically asked whether it was time for the world to stop (or reduce) the production of PhDs. Their main finding was that, "in some countries such as Japan, Poland and the United States, people who have trained at great length and expense to [get PhDs and hence to] be researchers confront a dwindling number of academic jobs, and an industrial sector unable to take up the "slack" (p. 276). For China and India however, they reported that, "the economies are developing fast enough to use all the PhDs they can crank out, ... but the quality of graduates is not consistent" (p. 276). They described Germany as, "successfully tackling the problem [of excess PhDs] by redefining the PhD as training for high-level positions in careers outside academia" (p. 276). Equally, Sloan (2015) in a review of 31 articles on the *University World News* website reported that almost world over the number of doctoral degrees has gone up. For example, Sloan reports that, "a cross Scandinavia, the overall number of doctoral degrees conferred increased by 32 percent between 2002 and 2011" (p. 252). Because of that, "Governments are beginning to ask if it is time to slow the PhD production line... a recognition that many PhD graduates are unable to find academic positions" (p. 246).

In summary, these studies suggest that many developed countries such as Japan, the Scandinavia and the US, suffer over-supply of PhDs (Cyranoski et al., 2011; Sloan, 2015) while some developed countries such as Germany do not because they have found a place for doctorates outside the academia (Cyranoski et al., 2011). Some countries such as Poland also suffer over-supply of PhDs while others such as China and India do not, while some Asian countries such as China and India suffer doctoral brain drain (Sloan, 2015). Thus, in the global context, issues of quantity, quality, relevance and international competitiveness are taking centre stage in both policy and scholarly debates about doctoral education and training. Quality and effectiveness of doctoral programmes and their relevance for society and the labour market in the context of the knowledge economy are of particular importance in these debates. Increasing emphasis is being put on interdisciplinarity, professional and transferable skills training. Hence, progressively the doctorate is being redefined as training for high-level positions in careers both within and outside the academia. National initiatives focus on increasing percentage of GDP expenditure to support reforms in doctoral education and training.

**4.1.2 Need for the Doctorate: The African Context.** By the African context, we mean the rest of Africa beyond Uganda. In Africa, for decades, doctoral education has been viewed as a lower priority; focus has been on primary, secondary and undergraduate education as the key to development and poverty alleviation. Most students wanting graduate education obtained them from abroad (African Network for Internationalization of Education [ANIE], 2019). Notable upsurge of interest in



doctoral education and training in Africa occurred from the 1990s with the advent of the notion of the knowledge economy. Since then, there is shared optimism in the value of building capacity for doctoral education and training as demonstrated in formal declarations which are part of the political agenda.

The Kigali Communique of March 13, 2014 is one notable declaration that demonstrates shared optimism about building capacity for doctoral education and training in Africa. The governments of Ethiopia, Mozambique, Rwanda, Senegal, and Uganda unanimously affirmed the need to increase PhD production, explicitly stating that: “it is fundamental for Africa to increase the PhD programmes in the continent and to continue to engage in partnerships that increase the number of PhD holders in Africa” (Higher Education for Science, Technology and Innovation: Accelerating Africa’s Aspirations. Communique Kigali, Rwanda, 2014).

The Dakar Declaration of March, 2015 on the revitalization of African higher education equally affirmed the need to build capacity for doctoral education in Africa. As priority area 5, African governments made a commitment to build capacity in research, science, technology and innovation; a major action plan was to increase PhD production on the continent (Declaration and Action Plan from the 1<sup>st</sup> African Higher Education Summit on revitalizing higher education for Africa’s future, 2015, p.21). African governments acknowledged the need to develop a strategy to expand PhD enrolments to average levels for emerging economies within fifteen years for Africa to become a global pole of scientific productivity with its share of young PhD graduates and publications proportional to its share of global population demographics which are projected to be 40 percent by 2063 (ANIE, 2019).

The policy discourse on enhancement of doctoral education in Africa is further shaped by studies such as the joint report summarizing the outcome of a 2012 international seminar by the International Association of Universities (IAU) and Catalan Association of Public Universities (ACUP) (IAU & ACUP, 2012); and the report by Higher Education Research and Advocacy Network in Africa (HERANA) of 2014 (Bunting, Cloete & Van Schalkwyk, 2014). These reports highlight a number of deficiencies in doctoral education in Africa including, but not limited to: a low PhD capacity despite significant expansion in Masters level graduate outputs, inadequate funding for doctoral education, deficiencies in doctoral supervision, low quality of the doctorates, questionable socio-economic relevance of PhD outputs and the lack of consistent evaluative mechanisms to assess the quality and relevance of PhDs in Africa.

Thus, current policy discourse in Africa highlights the need for increased volumes of PhD output (quantity imperative), transformation in doctoral education (relevance, efficiency and quality imperative), and internationalization of doctoral education (competitiveness imperative) (ANIE, 2019; Cross & Backhouse, 2014). There is broad agreement that Africa needs many more PhDs in order to: renew an ageing professoriate, staff the rapidly expanding higher education field, boost research and generate the high-level knowledge and skills needed to power the growing economies (Bitzer, 2016; Ortega & Kent, 2018; MacGregor, 2013). However, the policy discourses are at odds: the pursuit of growth in numbers (quantity imperative) may impact negatively on the achievement of quality, relevance and efficiency (quality imperative). Huge increase in doctoral enrolments requires commensurately huge investments in the doctoral education and training process. This calls for carefully thought-out strategies to enhance institutional capacity for innovative doctoral education.

Scholarly pursuits have equally demonstrated the need for building capacity to address the quantity, quality and relevance imperatives in doctoral education and training in Africa. For example, regarding Egypt which they described as the “Middle East’s powerhouse for doctoral studies”, Cyranoski et al. (2011, p. 279) reported that, “there are many more PhD holders... than the universities can employ as researchers and academics” (p. 279). They quoted one professor as contending that in Egypt, “pursuing a PhD is ‘worthless’ except for those already working in a university” (p.

279). However, this picture does not hold true for the rest of Africa, sub-Saharan Africa in particular.

Sloan (2015) in a review of 31 articles on the *University World News* website reported that Africa needs to produce many more PhDs: "Africa needs tens of thousands more PhDs . . .to among other reasons reverse the situation where. . . Sub-Saharan Africa... contributes only 0.7 percent of the world's scientific output" (p. 248). Sloan contends that the reasons for this gloomy picture in Africa include the fact that "doctoral education is still heavily dependent on external assistance" (p. 257), yet, "the need for support outstrips what is available...many donors support postgraduate study, but predominantly at master's level" (p. 257). On the positive side however, Sloan quotes, a survey of eight institutions in Africa [that] indicated efforts to increase PhD production (p. 247). How is this done? Sloan observes for example that, "Lecturers are, in some instances, required to hold PhDs, with some universities promoting staff completing PhDs and providing... financial rewards to staff completing... PhD qualifications" (p. 247).

British Council and DAAD (2018) report provided an overview of a study on doctoral training capacity in six African countries (Ethiopia, Ghana, Kenya, Nigeria, Senegal and South Africa). Preliminary research findings reported about Africa indicate that "beyond the OECD..., there is a severe lack of opportunities for obtaining higher degrees [e.g., PhDs] even among university staff" (p. 4). Other findings specific to the six African countries were that, "a shortage of PhD-qualified staff in universities was a salient feature in each of the countries" (p. 12). They pointed out that Sub-Saharan Africa had human and material resource challenges. They gave examples such as that while the world average of researchers per million inhabitants in 2014 stood at over 1,098, in sub-Saharan Africa the figure in 2014 was only 87.8. That while the world average GDP expenditure on research and development in 2014 was 1.68 per cent, the figure for sub-Saharan Africa was only 0.41 percent.

In summary, these studies suggest that countries beyond the OECD suffer a shortage of PhDs (British Council & DAAD, 2018). Apart from a few African countries such as Egypt that suffer over-supply of PhDs (Cyranoski et al., 2011), the rest of Africa "needs tens of thousands more PhDs" (Sloan, 2015, p. 247); and there is, "a shortage of PhD-qualified staff in universities" (British Council & DAAD, 2018, p. 12). Why? Because doctoral education and training in Africa is heavily dependent external assistance which is very inadequate (Sloan, 2015). Thus, there is need to build capacity for doctoral education and training in Africa to produce quality and relevant doctorates to staff the rapidly expanding higher education field, boost research and innovations, and generate the high-level knowledge and skills needed to power the growing economies.

## 4.2 International Frameworks and Declarations guiding Doctoral Education and Training

In the previous section (Section 4.1) we delved into the demand for doctorates in the global and African contexts. In this section (Section 4.2) we consider how international frameworks on doctoral education and training evolved up to the framework of relevance in our study - the seven Principles of Innovative Doctoral training.

**4.2.1 Sorbonne Declaration (1998).** In May 1998 the Ministers in charge of Higher Education of France, Germany, Italy and the United Kingdom signed the Sorbonne Declaration on the harmonization of the architecture of the European Higher Education system at Sorbonne University in Paris, France. The Sorbonne Declaration among others focused on a common degree level system for graduate (Masters & doctoral degree) students in Europe.

**4.2.2 Bologna Declaration (1999).** On June 09, 1999, a total of 29 European ministers in charge of Higher Education met in Bologna, Italy to lay the foundation for establishing a European Higher Education Area (EHEA) by 2010 and promoting the European system of higher education world-wide. Hence, the ministers gave birth to what is now known as the Bologna Process with the



objectives of (i) introducing undergraduate and postgraduate levels in all European countries with first degrees no shorter than three years; (ii) introducing a European Credit Transfer System (ECTS); and (iii) elimination of obstacles to the mobility of students and teachers across Europe.

**4.2.3 Prague Declaration (2001).** Two years after the Bologna Declaration, the ministers in charge of Higher Education of 33 European signatory countries met in Prague, Czech Republic, in May 2001 to follow up on the Bologna Process and to set directions and priorities for the following years. However, there was nothing of special significance to PhD education and training.

**4.2.4 Berlin Communiqué (2003).** When the ministers met again in Berlin, Germany in September 2003, they among others, considered it necessary to go beyond the then focus on two main cycles of Higher Education, namely the Undergraduate and Graduate. They intended to add the doctoral level as the third cycle in the Bologna Process and to promote closer links between the EHEA and the European Research Area (ERA).

**4.2.5 Salzburg Recommendations (Bergen Communiqué, 2005; Christensen, 2005).** The Bologna Seminar on Doctoral Programmes for the European Knowledge Society in Salzburg, Bergen, Norway in February 2005 was a significant development in the Bologna Process in the sense that it established a working dialogue among both higher education policy practitioners and university researchers and doctoral candidates on the key issue of how to promote closer links between the EHEA and the ERA to improve the quality and competitiveness of European higher education. The high level of researcher participation was built upon largely the European University Association (EUA)'s Doctoral Programmes Project (Chambaz, Biaudet & Collonge, 2006) involving 48 universities from 25 countries, whose initial research findings were presented during the seminar. Participants at the seminar also included representatives of EURODOC - the professional association of doctoral candidates in Europe. The main outcome of the seminar 'dialogue' on the third cycle of higher education was an agreement on ten basic recommendations to underpin further consideration of the key role of doctoral programmes and research training in the Bologna Process. The ten recommendation were as in Table 4.1:

**TABLE 4.1*****Salzburg Recommendations***

Serial Number	Recommendation
I	The Core Component of Doctoral Training was the Advancement of Knowledge through Original Research: At the same time, it was recognized that doctoral training had to increasingly meet the needs of an employment market that was wider than academia
II	Embedding in Institutional Strategies and Policies: Universities as institutions needed to assume responsibility for ensuring that the doctoral programmes and research training, they offered were designed to meet new challenges and include appropriate professional career development opportunities
III	The Importance of Diversity: The rich diversity of doctoral programmes in Europe - including joint doctorates - was a strength which had to be underpinned by quality and sound practice
IV	Doctoral Candidates as Early Stage Researchers (ESRs): Had to be recognized as professionals - with commensurate rights - who made a key contribution to the creation of new knowledge
V	The Crucial Role of Supervision and Assessment: In respect of individual doctoral candidates, arrangements for supervision and assessment had to be based on a transparent contractual framework of shared responsibilities between doctoral candidates, supervisors and the institution (and where appropriate including partners)
VI	Achieving [the] Critical Mass: Doctoral programmes had to seek to achieve [a] critical mass and had to draw on different types of innovative practices that were being introduced in universities across Europe, bearing in mind that different solutions might be appropriate to different contexts and in particular across larger and smaller universities. These ranged from graduate schools in major universities to international, national and regional collaboration between universities
VII	Duration: Doctoral programmes had to operate within appropriate time duration (three to four years full-time as a rule)
VIII	The Promotion of Innovative Structures: To meet the challenge of inter-disciplinary training and development of transferrable skills
IX	Increasing Mobility: Doctoral programmes had to seek to offer geographical as well as inter-disciplinary and inter-sectoral mobility and international collaboration within an integrated framework of cooperation between universities and other partners
X	Ensuring Appropriate Funding: The development of quality doctoral programmes and the successful completion by doctoral candidates required appropriate and sustainable funding.

*Source: Bergen Communiqué, 2005; Christensen, 2005*

**4.2.6 Salzburg II Recommendations.** Half a decade after their enactment, the Salzburg Recommendations – the Ten Basic Principles (Christensen, 2005; European University Association [EUA], 2005) were enriched by a series of Salzburg II Recommendations on ways to implement the principles. The Salzburg II Recommendations (EUA, 2010) were the outcome of an intensive consultation with members of the EUA Council of Doctoral Education, the [then] largest and most comprehensive organization concerning doctoral education in Europe. The outcomes of the consultations were discussed by the more than 220 participants at the Annual Meeting of the EUA Council of Doctoral Education at the Free University of Berlin in June 2010, representing 165 institutions from 36 countries (EUA, 2010). The recommendations had three key messages that we have summarized in Table 4.2:

**TABLE 4.2****Salzburg II Recommendations**

Serial Number	Recommendation
I	Doctoral education had a particular place in the European Higher Education Area (EHEA) and the European Research Area (ERA)....
II	Doctoral candidates had to be allowed independence and flexibility to grow and develop....
III	Doctoral education had to be developed by autonomous and accountable institutions taking responsibility to cultivate the research mindset....

*Source: EUA (2010).*

**4.2.7 The Seven Principles of Innovative Doctoral Training.** In the framework of the European Research Area, the European Commission developed a set of seven Principles of Innovative Doctoral Training. EC (2011) derived the seven principles from the ten Salzburg Recommendations (Christensen, 2005; EUA, 2005) which had been enriched by a series of Salzburg II Recommendations on ways to implement the principles (EUA, 2010). The seven Principles of Innovative Doctoral Training were endorsed by the EU Council of Ministers in their conclusions on the modernization of Higher Education on November 28 and 29, 2011. We used the seven Principles of Innovative Doctoral Training as the analytical lens in our study (refer to Table 2.1). These Principles of Innovative Doctoral Training have some degree of universal appeal, and therefore, contextualized application of these principles offers insight into local conditions of doctoral education and training.

**4.2.8 Other Communiques.** There have been other communiques from other conferences on the Bologna process such as the London Communique (2007); Leuven Communique (2009); Bucharest Communique (2012) and Yerevan Communique (2015) all of them stressing at least one of the seven Principles of Innovative Doctoral Training (EC, 2011).

The wide array of international Frameworks and Declarations guiding doctoral education and training have some degree of universal appeal. Contextualized, innovative application, but not necessarily replication, of these principles and recommendations could contribute to responsiveness of doctoral education and training at Ugandan universities/institutions to the national development agenda and the global knowledge-economy.

### 4.3 Overview of Changes in Doctoral Education and Training over the Last Decades

In the first section, we looked at the demand for doctoral holders globally, and in Africa. We then considered how international frameworks on doctoral training evolved up to the framework of relevance in our study – the Principles of Innovative Doctoral Training (Section 4.2). We now turn to how the ways of acquiring a doctorate have evolved. In particular, we look at how the traditional academic doctorate is increasingly now being done side by side with the less academic professional doctorate; how the traditional full-time study for the doctorate has been overtaken by part-time study for the doctorate. We then consider how the traditional doctorate by research is being challenged by the doctorate by coursework and research; and how the traditional doctorate by monograph is competing with the more academic doctorate by publication.

**4.3.1 The Rise of the Professional Doctorate.** By purpose, a doctorate is traditionally academic but the professional form of the doctorate is equally becoming popular. An academic doctorate, that is a PhD, is that one whose holder aims at being an academic in a university or other research institution. Phillips and Pugh (2010) observe that:

A doctor's degree historically was a licence to teach - meaning to teach in a university as a member of a faculty . . . The concept stems... from the need for a faculty member to be an authority, in full command of the subject right up to the boundaries of current knowledge, and be able to extend them. (p. 23)

An academic doctorate (PhD) implies the holder regularly making presentations at academic fora such as conferences and making publications in journals. Fink (2006) comments on the PhD in this regard as follows, "PhDs produce theses and papers that are disseminated widely" (p. 37).

A professional doctorate (profdoc) such as the Doctorate of Management (DMgt), Doctorate of Business Administration (DBA), Doctorate of Education (EdD), and Doctorate of Music (DMus) on the other hand, is geared towards helping its potential holder, to improve his/her practice on the job. Gill and Hoppe (2009) note that one should, "view a doctorate as 'professional' whenever it serves as a qualifying or useful degree for purposes of non-academic employment" (p. 29). Using slightly different words, they describe the profdoc as, "a doctorate that focuses on applying programme content to the candidate's work situation" (p. 29). Unlike an academic doctorate (PhD), a professional doctorate does not necessarily demand its holder to involve in such academic activities as conference presentation and publication in journals. In fact, Gill and Hoppe categorically state that, "when pure research and journal publications are a discipline's principal priority, initiating a professional doctorate will be vastly less attractive than initiating an equivalent academically-focused programme" (p. 47).

What is making professional doctorates gain root? The European Research Area Steering Group [on] Human Resources and Mobility (ERA SGHRM, 2014) in their report titled, "using the Principles of Innovative Doctoral Training as tools for guiding reforms of doctoral education in Europe" noted that while doctoral education was traditionally geared towards the production of a new generation of scientists for universities and the public research system, a change had been taking place. "A growing share of PhD candidates [or graduates?] ... has increasingly found career opportunities outside traditional academic research careers" (p. 3, Section 3). They reported that in France, Germany and the UK, "more than 50 percent of all PhD degree holders take up jobs outside academia" (p. 3, Section 3). This, they observed, had been accompanied by the development of new forms of doctoral training, where the traditional 'master-apprentice model' is, "increasingly supplemented, superimposed or replaced by... 'structured doctoral education' (p. 3, Section 3, para. 3).

While observing that there was no common definition of 'structured doctoral education,' ERA SGHRM (2014) nevertheless defined it as, "the organization of additional disciplinary studies underpinning the research of the candidate as well as possibilities for personal and career development (professional development) via transferable skills" (p. 4, para. 1).

**4.3.2 Part-time Study/Enrolment for the Doctorate.** By mode of study/enrolment status, one traditionally studied for a doctorate full-time. A full-time doctoral student is one that attends to his/her studies with little or no other occupation more or less like most regular undergraduate students undertake their studies. Otherwise, a doctoral student is part-time. However, Gardner and Gopaul (2012) identify conceptual challenges in defining who a part-time doctoral student is, because "part-time status... may be temporary or permanent, meaning that the student may transition between full-time and part-time status through-out the doctoral programme. At one point..., the doctoral student may pursue coursework full-time and then transition to part-time" (p. 63). They also observe that institutions may define enrolment status differently: a student registering for fewer than ten credits per semester could be considered part-time at one institution, while another institution could use another benchmark number of credits to differentiate students by whether they are full time or part time. Whatever the definition used, world over, there are more part-time than full-time doctoral students.

Unfortunately, research findings consistently point out that, "part-time doctoral students have been found... to be less satisfied with their doctoral experiences..., to be less scholarly engaged than their full-time peers..., and are often perceived as less committed than their full-time counterparts" (Gardner & Gopaul, 2012, p. 65). In other words, the majority of doctoral students, being part-time students, face the challenge of juggling full-time employment and studies. To summarize this challenge, Phillips and Pugh (2010) give one way of, "how not to get a PhD" as, "not being in a research environment" (pp. 47-48), which in this context may be considered as being a, "part-time doctoral student." They define a research environment as one whose members highly value intellectual exploration; whose members carry out research, whose regular talk is about exciting academic papers that they have come across, and not what transpired on TV. They explain that graduate students in such academic environments benefit from being, "surrounded by colleagues, both senior and junior, for whom research is an ongoing prized part of their lives [which] is the ideal way to internalize the values of academia" (Phillips & Pugh, 2010, p. 47). Unfortunately, many doctoral students do not operate in such a setting. They are part-time, and this hampers their progress.

**4.3.3 The New-Route or Taught Doctorate.** By process, a doctorate is traditionally of the British form of being by "research thesis only" or the new-route "taught doctorate" with some coursework before the research phase. Except in the US, most doctoral studies in the world are done by way of the traditional British "research thesis only" route, where a candidate studies privately from the start to the end under the watch of one or a few supervisors. Under such an arrangement, the supervisors are responsible for providing all the assistance that the student needs in terms of discipline content, topic development, research methodology as well as inculcating professional standards and providing personal support. In the view of Phillips and Pugh (2010), that is a gigantic task for the supervisors, and many of them attempt only parts of the job. That limited amount of assistance given by the two or so supervisors, coupled with the isolation of the single student (Ali & Kohun, 2006, 2007), results in low completion rates.

The "taught doctorate" - the "US doctoral model" (Gill & Hoppe, 2009, p. 29) tries to overcome those challenges of the "research thesis only" route to the doctorate, by incorporating formal lectures before a student transitions to the research phase. The taught doctorate is also known as the "cohort-based doctoral programme" (e.g., see Bista & Cox, 2014) because of the cohort of many students that join together and roughly complete the programme together. Although referred to as the

US doctoral model, the taught doctorate is very well established in other countries such as Sweden (Frick, Albertyn, Brodin, McKenna & Claesson, 2016). The taught doctorate in the UK is referred to as the “new route” doctorate having been introduced in that country around 2001 (Robins & Kanowski, 2008).

Phillips and Pugh (2010) opine that the taught doctorate has at least two key characteristics that attempt to overcome some of the limitations of the traditional British “lone student” doctorate scheme supervised by one or a few academics. First, in the taught doctorate, there are many students, organized by faculty, department or research unit, who combat doctoral isolation by providing a support group of peers. Second, the taught doctorate provides a common educational core to decrease the teaching load on the supervisor(s). In other words, although the student will eventually have supervisor(s), the many staff teaching on the programme are jointly responsible for the success of the student. Bista and Cox (2014) argue that the shared culture of the cohort-based doctorate enhances social, personal and educational outcomes of the students.

**4.3.4 The Doctorate by Publication.** As per the nature of the final product, a doctorate/PhD traditionally ended in the form of a monograph although the PhD by publications is also taking root (Francis, Mills, Chapman & Birks, 2009; Frick, 2016; Lee, 2010; Peacock, 2017; Pickering & Byrne, 2014; Robins & Kanowski, 2008). In many universities, a thesis for a doctorate/PhD in the form of a “monograph” is usually a large hard cover book locally bound. In other universities especially in the developed countries, it may even be printed and/or published. According to Francis et al. (2009), a key part of the doctoral training process is the development of skills in writing for publication and the dissemination of research findings in the scientific community. However, according to them, the traditional PhD dissertation or thesis in the form of a monograph “does not focus strongly enough on developing the important skills of writing for publication” (p. 97). They thus contend that:

choosing to submit a doctoral dissertation by publication... provides candidates with the opportunity to complete research training and produce an authoritative research report, while at the same time developing skills in publishing journal articles and other manifests. Producing a dissertation by... publication also opens the work up to independent scrutiny at various points during the candidate’s research training which strengthens the final results... Adopting a... publication approach to producing a doctoral dissertation ensures that the knowledge generated from the doctoral research... is disseminated. Moreover, this approach encourages completion... Students who publish throughout their candidature receive ongoing peer review, enhancing their writing skills, and are scholastically affirmed as [their] manuscripts are accepted for publication. (Francis et al., 2009, pp. 97-99)

A PhD by publication (PhDP) takes the form of a rather small book composed of an introductory chapter or chapters, followed by published or accepted articles resulting from the doctoral study. These papers will usually be preceded by an over-arching paper or papers that present(s) the overall introduction and conclusions. The PhDP is also known as the “PhD by published works” or the “PhD by published papers” (Peacock, 2017). Ironically while novice doctoral/PhD students aspire to, at an opportune moment to hand in the largest monograph - having seen those of earlier students and their supervisors, in academics, the smaller PhDP is more respectable (Freeman Jr, 2018; Frick, 2016; Mason & Merga, 2018; Peacock, 2017). The message behind this is that quality is preferred to quantity.



Peacock (2017) points out that the PhDP can be prospective or retrospective. For the prospective PhDP, “the publications are planned and created with their contribution to the PhDP in mind” (p. 125), while the retrospective PhDP, “is assembled after some, or most, of the publications have been completed” (p. 126). In other words, “most, if not all, of the selected publications will not have been planned... to be part of a doctoral submission” (p. 126). The latter option, the retrospective PhDP seems to have been the pioneer option of the PhDP if we take the submission by Peacock (2017) to the effect that, “the PhDP was originally conceived to allow practitioners... who have already published... to gain academic recognition” (p. 125) to be true.

#### 4.4 Current Research on Doctoral Education and Training: Global and African Contexts

In the previous section (Section 4.3) we described how the design and different routes to acquiring a doctorate have evolved. We now turn to what researchers on the doctorate have been doing in the last 10 years. We operationalize ‘current’ to mean the last 10 years.

**4.4.1 Current Research on Doctoral Education and Training: The Global Context.** Studies on the doctorate have been underway to the extent that the Informing Society launched a whole journal - the *International Journal of Doctoral Studies (IJDS)* in 2006. Because the studies (e.g., Bista & Cox, 2014; Breitenbach, 2019; MacLennan, Pina, Hafford & Moran, 2016; Roberts, Gentry & Townsend, 2011) related to the structure and curricula of doctorates are too many, we shall now cite literature reviews on the same mainly from the *IJDS*. In the *IJDS*, one paper (Jones, 2013) carried out a meta-synthesis of 995 studies on the doctorate. His results are of much significance to our project. Jones showed that previous studies had concentrated mainly on six themes namely, in reducing order of popularity: doctoral programme design (29 percent); doctoral student experience (26 percent); doctoral student-supervisor relationship (15 percent); preparation of doctoral students to do research and to write (14 percent); employment and career prospects for doctoral graduands (13 percent); and the preparation of doctoral students for teaching (3 percent).

Thus Jones (2013) showed that the theme of, “doctoral programme design” - which is our theme in this project - was the most popular theme (taking 29 percent of the studies). Another popular theme was, “employment and career” (reflected in 13 percent of the studies) - a theme of much relevance to doctoral programme design given that doctoral programmes are designed with employment and career in view. Another popular theme (accounted for by 14 percent of the studies) was, “writing and research” - a theme of much relevance to doctoral programme design given that traditional doctoral programmes are designed to enhance students’ ability to do research and to write for publication. Surprisingly the theme of training doctoral students in the area of “teaching” accounted for only 3 percent of the studies analysed by Jones (2013). It was surprising because traditional doctoral programmes were designed to enhance students’ ability to teach at university level. In terms of gaps, Jones (2013) pointed out that, “the scrutiny of doctoral studies as a field of academic research and discussion is relatively new” (p. 83); and that, “analysis of the literature highlights many... issues [on the research on the doctorate] which have been raised... but... prematurely neglected” (p. 100). In other words, the field of doctoral education and training is generally under-researched.

After Jones (2013), other reviewers (e.g., Gonzalez-Ocampo, G., Kiley, M., Lopes, A., Malcolm, J., Menezes, I., Morais, R., & Virtanen, 2015; Guerrero, Moore & Pitt-Catsouphes, 2017; John & Denicolo, 2013; Sloan, 2015; Weber & Allan, 2016) have addressed the issue of the doctoral programme design, curriculum and related issues. We review these chronologically: John and Denicolo (2013) conducted a literature review on how research on doctoral student experience in the OECD countries and particularly the UK had evolved from 2006 up to 2012. They reported that,

"in addition to those of other key stakeholders..., a stronger student voice ha[d] been provided by a number of new studies on postgraduate education" (p. 41). However, they decried the neglect by researchers of the area of doctoral student experiences, when they reported that the number of studies in the area, "is rather underwhelming, even unsatisfactory" (p. 41).

Gonzalez-Ocampo et al. (2015) explored whether what they termed, "an explicit curriculum approach" (p. 24) could help them to, "make sense of existing research and practices regarding the processes and outcomes of doctoral education" (p. 24). Drawing, "on research on doctoral education, as well as the emerging literature on early career researchers (ECRs) and on professional learning" (p. 23), they highlighted several gaps in the then current literature. For example, they observed that, "further research is needed to explore specific conceptions about the [doctoral] curriculum and its manifestations in different contexts" (p. 28). They contended that, "a review of the curriculum of... doctoral... preparation is... essential" (p. 29); "further work is needed in order to understand how the curriculum shapes and influences... experiences" (p. 29) of doctoral students. They opined that, "the academics and professional socialisation and disciplinary networking of doctoral students... remains a relatively under-researched area" (pp. 29-30); and that, "there is still little evidence regarding the employability and the career pathways of ECRs, particularly in relation to careers in industry" (p. 31).

Finally, they suggested, "a research agenda for developing the curriculum of doctoral education" (p. 23) with the following elements among others: "the diversity of training programmes developed for researchers around the world calls for a review" (p. 31, number 1); "there is need for more research on how... changes... are being dealt with at the level of the formal, the informal and the hidden curriculum" (p. 31, number 2). They also suggested that, "networking and professional socialisation... need to be explored as part of the doctoral curriculum... in supporting the construction of early career researchers' identity" (p. 32, number 4); and that because, "there is very little research evidence on assessment practices..., our understanding of assessment needs to incorporate critical analysis of formal and informal practices and the variety of purposes which they fulfil" (p. 32, number 6). They also contended that, "the current evidence on the destinations of ECRs illustrates the need for further research on the new relationships developing between universities and the labour market" (p. 32, number 7); and that, "the new demands on the labour market suggest a need to address the competencies of ECRs and a critical appraisal of the career pathways enabled through doctoral... education" (p. 32, number 8).

Sloan (2015) in a review of 31 articles on the *University World News* website in 2013, reported that at the global scene, "questions had been raised about the quality of PhDs produced and the relevance of the training [doctoral] students receive, given the employment opportunities on offer. There is debate about the kinds and breadth of non-research skills that PhD graduates need... to acquire to make them more competitive in the job market" (p. 246). Sloan indicates that "in Europe, doctoral education, which has been mostly based on a traditional model of personal relations between supervisor and student has since 2007 moved towards professional management that includes quality assurance" (p. 259).

Guerrero et al. (2017) analysed three of what they termed, "current models of research" (p. 9) in Social Work (SW). The models were Evidence Based Practice (EBP); Team Science (TS); and Multidisciplinary (MD) and Transdisciplinary (TD) models. The EBP model according to them is where empirical data are collected to inform practice or policy, whereas TS also known as the Science of Collaborative Research is concerned with understanding multi-level factors that facilitate or hinder collaborative or team-based research efforts. The MD model involves, "researchers working independently but sequentially to address a common problem" (Guerrero et al., 2017, p. 7); while the TD model is where, "representatives from various areas of research... collaborate to develop new theories and methodologies with the mission of producing all-encompassing and advanced approaches to addressing research questions" (Guerrero et al., 2017, p. 7). Guerrero et al. (2017) conducted a



systematic review of publications by doctoral students of SW from 1985 to 2016, which they sourced from the ProQuest databases and SW PhD program website. Using comparative analysis, they, “found a notable increase in publications that discussed either... evidence-based practice or multi-disciplinary approaches, but not team science or trans-disciplinary approaches” (p. 1). “Information provided on... [the PhD program] websites followed a similar pattern as noted in the publications” (p. 1). However, they pointed out limitations of their own review, including those to the effect that their, “search did not include nonindexed literature” (p. 9); and that since the three models they reviewed had been relatively new in the SW literature, they had not considered earlier or emerging terms in their article. Further, they regretted that their reported prevalence of the three models in doctoral programmes had been limited to material presented in websites.

In summary, what do the reviews tell us? The first review suggested that prior to 2013, the themes in studies on doctoral education in order of popularity were doctoral programme design; doctoral student experience; doctoral supervision; writing and research for publication by doctoral students; doctoral employment and career; and training of doctoral students to teach (Jones, 2013). New studies on doctoral education, have given the students a stronger voice (John & Denicolo, 2013). There is need for a review of doctoral training world over; in particular, there is need for more research on how changes in doctoral training are being dealt with at the level of the formal, the informal and the hidden curriculum. There is need to explore networking and professional socialisation as parts of the doctoral curriculum. There is need for more research to help us understand the purposes of assessment of different formal and informal practices in doctoral education and training. There is need for further research on the new relationships developing between universities and the labour market (Gonzalez-Ocampo et al., 2015, pp. 31-32). While doctoral studies in Social Work have embraced Evidence Based Practice and Multidisciplinary approaches to research, they also need to embrace Team Science and Transdisciplinary approaches (Guerrero et al., 2017).

In addition to the official gaps that all the reviewers raised, except one (Sloan, 2015), there are other gaps that the reviews raise for our project. For example, regarding the aim, only two studies (Gonzalez et al., 2015; Guerrero et al., 2017) specifically had the aim of examining the curriculum of doctoral programmes. The rest of the studies had other aims such as examination of all issues to do with doctoral training (Jones, 2013; Sloan, 2015); research on doctoral student experiences (John & Denicolo, 2013); and research on relevance of doctoral research topics (Weber & Allen, 2016). Regarding their ages, at least two of the studies (John & Denicolo, 2013; Jones, 2013) are dated; while two others (Gonzalez et al., 2015; Sloan, 2015) are fast getting outdated. In terms of samples, only one of the studies (i.e., Sloan, 2015) touched Africa. The rest were on developed countries especially the US (Jones, 2013; Weber & Allen, 2016) and OECD countries (John & Denicolo, 2013). Regarding methodology, the reviewers in only two studies (Jones, 2013; Weber & Allen, 2016) used systematic methodology, while the rest used the less respectable narrative approach.

**4.4.2 Current Research on Doctoral Training and Education: The African Context.** Having surveyed the international scene, what about in Africa? We quote the summary of studies on six African countries (Ethiopia, Ghana, Kenya, Nigeria, Senegal, South Africa) (British Council & DAAD, 2018). British Council and DAAD (2018) gave some preliminary research findings about Africa. Such findings included those to the effect that, “the number of PhD programmes/enrolments has grown substantially in each country over the last ten years” (p. 12), although, “PhD enrolments as a proportion of the overall student population are relatively low” (p. 12). Among their major findings was that, “the majority of PhD students are mature... [and] there are serious equity concerns with PhD study in the region” (p. 15) such as gender inequity. “In all the [six] countries, the PhD is typically structured on the doctorate-by-research model... The study participants did not report the use of a doctorate by publication route or the provision of professional doctorates... The prescribed length of programmes varied from three to six years. Alarming, dropout rates and prolonged average time to completion were cited... as a major challenge” (p. 15).

According to the report, “in each country..., science, technology, engineering and mathematics (STEM) subjects feature strongly in... national policy documents” (p. 15). This focus on STEM was evident in PhD provision whereby the STEM versus non-STEM split was fairly even in Senegal (over 46 percent STEM) and South Africa (49 percent STEM), and skewed in favour of sciences in Ethiopia (64 percent STEM) and Ghana (over 57 percent STEM). Kenya was the exception (STEM 25.2 percent). They found that, “some institutions are now offering interdisciplinary programmes... [that] may help generate socially relevant and innovative research output” (p. 15). “The most significant factor driving expansion in PhD provision... has come from pressure at the national level to upgrade the qualifications of higher education staff to the PhD level” (pp. 18-19). “PhD provision tends to be concentrated in a small number of elite universities, in other words, ‘first generation,’ ‘flagship,’ ‘traditional,’ or ‘historically advantaged institutions’... the best-resourced institutions” (p. 19). They found that, “students were generally satisfied with their PhD education, although funding support was cited as inadequate... A salient feature in each country... was the challenge of inadequate supervision” (p. 19).

They further report that “in each country..., government funding for higher education... is under strain, with institutions prioritizing undergraduate provision” (p. 20). While British Council and DAAD (2018) cited a few examples of fully-funded PhD scholarships from NUFFIC and SIDA as examples, they added that, “comparatively little support goes to PhD study, while the majority of postgraduate scholarships target master’s-level study” (p. 21). The report also cited a few “international collaborations [that] have potential impact in enhancing the quality of existing programmes.” They cited the Next Generation of African Academics funded by Carnegie Corporation of New York (p. 21); the Consortium for Advanced Research Training in Africa (CARTA) (p. 21); and the African Doctoral Academy (ADA) of Stellenbosch University in South Africa funded by Carnegie Corporation (p. 22). “Those institutions with the most advanced and systematic internationalization strategies... were... in better position to develop and sustain international collaboration” (p. 22). They revealed that the majority of students were expecting to work in the academia. There was little absorption into industry.

In summary, British Council and DAAD (2018) hinted on several characteristics of doctoral training in Africa. For example, while the number of PhD programmes/enrolments had grown substantially in Africa, the proportion of doctoral graduands was very low. The majority of doctoral students in Africa were mature; and doctoral training suffered gender and other inequities. The doctorate was still typically structured on the doctorate-by-research only. The doctorate by publication, professional and work-based doctorates were not prevalent in Africa. There were alarmingly high levels of dropout and prolonged average time to completion of doctorates. STEM disciplines were dominating doctoral training. Pressure at the national level to upgrade the qualifications of higher education staff to the PhD level was driving expansion in PhD provision. However, doctoral education and training tends to be elitist and concentrated in flagship universities. While students were generally satisfied with their doctoral education, they decried inadequate funding. Africa suffered the challenge of inadequate supervision. In Africa, government funding for higher education was under strain, with institutions prioritizing undergraduate training. Comparatively little international support was going to doctoral study; the majority of postgraduate scholarships target master’s-level study. While international collaborations had the potential to enhance doctoral training, only institutions with the most advanced and systematic internationalization strategies were in position to develop and sustain such international collaboration. The majority of doctoral students were expecting to work in the academia and not industry.

# CHAPTER FIVE

## CONTEXT OF DOCTORAL EDUCATION AND TRAINING IN UGANDA

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### 5.0 Introduction

We have reflected on the global contexts of doctoral education and training (Chapter Four) in order to make sense of our local issues and experiences. We now give the context of doctoral education and training in Uganda. We begin this chapter by exploring current research on doctoral education and training in Uganda (Section 5.1). We then explore the context of higher education in Uganda (Section 5.2). We follow this with historical developments in doctoral education and training in Uganda (Section 5.3) and national level structures and institutional structures to support doctoral education and training in Uganda (Sections 5.4 & 5.5). We end this chapter with how doctoral education and training in Uganda aligns with Uganda's national development agenda (Section 5.6).

### 5.1 Current Research on Doctoral Education and Training in Uganda

In Uganda, as a result of international protocols underlined by the UN millennium development goals and the return to investment in education policy discourse influenced by the World Bank, focus has been on primary education, secondary education and the undergraduate level of higher education. Interest in the 3<sup>rd</sup> cycle of higher education, particularly doctoral education and training is yet lukewarm in both policy discourse and scholarly pursuits. There is dearth of studies on doctoral education and training in Uganda. The very few studies conducted so far raise fundamental issues in regard to quantity, quality and productivity of doctorates in Uganda, signifying the need for more, better trained doctorates in Uganda. We cite some of the few studies so far done in the last ten years in the Ugandan context in this sub-section chronologically.

Mamdani (2012) examined a then recent report (Freeman et al., 2010) on sida/SAREC assistance to Makerere University from 2000 to 2008. He reflected on two questions that had been raised in the report. "First, how do you develop a research agenda? The second: why is it that money alone will not solve the [research capacity] problem [at Makerere University]?" (p. 1). On his first research question, after reflection, he concluded that, "A research agenda can only be formulated on the basis of an understanding of one's reality. It is not recipe that can be passed around. It has to be grown. The first step to... developing our own research agenda, is to develop our own research questions. Individuals... need the development of peer activities, from constituting research teams to holding seminars" (p. 2). On his second question (why is it that money alone would not solve the research capacity problem in the university?), after reflection, he concluded that, "The key obstacle to developing research capacity at Makerere, and in Uganda, is not financial, but human" (p. 5). He hence recommended that, "the only sure way to a sustainable future is to develop the human resource for teaching and research at home, i.e., to grow our own timber" (p. 6). In other words, Mamdani called for locally relevant doctoral studies.

UNCST (2012) had the objective to collect the most recent statistics on educational history, work experience and international mobility of doctoral holders in the country. They found among others that: most PhD holders in Uganda worked in higher education institutions, suggesting that doctoral training in Uganda was overly targeting the academia and not the professional arena; most of the doctorates in Uganda had been trained in the natural and agricultural sciences, suggesting the need for affirmative action regarding doctoral education and training in the humanities and social sciences; most doctorates in Uganda had been funded from sources outside the country, meaning that there was dearth of government support to doctoral education and training, and hence a difficulty of aligning doctoral education and training to the national research and development agenda. Doctorates in Uganda were found to be largely geographically immobile, meaning that doctoral training in Uganda was not adequately preparing students for internationalisation. According to the report, Doctorates in Uganda were academically unproductive, calling into question the quality of doctoral education and training in Uganda.

Wamala et al. (2012) examined the dynamics of attrition resulting into extended candidature and non-completion of a PhD at Makerere University. Using percentages, they found that students had low completion rates and extended candidature. Using regression, they found that the rate of completion for doctoral students reduced with rising age. The rate of completion among international doctoral students was three times higher compared to native students. Thesis-based candidates enrolled in arts related disciplines had a considerably reduced rate of completion compared to candidates in the science related disciplines. Students who received financial support had a more likelihood of extended candidature than withdrawing from the programme. However, they found variables of age, sex though important, to be less important on completion of doctorates in Makerere University. The findings of this study raise important questions in regard to the quality of the doctoral education and training environment in the University.

Wamala and Ssembatya (2013) investigated variations in publication output by characteristics of doctoral holders in Uganda. The characteristics they considered were age, gender, location of doctoral degree awarding institution, year of doctoral award, and arts versus science in terms of discipline area. They found that less than a third of the doctorates in Uganda had (co)authored journal articles and/or books; the likelihood of (co)authoring was significantly higher among doctoral graduates of other universities than those from Ugandan universities. The implication of both findings is that the quality of doctorates trained in Uganda is low. They also found that the rate of (co)authoring was significantly higher among males, doctorates who graduated before 2000, and among those who graduated from Ugandan institutions. They found significant variation in the number of (co) authored journal articles in favour of doctorates in the sciences. The implication of both findings is that the quality of doctorates trained in Uganda especially after 2000 is low, particularly in the Arts.

Akuffo et al. (2014) conducted a case study that illustrated how a department within Makerere transformed graduate education with formation of a productive research team. As part of their paper, they extolled the virtues of the taught PhD as compared to the PhD by research only. For example, they explained that prior to 2000, "a very small number pursued UK-style PhDs by research at Makerere, but completion was uncertain... Thus, few initiated doctoral studies at Makerere prior to 2000, and even fewer completed them" (pp. 201-202). They gave the testimony of one of the authors of the paper (coded JO-O) on this issue from his doctoral student experience as a PhD by research only approach in Makerere, thus: "PhD by research [at Makerere] ... offered no official supervision until much later in the process" (p. 207). Hence the, "process proved so arduous that JO-O nearly gave up" (Akuffo et al., 2014, p. 208).

In contrast to JO-O's rather bad experience, Akuffo et al. (2014) gave the testimony of another author (coded PW) regarding his experience as a PhD by coursework and research in the University of Cape Town (UCT), South Africa. They pointed out that PW joined a, "vibrant department with 15 PhD students, becoming one of the eight PhD candidates whom his supervisor guided... [where] regular research meetings fostered student-to-student learning" (Akuffo et al., 2014, p. 208). They reported PW recounting that this was an eye-opener to him about how PhD training could be conducted in a good research setting. Hence, PW completed his PhD in three years (Akuffo et al., 2014, pp. 208-209).

Akuffo et al. (2014) pointed out that the entry of Sida/SAREC in Makerere University in 2000 was a turning point when Sweden through, "Sida/SAREC and the Makerere leadership... came to a consensus to support research capacity strengthening emphasizing local PhD training" (p. 202). However, they reported that, "Sida/SAREC focused on relatively strong faculties that had PhD programmes... Agriculture, Medicine, Social Science and Technology" (p. 202). Hence the Makerere University School of Medicine, now Makerere University College of Health Sciences (CHS) as a beneficiary of Sida/SAREC funding, launched the collaborative PhD by coursework and research with the Karolinska Institutet, Sweden. In contrast to JO-O's rather bad experience, and in line with PW's good doctoral student experience, another author (coded CO) gave testimony on his experience as a student under the collaborative Makerere University/Karolinska Institutet PhD by coursework and research. CO attributed his rise into administration as directly related to his doctoral training. He reported the training had given him confidence to participate in grant writing; to publish regularly; and to become a reviewer for international journals.

Bakkabulindi (2014) traced "the role of supervision in enhancing (or slackening) the speed of completion of doctoral research programs at Makerere University" (p. 764). He modelled his reflections, "on what the doctoral supervisees expect of their supervisors (Phillips & Pugh, 2010, Chapter 14). The expectations included the following: (6) To have good knowledge of his research area; (7) To structure meetings to ease exchange of ideas; (8) To put information in his path; and (9) To help him get a job at the end. Regarding his experiences, he extolled the virtues of the 'taught PhD' pointing out that many of the challenges he faced had been ameliorated by the fact that he did a structured "taught PhD." In particular, on the sixth expectation of supervisors to have good knowledge of his research area, he reported that, "not only did my supervisors not frown at being told I... had sought advice from other members of staff, but they would even encourage me regularly to do the same" (p. 771). On the seventh expectation of supervisors structuring tutorial to ease exchange of ideas, he reported that, "it was not easy to have meetings, let alone long ones" (p. 772). "However,... when a supervisor has several students, a solution might be the introduction of research seminars in which all of them meet to discuss with the supervisor present" (p. 772). He claimed that his PhD supervision experience in this regard had been rather good in that he did a 'taught' PhD wherein he had several research seminars as part of the program. Having highlighted two of its key advantages, he suggested, "that all academic units in universities [in Uganda] ... launch 'taught' PhDs or doctoral programs" (p. 773).

On the eighth expectation of supervisors putting information in his path, he reported being, "lucky in that in the early part of my 'taught' PhD," (p. 773), whereby his lecturers responsible for different papers availed him of several literary research materials. However, he regretted that none of his supervisors had been keen on electronic resources. However, he explained that he learnt from colleagues in doctoral cohort on how to look for digital literature, hence clearly claiming the superiority of the 'taught PhD' in this regard. On the ninth and last expectation of his supervisors to help me to get a job at the end, he reported that although his doctoral supervisors had neither inducted him into



publication; nor facilitated him to attend any international academic conference, another doctoral teacher of his had closed the gap. He explains that after his PhD, that professor inducted him into serious “academic writing and publication” (p. 775), and even facilitated him to attend a couple of conferences. That experience, he narrates, had made him an ‘academic writer’ who mobilised his meagre personal resources to attend international conferences. Hence once again, Bakkabulindi (2014) illustrated one virtue of the taught PhD, namely that a supervisee is not in the hands of official supervisors only but also other faculty.

Nakanjako et al. (2014) did an evaluation of doctoral training mentoring best practices at the College of Health Sciences, Makerere University in Uganda. Using the qualitative approach, they collected data related to what was going on well; what was not going on well; solutions to challenges; and priority areas for improvement. On what was going on well, they reported that mentors and mentees mentioned that the increasing number of doctoral students had provided an opportunity for peer mentorship among the aspects which had gone well in doctoral experience. Here they brought out one virtue of the taught PhD, namely of having a cohort of students who give themselves peer support; in addition to a large mass of teaching staff who ease the burden on individual supervisors as suggested by Phillips and Pugh, 2010. On what was not going on well, they reported that mentees had challenges of limited infrastructure; inadequate mentors who would support basic science projects; limited office space for students and mentors. Here they brought out one drawback of the taught PhD, namely of easily growing the population of students as the number of cohorts (of students) increase as the years pass, alluded to by Bista and Cox (2014). They also found other challenges of inexperienced skills in budgeting and financial management, inadequate communication skills including conflict resolution. This suggests that doctoral training at the CHS was lacking on transferable skills training, one of the principles of innovative doctoral training (EC, 2011). On solutions to the challenges, they revealed that participants had proposed skills training in procurement and financial management, communication skills and information technology. However, they reported that their study had been limited to only data they collected during one workshop.

Muriisa (2015) discussed the “challenges and experiences which social science students... undergo to complete the PhD program, focusing on Mbarara University of Science and Technology” (p. 204). Regarding methodology, he used critical literature review and one focus group discussion with seven students enrolled for the PhD program and one fresh graduate at the Faculty of Development Studies. He also reviewed external supervisors’ reports for the PhD students. He “identified key challenges as, isolation, nature of the program and the overall learning environment” (p. 212). The learning environment included lack of supervisors, resources and motivation of supervisors. He divided the challenges which students faced into two categories; those at institutional level and those at individual level. At the institutional level, the challenges related to the nature and the context of the PhD programme, in that the program lacked enough resources. At the individual level, the challenges the students faced included the supervisor-supervisee relationship which is not always smooth.

Mamdani (2017) focused on the challenge of consultancy which he claimed was taking root in the humanities and the social sciences at Makerere University. He reported that having discussed the problem of consultancy with his colleagues in the Makerere Institute of Social Research (MISR), they, “decided to create a multi-disciplinary, coursework-based, PhD programme to train a new generation of researchers” (p. 92). He reported that the initiative was driven by two key convictions. The first was that, “key to research is the formulation of the problem of research” (p. 95). The second was that, “the definition of the research problem should stem from a dual engagement: on the one hand, a critical engagement with the society at large and, on the other, a critical grasp of disciplinary literature, world-wide, so as to identify key debates within the literature and locate specific queries within those debates” (p. 95). He stressed that they, “at MISR think the way forward is to create a PhD programme based on significant preparatory coursework, to create among the students the capacity to both re-

think old questions and formulate new ones" (p. 95). He lastly acknowledged that what they were doing was not easy: "the challenge of postgraduate studies at the African university is how to produce a truly inter-disciplinary knowledge without giving up the ground gained in the disciplines" (p. 98).

Kasozi (2019) revealed the low quality of doctoral education and training in Uganda, observing that the NCHE which became operational in 2002, had initially concentrated on other aspects of higher education almost leaving doctoral education and training at the whims of individual institutions. Kasozi lamented that the NCHE had developed its *Benchmarks for Conducting Postgraduate Programmes (NCHE, 2014)* wherein - Chapter Four relates to doctoral training - only in 2014, fourteen years after its creation when many institutions had already embarked on offering doctoral programmes. He reported that, "many universities... with no capacities in terms of staff and facilities, were offering postgraduate programmes" (p. 7). He thus concluded that, it was not surprising that the knowledge production level of PhD holders in Uganda was low (citing UNCST, 2012). Kasozi severally made the case for the taught PhD. For example, he reported that several doctoral graduands of a certain university had been rejected by the NCHE because, "many of the candidates had not gone through... coursework that is necessary to grind PhD candidates" (p. 8). Kasozi reported that from the conversation he had with staff of one university in Uganda, "most of the PhD graduates have been trained by the 'thesis only' method though a few who have gone abroad have been exposed to the "coursework plus dissertation requirement" (p. 10).

Lunyolo et al. (2019) tested Leech's (2012) model on the predictors of successful doctoral student completion (SDSC) in Makerere University. Basing on Leech's model, they postulated four hypotheses (H1-H4), to the effect that Individual Resources (IR); Program of Study (PS); the Micro-Environment (MiE); and the Macro-Environment (MaE) respectively positively predicted SDSC. They operationalised SDSC in terms of three constructs, namely Readiness to Teach at university level; Creativity; and Readiness to do Research and to Write for publication. Similarly, each of their four predictors (IR, PS, MiE & MaE) had constructs. Using the quantitative approach, they revealed that three of the constructs of Individual Resources (Motivation; Thinking Style; & Self-Efficacy) were significant positive predictors of SDSC. Both constructs of the Program of Study (Standards & Curriculum) were significant positive predictors of SDSC. Two constructs of the Micro Environment (Supervisor & Other Faculty) were significant positive predictors of SDSC. Only one construct (Culture of the College on Graduate Education) of Macro Environment was a significant positive predictor of SDSC.

In summary, the 11 studies suggest that in Uganda there is need for enhancing the local training of PhDs (Mamdani, 2012); but minding the quality of the same (Kasozi, 2019). Uganda needs to diversify the production of doctorates not only for the academia but also the professional arena (UNCST, 2012); and to reduce the bias in doctoral training in favour of STEM disciplines (Muriisa, 2015; UNCST, 2012; Wamala et al., 2012; Wamala & Ssembatya, 2013). Doctoral programmes offered in Uganda need to give doctorates more international exposure (UNCST, 2012); there is need to enhance the training of doctorates to make them more productive, more so for female and non-STEM disciplines (UNCST, 2012; Wamala & Ssembatya, 2012). Academic units in universities in Uganda need to increasingly embrace the taught PhD given its many advantages (Akuffo et al., 2014; Bakakabulindi, 2014; Kasozi, 2019; Mamdani, 2017; Nakanjako et al, 2014). Uganda needs to find ways of enhancing the completion rates and reducing the longevity of doctoral studies, particularly for older, local, non-STEM disciplines (Wamala et al., 2012). Although achieving multi- and trans-disciplinary research at PhD is not easy (Mamdani, 2017), there is need to foster cross-disciplinarity in doctoral education in order for doctoral programmes to be more relevant to the needs of the labour market and the wider society.

What gaps did the above studies leave for our project? Regarding the aim, only two studies (Akuffo et al., 2014; Mamdani, 2017) had the aim of examining the curriculum of at least one doctoral programme. The rest of the studies had other aims such as coming up with the profile of a doctorate holder in Uganda (UNCST, 2012); unearthing variations in productivity of doctorates in Uganda (Wamala & Ssembatya, 2013); evaluation of doctoral supervision in Uganda (Bakkabulindi, 2014; Nakanjako et al., 2014). Others had interest in the longevity of doctoral study (Wamala et al., 2012); doctoral student experience (Muriisa, 2015); and predictors of success at doctoral studies (Lunyolo et al., 2019). Regarding their ages, four of the studies (i.e., Mamdani, 2012; UNCST, 2012; Wamala et al., 2012; Wamala & Ssembatya, 2013) are dated; while four others (Akuffo et al., 2014; Bakkabulindi, 2014; Muriisa, 2015; Nakanjako et al., 2014) are fast getting outdated. In terms of samples, four of the studies (i.e., Bakkabulindi, 2014; Kasozi, 2019; Mamdani, 2012, 2017) were self-reflections of one person or a few/six authors (Akuffo et al., 2014). Only four studies (Muriisa, 2015; Nakanjako et al., 2014; UNCST, 2012; Wamala et al., 2012) involved the collection of primary data from many respondents, while another study (Wamala & Ssembatya, 2013) further analysed data collected already (by UNCST, 2012). In terms of coverage, only two of the studies (i.e., Kasozi, 2019; UNCST, 2012 and hence Wamala & Ssembatya, 2013) had the explicit intention of covering the whole of Uganda. Others covered only one university such as Mak (Lunyolo et al., 2019; Mamdani, 2012; Wamala et al., 2012) or Mbarara University of Science and Technology (MUST) (Muriisa, 2015). Others covered only one college in Mak, namely the College of health Sciences (CHS) (Akuffo et al., 2014; Nakanjako et al., 2014); or part of the College of Social Sciences (CHUSS) (Mamdani, 2017). None of these studies was intervention based. Such fragmented efforts called for our project (CEPIDE) to cover all universities / institutions offering doctoral education and training in Uganda.

## 5.2 Context of the Higher Education System in Uganda

In terms of distribution of universities, up to 1988, Uganda had only one university, Makerere University which was started in 1922. However, in 1988 the first private university, the Islamic University in Uganda (IUIU) was opened. From then on, many more universities (e.g., Mbarara University of Science and Technology [MUST] in 1989) and other institutions of higher learning have come on board. As of the time of writing this report, Uganda boasts of nine public universities; one public other degree awarding institution (Uganda Management Institute [UMI]); one private university (IUIU) with an own Act of Parliament; 11 private chartered universities; and 30 other private universities recognized by the National Council for Higher Education (NCHE) (NCHE, 2020a, b). Hence university education in Uganda has grown very rapidly in that enrolment has increased from about 10,000 students in 1988 to over 150,000 in 2021, a growth of over 54 percent per cent in 24 years.

**5.2.1 Regional Distribution of Public Universities in Uganda.** A major development reducing regional inequity of university education in Uganda, has been the regional distribution of public universities since 1989 as we illustrate in Table 5.1.



**TABLE 5.1*****Chronology of the Regional Distribution of Public Universities in Uganda 1922-2015***

University	Year of Establishment	Region
**Makerere (Mak)	1922	Central
**Mbarara University of Science & Technology (MUST)	1989	West
** #Uganda Management Institute (UMI)	1992	Central
** Kyambogo (KyU)	2001	Central
** Gulu (GU)	2002	North
Busitema (BU)	2007	East
Muni (MU)	2013	North West
Kabale (KAB)	2015	South West
Lira (LU)	2015	North
Soroti (SUN)	2015	North East

**Notes:** *From National Council for Higher Education (NCHE, 2020a, b)*

# UMI started in 1969 as the Institute of Public Administration (IPA); though not a university, it is another degree awarding tertiary institution offering doctoral education and training

\* means a university is offering doctoral studies but has not graduated any PhD student

\*\* means a university has ever graduated a PhD student

While in the past Uganda had only one university in “the centre,” namely Makerere University, in 1989 Uganda witnessed the opening of the second public university, namely Mbarara University of Science and Technology (MUST) in western Uganda. MUST was followed by Kyambogo University (KyU) in “the centre” in 2001; then Gulu University in the North in 2002; Busitema University in the East in 2007; Muni University in the North West in 2013; Kabale University in the South West in 2015; Lira University in the North East in 2015; and Soroti University in the North East in 2015.

Of these public universities (Table 5.1), only four (Makerere, MUST, Kyambogo & Gulu) have ever produced PhDs with Mak having produced the biggest number of about 1000. Mak is followed by MUST (74 of them) having started awarding doctorates in January 2004 (Muhangi, 2005a, b; Muriisa, 2015). UMI (see Table 5.1) classified as “other degree awarding tertiary institution” launched doctoral programmes in 2012 (Angumya, 2012; UMI, 2012a, b, c). UMI has awarded PhDs thrice in April, 2018 and May, 2019 (three of them at each occasion), then on 12th August 2020 with five graduands (Ahimbisibwe, 2018b; Amamukirori, 2018; UMI, 2018a, b, 2019, 2020). Kyambogo University launched doctoral training in 2014 and awarded its first two PhDs only in December, 2019 (Amamukirori, 2019; Mukhaye, 2019). Gulu University with about 10 PhDs it has awarded so far is trying to establish itself as a centre for doctoral training (Akena, 2011; Gulu University, 2016, 2017, 2020). At the third graduation of Kabale University on Friday October 26, 2018, the Vice Chancellor announced that KAB was planning to start offering PhD programmes in 2019 (Monitor Team, 2018).

**5.2.2 Regional Distribution of Private Universities in Uganda.** Uganda has witnessed the opening of private universities in different regions since 1988. Starting with the Islamic University in Uganda (IUIU) in the East in 1988, Uganda has since witnessed the establishment of four private universities in the East; 26 private universities in the Centre; two private universities in the North; one private university in the North East; one private university in the North West; one in the North East; two private universities in the South West; and 10 private universities in the West. In 2016 with a repeat in 2018, the President ordered the taking over by Government of Mountains of the Moon, a private community university in the West. Still in 2018, the President ordered the taking over by Government of Busoga University, a private Anglican-founded university in the East.

As we shall elaborate later, of these private universities, the only ones that have produced PhDs are Islamic University in Uganda (IUIU), Uganda Martyrs University (UMU), Nkumba University (NU), Uganda Christian University (UCU), Busoga University (BU), Kampala International University (KIU), and Bishop Stuart University (BSU). Those that have done so consistently are IUIU, KIU, Nkumba and UMU. IUIU has been in the business of offering PhD programmes by research underpinning the fact that in 2001 it was the first private university in Uganda to award a PhD. It has thus awarded PhDs (e.g., one each in 2002, 2003, 2006, 2008 & 2009; two in 2012) till recently in 2019 when at its 27th graduation ceremony (November 09, 2019), IUIU reaped as many as six PhD graduands (IUIU, 2019). IUIU has also since 2018 relaunched the PhDs with more vigour, adding the coursework component before research to one of its doctoral programs, the Multi-disciplinary PhD in Education (IUIU, 2019). At the 27th graduation ceremony of IUIU in Mbale on Saturday November 09, 2019, its Rector announced that IUIU had introduced PhDs in Kiswahili and Luganda as teaching subjects. He also said that they were working on starting a doctorate degree in ICT (Kitunzi, 2019).

Uganda Martyrs University (UMU), Nkozi which awarded its first two PhDs in 2004 (UMU, 2004) has awarded at least one PhD annually ever since. As of March 2016, it was offering PhDs in Agro-ecology and Food Systems; Governance, Peace and Development; and in other selected fields (UMU, 2016). In November 2019, UMU added the PhD in Business Administration (UMU, 2019, 2020). Nkumba University has perhaps awarded the second highest number (55) of PhDs among the private universities (after KIU) since 2009. By October 2020, Nkumba University was offering PhDs in Business Management; Economics; Social Studies; Sciences; Education; Psychology. All the doctoral program offerings are by research only. Uganda Christian University (UCU) has been offering doctoral programmes since about 2012 (UCU, 2013, 2014); by March 2020, UCU was offering a PhD/Doctor of Ministry (DMin) in Theology; and PhDs in Literature; Mass Communication; Education Administration & Management (UCU, 2020).

Busoga University (BU) offered doctoral programmes for a long time and almost up to the time of its suspension in late 2017, BU always listed the Doctor of Philosophy (PhD) on the academic menu (BU, 2015). Kampala International University has since 2008 offered doctoral programmes by coursework and research at the Main Campus and by research only at the Western Campus. As of March 2020 (KIU, 2020), KIU was offering at the Main Campus PhDs in Management Science, Business Management; Public Management; Education Management; Information Systems; and a PhD in Economics (the only one by research only); Counselling Psychology; Conflict Resolution & Peace Building; Development Studies; Law; and Environmental Science. As of March 2020, the Western Campus was offering PhDs in Microbiology; Physiology; Anatomy; Biochemistry; Pharmacology; and PhDs in Renewable Energy; Civil Engineering; Mechanical Engineering; Electrical and Electronics Engineering; and Telecommunications Engineering (KIU, 2020). Thus, KIU offers the biggest array of doctoral programs among all private universities in Uganda, at least on paper. KIU graduated the first PhDs in November 2011 (KIU, 2011a-e).

Bishop Stuart University (BSU) has been offering doctoral programmes for some time awarding the first doctorate in 2012 (Tumushabe, 2012). By February 2016, BSU was already offering PhDs in Agriculture and Community Innovation (PhD-ACI); Development Studies (PhD-DS); Development Management (PhD-DM); and Language, Culture and Society (PhD-LCS) (BSU, 2016). The same is still reflected in the latest university guide of the New Vision (BSU, 2020). Other private universities (e.g., Bugema & Ndejje) are either in the process of starting, or have started offering, PhD programmes. For example, since 2017, Ndejje University has been offering a PhD by research in Business Management ("Ndejje starts PhD program," 2018; Ndejje University [NDU], 2017a, b, 2020). Since 2015, Bugema has been planning to offer PhDs in Education Management; Environmental Management; and Rural development (Kiwankuka, 2015; Ssenyonga, 2016).

### 5.3 Historical Developments in Doctoral Education and Training in Uganda

**5.3.1 Makerere University College: Prior to 1970.** The historical development of doctoral education and training in Uganda is almost synonymous with the history of Makerere University. When Mak was started in 1922, it was a humble technical and vocational school which could not award doctorates, not even masters or bachelors degrees. With time, Mak grew to become an affiliate of the University of London in 1949 and hence started awarding degrees of that university starting around 1953. This relationship continued up to 1963, in 1964 Mak became an affiliate of the University of East Africa (UEA) (Sebuwufu, 2018). Whether Mak awarded doctoral degrees between 1949 and 1963 is not clear. In any case, those would be awards of the University of London. From 1963 to 1970, Mak was a constituent college of the UEA with the other constituent colleges being Nairobi and Dar es Salaam University Colleges. During that period, Mak College awarded doctoral degrees, but those awards were of the UEA and not of Mak per se.

**5.3.2 Makerere University: From 1970 to 1998.** In 1970, the UEA broke up and each of its three constituent colleges became a full-fledged university. Hence, with the enactment of the Makerere University Kampala Act of 1970 (Government of Uganda, 1970), Makerere University was born. Mak immediately started awarding doctoral degrees apparently inheriting some of what would have been UEA doctoral graduands. While we have not yet got the number of doctorates that MaK awarded on the first convocation (March 1971), during the second convocation on October 09, 1971, Mak awarded 13 PhDs. The awards in terms of numbers for most of the subsequent convocations up to 1998 are in Table 5.2, Table 5.3 (by sex) and Table 5.4 (by the science vs arts dichotomy).

**TABLE 5.2**

***Numbers of PhDs Awarded Annually by Makerere University 1970-1998***

Year	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Total	13+	5+	7+	3+	2	5	1+	5	2	1

Year	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total	0	1	0	1	2	7	1	6	1	4	4

Year	1992	1993	1994	1995	1996	1997	1998	Total
Total	3	0	5	4	8	7	8	99+

**Notes:** From respective graduation books; Figures with a plus (+) mean that figures for some convocations in the year are not available

It is worth noting (Table 5.2) that while Mak awarded 13 PhDs at its second convocation (October 09, 1971), Mak never awarded beyond 10 doctoral degrees in any given year again up to 1999. In fact, in some years (e.g., 1981, 1983 & 1993) Mak did not award any PhDs. In others (e.g., 1980, 1982, 1984, 1987, 1989) Mak had sole candidates for the doctoral award. In others (e.g., 1975, 1979, 1985) Mak awarded only two doctorates annually. In 1992, Mak awarded three doctoral degrees. Thus, in the 1972-1998 period the annual ceiling was eight doctorates (in 1996 & 1998). This could be attributed to the fact that at that time having a PhD in Mak was almost a luxury or just prestige given that one did not need a PhD in order to become a Lecturer or even to be promoted to the rank of Professor. We note though, that these awards were dominated by males as table 5.3 illustrates.

**TABLE 5.3**

*Numbers of PhDs Awarded Annually by Makerere University 1970-1998 by Sex*

Year	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Male	10+	03+	7+	3+	2	4	1+	5	2	1
Female	03+	02+	0+	NA	0	1	NA	0	0	0
Total	13+	5+	7+	3+	2	5	1+	5	2	1

Year	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Male	0	1	0	1	2	7	1	6	1	4	3
Female	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	0	1	2	7	1	6	1	4	4

Year	1992	1993	1994	1995	1996	1997	1998	Total	Percentage
Male	3	0	5	2	7	5	7	91+	92.0
Female	0	0	0	2	1	2	1	08+	08.0
Total	3	0	5	4	8	7	8	99+	100.0

*Notes: From respective graduation books; Figures with a plus (+) mean that figures for some congregations in the year are not available*

Table 5.3 reveals that of the at least 99 PhDs that Makerere awarded from 1971 to 1998, only eight (8%) were females, meaning that during that period, doctoral training in Mak was a male affair. Regarding the Science vs Arts dichotomy, Table 5.4 reveals that of the at least 99 PhDs that Makerere awarded from 1971 to 1998, only 33 (over 33%) were in the Arts, meaning that during that period, doctoral training in Mak was biased in favour of the sciences.

**TABLE 5.4**

*Numbers of PhDs Awarded Annually by Makerere University 1970-1998 by the Sciences vs Arts Dichotomy*

Year	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Sciences *	13+	5+	4+	1+	0	3	0+	2	0	1
Arts **	0+	NA	3+	3+	2	1	1+	3	2	0
Total	13+	5+	7+	3+	2	5	1+	5	2	1

Year	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Sciences	0	1	0	0	1	4	1	5	0	4	3
Arts	0	0	0	1	1	3	0	1	1	0	1
Total	0	1	0	1	2	7	1	6	1	4	4

Year	1992	1993	1994	1995	1996	1997	1998	Total	Percentage
Sciences	3	0	3	3	5	6	5	66+	67.0
Arts	0	0	2	1	3	1	3	33+	33.0
Total	3	0	5	4	8	7	8	99+	100.0

**Notes:** From respective graduation books; Figure with a plus (+) means that figures for some congregations in the year are not available.

\* Hard Sciences including Agriculture and Agricultural Extension; Agricultural Economics; some branches of Statistics (e.g., Statistical Computing, Population Science); Science (Education); Science (Mathematics), Education (Science); Education (Mathematics); Computer Science, Computing, Information Systems, Information Technology, ICT, Information Sciences, Software Engineering; Technology; Construction Management; Physical Planning

\*\* Arts, Humanities & Social Sciences including Accounting (MUBS); some branches of Statistics (e.g., Demography, Population Studies); Economics, Education, Education (Kiswahili Literature), Education (Languages, Germany), Education Management, Education (Higher), Education Management (Higher), Higher Education, Educational Planning, Management & Administration; Educational Psychology, Gender Studies; Human Rights; Law, Fine Art, Psychology, Sociology, Philosophy, Literature, Religion & Peace Studies; Religious Studies, Geography, Political Science, Social Work & Social Administration, Linguistics, History, Adult Education, MDD, Mass Communication, Commerce (MUBS), Finance (MUBS), Marketing (MUBS), Gender & Women Studies; MUBS

**5.3.3 Makerere University: From 1999 to 2008.** The awards of doctorates in terms of numbers for the years 1999 to 2008 are in Table 5.5, Table 5.6 (by sex) and Table 5.7 (by the science vs arts dichotomy). It is evident (from Table 5.5) that from 1999 to 2008, except 2002 and 2008, the annual numbers of doctorates awarded by Mak were above 10 and in some cases above 20 (for 2003-2007). What could have led to this sudden rise in the annual numbers of PhD awards by Mak? One reason is that while Mak offered graduate studies up to 1994, the University did not have a graduate school. In 1994, MaK started the School of Graduate Studies (SGS) - now the Directorate of Research and Graduate Training (DRGT) since 2011. "At the 69th meeting held on the 23[rd] June and 14th July, 1994, MaK approved the establishment of the School of Postgraduate Studies... It has now been transformed into the Directorate of Research and Graduate Training" (Mak DRGT, 2016, p. 4). The Mak SGS/DRGT streamlined graduate training in the university by coming up with research guidelines (Mak SGS, 2001; Mak DRGT, 2011, 2013, 2016); an aggressive strategic plan (Mak SGS, 2006); a research policy (Mak, 2008); and has offered cross-cutting doctoral courses since 2001 (Mak, 2015). With those instruments, the Mak SGS mobilised funds for doctoral studies from donors such as Carnegie Corporation of New York; the German Academic Exchange Service (DAAD) of Germany (Amongin, 2018); NORDIC countries in general (Jaramogi, 2013; Nakajubi, 2018); and individual NORDIC countries such as Norway (Alina, 2014); and Sweden (Ahimbisibwe, 2018a; Andersson, 2015; Atukunda, 2020; Mak SGS, 2010; Mubiru, 2018; Odeng, 2015; Otago, 2018; Wadero, 2019).

**TABLE 5.5*****Numbers of PhDs Awarded Annually by Makerere University 1999-2008***

Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total
Total	16	11	12	06	22	21	23	24	23	07	165

*Notes: From respective graduation books*

Another catalyst was that on May 19, 1999, the Mak Senate ratified a policy which was later approved by the University Council on August 16 and 17, 1999 (Mak, 1999) that made it compulsory for one to have a PhD in order to become a Lecturer and to be promoted to higher ranks. The policy tilted the "Policy on the staff of the University who register for further studies" (Mak, 1999) was a fruit of a committee chaired by Professor Akiiki B Mujaju (RIP) the then Head of Political Science. Hence, it became more popularly known as the Mujaju Policy or Report in Mak colloquial language. The policy among others further stipulated that, "a Master's degree holder who was already in service could rise through the normal promotion only up to the post of Senior Lecturer..." (Mak, 1999). The policy further stipulated that, "a Master's degree holder appointed in the University Service be confirmed in the service if he/she has registered for a PhD" (Mak, 1999). The Mujaju Policy or Report deeply impacted policy to the extent of being hated by Mak staff (Eremu, 1999) and was at one time reported to be a cause of a looming staff crisis in Mak as 80 percent of the academic staff were expected to register for PhD studies given that they did not possess the qualification (Atuhaire, 2001). Seven years after its enactment, the report was still a cause of concern to Mak staff (Eremu, 2006). One would ask: How did a policy approved in 1999 have such immediate effect? The answer to this is that in a bureaucracy it takes years before such a policy is passed but when institutional word of mouth/grapevine has been peddling it for years. In effect, due to the reasons we have stated, the number of PhDs awarded between 1999 -2008 increased astronomically as table 5.6 shows, still this increase was dominated by males.

**TABLE 5.6*****Numbers of PhDs Awarded Annually by Makerere University 1999-2008 by Sex***

Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total	Percentage
Male	13	10	10	5	19	17	20	18	18	6	136	82.4
Female	3	1	2	1	3	4	3	6	5	1	29	17.6
Total	16	11	12	06	22	21	23	24	23	07	165	100.0

*Notes: From respective graduation books*

Table 5.6 reveals that of the 165 PhDs that Makerere awarded from 1999 to 2008, only 29 (17.6 percent) were females, meaning that during that period, doctoral training in Mak was still predominantly a male affair despite the percentage of females graduating with PhDs more than doubling from that during that period from 8 percent (for 1971-1998) to 17.6 percent (1999-2008). On the Science vs Arts dichotomy of disciplines, Table 5.7 reveals that of the 165 PhDs that Makerere awarded from 1999 to 2008, only 52 (31.5 percent) were in the Arts, meaning that during that period, doctoral training in Mak was still predominantly a science affair. It is ironic that although the number for the Arts almost doubled from 33 (for 1971-1998) to 52 (for 1999-2008), the percentage for the Arts fell from 33.3 percent (for 1971-1998) to 31.5% (for 1999-2008).



**TABLE 5.7***Numbers of PhDs Awarded Annually by Makerere University 1999-2008 by the Science vs Arts Dichotomy*

Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total	Percentage
Sciences	11	8	9	5	12	12	15	16	19	5	113	68.5
Arts	5	3	3	1	10	9	7	8	4	2	52	31.5
Total	16	11	12	06	22	21	22	24	23	07	165	100.0

*Notes: From respective graduation books*

**5.3.4 Makerere University: From 2009 to Date.** The awards in terms of numbers of doctorates that Mak awarded from 2009 to date are in Table 5.8, Table 5.9 (by sex) and Table 5.10 (by the science vs arts dichotomy). It is evident (from Table 5.6) that from 2009, the number of doctorates awarded annually in Mak ballooned to 30 (in 2009) and doubled to 60 in only four years (2013). The number reached a peak of 75 (in 2017) although it slightly declined thereafter. The Mujaju policy and Mak SGS/DRGT had now attained maximum impact. Further to that, in 2009 the Mak Appointments and Promotions Policy (Mak, 2009) added a provision that for one to be promoted to Associate Professor or Professor, one should have supervised at least one PhD. Hence it was not only those aspiring to be Lecturers striving to get PhDs but also academic staff already in service desirous of promotion to at least Associate Professor striving to have successful doctoral graduands.

**TABLE 5.8***Numbers of PhDs Awarded Annually by Makerere University 2009-2020*

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Total	30	39	46	42	60	51	66	62	75	71	56	61	659

*Notes: From respective graduation books***TABLE 5.9***Numbers of PhDs Awarded Annually by Makerere University 2009-2020 by Sex*

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total	Percentage
Male	25	30	35	28	49	40	44	40	51	48	44	44	478	72.5
Female	05	09	11	14	11	11	22	22	24	23	12	17	181	27.5
Total	30	39	46	42	60	51	66	62	75	71	56	61	659	100.0

*Notes: From respective graduation books*

Another cause for the rise in the number of doctorates awarded by Mak could be the advent of the new-route "taught doctorate" in Mak. Prior to 2002, all doctoral studies in Mak were done by way of the traditional British "thesis-only" route, where a candidate studied privately from the start to the end under the watch of one or a few supervisors. In the first chapter (Subsection 4.3.3), we already explained the challenges associated with such an arrangement. We also explained how the "taught doctorate," the "US model to the doctorate," the "new route doctorate" involving coursework in addition to a dissertation tried to overcome the challenges of the doctorate by research only. Such advantages might explain why several academic units in Makerere have progressively embraced the "taught doctorate" starting with the Department of Higher Education (DHE) of the School of Education, Mak (now the East African School of Higher Education Studies and Development [EASHESD] as the pioneer in 2002 (Mak DHE, 2001) - see Appendix D. As of the time of writing this report, Mak boasts of a total of 12 taught PhDs launched in the last 20 years. It is also worth noting that even the Makerere University Policy on Appointment and Promotion of Academic Staff (Makerere, 2009) rates the "taught PhD" higher than the "research-only PhD" during promotion.

Regarding sex-divide, Table 5.10 shows that of the 659 PhDs that Mak awarded from 2009 to 2020, only 181 (27.5 percent) were females, meaning that even during that period, like the earlier ones of 1999 to 2009 and more so that from 1971 to 1998, doctoral training in Mak was still a male affair. Overall, the three pertinent tables (Tables 5.3, 5.6 & 5.9) show that of the at least 923 PhDs that Mak awarded from 1971 to 2020, only about 218 (23.6 percent) were females, meaning that doctoral training in Mak has not been, and is not, sex/gender sensitive. The field has been, and is still tilted, in favour of men.

Concerning the Science vs Arts dichotomy, Table 5.10 reveals that of the at least 659 PhDs that Makerere awarded from 2009 to 2020, only about 214 (32.5 percent) were in the Arts, meaning that during that period, doctoral training in Mak was still predominantly a science affair. It is ironical that although the number for the Arts almost quadrupled from 52 (for 1999-2008) to 214 (for 2009-2020), the percentage for the Arts remained almost the same, only rising slightly from 31.5 percent (for 1999-2008) to 32.5 percent (for 2009-date). Overall, the three pertinent tables (Tables 5.4, 5.7 & 5.10) show that of the at least 923 PhDs Mak awarded from 1971 to 2020, only about 299 (32.4 percent) were in the Humanities and Arts, meaning that doctoral training in Mak has not been, and is still, in favour of the Sciences.

**TABLE 5.10**

*Number of PhDs Awarded Annually by Makerere University 2009-2020 by the Science vs Arts Dichotomy*

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total	Percentage
Sciences	23	33	27	25	37	29	48	46	58	52	29	38	445	67.5
Arts	7	6	19	17	23	22	18	16	17	19	27	23	214	32.5
Total	30	39	46	42	60	51	66	62	75	71	56	61	659	100.0

*Notes: From respective graduation books*

**5.3.5 Other Public Universities: From 1989 to Date.** As noted already, other public universities in Uganda have come on board starting in 1989 with Mbarara University of Science and Technology (MUST). These universities have also launched PhD programmes. For example, MUST has awarded 74 PhDs translating to an annual average of almost five PhDs since 2004 when it started doing so (see Table 5.11). MUST is yet to launch any taught PhD and to institute cross-cutting doctoral courses. Gulu University has awarded a total of 15 PhDs, starting with four of them in 2013 having awarded the highest number (five) in one year in 2018 (see Table 5.14). By 2011, GU was yet to launch any taught PhD and to institute cross-cutting doctoral courses (Akena, 2011). Uganda Management Institute (UMI) which launched doctoral programmes in 2012 (Angumya, 2012; UMI, 2012a-c, 2016) has awarded PhDs thrice on April 27, 2018 (16<sup>th</sup> graduation: three of them) (Ahimbisibwe, 2018b; Amamukirori, 2018; UMI, 2018a, b); on May 31, 2019 (17<sup>th</sup> graduation: three of them) (UMI, 2018b, 2019), and on 12<sup>th</sup> August 2020 (UMI, 2020). Kyambogo University (KyU) which launched doctoral training in 2014 awarded the first two PhDs during the 16<sup>th</sup> congregation which took place on December 11-13, 2019 (Amamukirori, 2019; Mukhaye, 2019). KyU launched a taught PhD in Education Management in 2018.

Tables 5.3, 5.6 and 5.9 show that doctoral education and training in Mak was/is biased in favour of males. How has it been/is it in other public universities in Uganda? Table 5.13 reveals that of the 74 PhDs that MUST has awarded from 2004 to 2019, only 15 (over 20 percent) were in the Arts, meaning that during that period, doctoral training in MUST was predominantly a science affair. Table 5.15 reveals that of the 15 PhDs that Gulu University (GU) has awarded so far from 2013 to 2020, only two (14 percent) were females, meaning that doctoral training in GU has been/is even more male-dominated than in Mak. Also, seven of the eleven (i.e., almost 74 percent) doctorates that



Uganda Management Institute (UMI) has so far awarded went to male recipients. Both of the two (i.e., 100 percent) doctorates that Kyambogo University (KyU) has so far awarded were for males. The above facts (on MUST, GU, UMI & KyU) suggest that doctoral education and training in other public universities in Uganda is more male-dominated than in Mak.

The Science vs Arts dichotomy depicted in Table 5.13 reveals that of the 74 PhDs that MUST has awarded from 2004 to 2019, only 15 (20 percent) were in the Arts, meaning that during that period, doctoral training in MUST was predominantly a science affair. Table 5.16 reveals that of the 15 PhDs that Gulu University (GU) has awarded from 2013 to 2020, as many as nine (over 60%) were in the Arts, meaning that during that period, doctoral training in GU was predominantly an arts affair. All the eleven (i.e., 100 percent) doctorates that Uganda Management Institute (UMI) has so far awarded were in the Arts. Both of the two (i.e., 100 percent) doctorates that Kyambogo University (KyU) has so far awarded were in the Sciences (Food Science & Technology). The fact that 60 percent of the PhDs GU has awarded so far and that all the eleven (i.e., 100 percent) doctorates that UMI has so far awarded were in the Arts notwithstanding, the above facts (on MUST & KyU) suggest that doctoral training in other public universities in Uganda is as science-dominated as in Mak.

**TABLE 5.11**

*Numbers of PhDs Awarded Annually by MUST 2004-2019*

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Total	2	2	0	1	6	0	0	2	4	6	7

Year	2015	2016	2017	2018	2019	Total
Total	7	7	8	11	11	74

*Notes: From respective graduation books*

**TABLE 5.12**

*Numbers of PhDs Awarded Annually by MUST 2004-2019 by Sex*

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Male	2	1	0	0	4	0	0	2	4	6	5
Female	0	1	0	1	2	0	0	0	0	0	2
Total	2	2	0	1	6	0	0	2	4	6	7

Year	2015	2016	2017	2018	2019	Total	Percentage
Male	5	6	8	8	8	58	79.5
Female	2	1	0	3	3	15	20.5
Total	7	7	8	11	11	74	100.0

*Notes: From respective graduation books*

**TABLE 5.13***Numbers of PhDs Awarded Annually by MUST 2004-19 by the Science vs Arts Dichotomy*

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Sciences	2	1	0	1	6	0	0	1	3	5	5
Arts	0**	1**	0	0**	0*	0	0	1**	1	1	2
Total	2	2	0	1	6	0	0	2	4	6	7?

Year	2015	2016	2017	2018	2019	Total	Percentage
Sciences	6	4	7	10	8	59	80.0
Arts	1	3	1	1	3	15	20.0
Total	7	7	8	11	11	74	100.0

*Notes: From respective graduation books; \*\* from Muriisa (2015, p. 206, Table 1)***TABLE 5.14***Numbers of PhDs Awarded Annually by Gulu 2013-2020*

Year	2013	2014	2015	2016	2017	2018	2019	2020	Total
Total	4	2	0	0	3	5	0	1	15

*Notes: From respective graduation books***TABLE 5.15***Numbers of PhDs Awarded Annually by Gulu 2013-2020 by Sex*

Year	2013	2014	2015	2016	2017	2018	2019	2020	Total	Percentage **
Male	4	1	0	0	2	5	0	NA	12+	85.7
Female	0	1	0	0	1	0	0	NA	2+	14.3
Total	4	2	0	0	3	5	0	1	15	100

*Notes: From respective graduation books**\*\* Out of 14***TABLE 5.16***Numbers of PhDs Awarded Annually by Gulu 2013-2020 by the Science vs Arts Dichotomy*

Year	2013	2014	2015	2016	2017	2018	2019	2020	Total	Percentage
Sciences	2	1	0	0	2	1	0	0	6	40
Arts	2	1	0	0	1	4	0	1	9	60
Total	4	2	0	0	3	5	0	1	15	100

*Notes: From respective graduation books*

**TABLE 5.17*****Totals for PhDs Awarded by Public Universities in Uganda 1970-2020***

University	Time Period	Total	Percentage
Gulu (GU)	2013-2020	15	1.5
Kyambogo (KyU)	2018	02	0.2
Makerere (Mak)	1970-2020	923	90.2
Mbarara University of Science & Technology (MUST)	2014-2019	74	7.2
Uganda Management Institute (UMI)	2018-2020	11	1.07
Total		1,025	100.0

**TABLE 5.18*****Totals for PhDs Awarded by Public Universities in Uganda by Sex***

University	Time Period	Number of Females	Number of Males	Total	Percentage of Females
Gulu (GU)	2013-2020	02	13	15	14.2
Kyambogo (KyU)	2018	00	02	02	00.0
Makerere (Mak)	1970-2020	218	705	923	23.6
Mbarara University of Science & Technology (MUST)	2014-2019	15	59	74	20.5
Uganda Management Institute (UMI)	2018-2020	05	06	11	45.4
Total		240	785	1,025	23.4

**TABLE 5.19*****Totals for PhDs Awarded by Public Universities in Uganda by the Science vs Non-science Dichotomy***

University	Time Period	Number in Sciences	Number in Arts	Total	Percentage in Sciences
Gulu (GU)	2013-2020	06	09	15	40.0
Kyambogo (KyU)	2018	02	00	02	100.0
Makerere (Mak)	1970-2020	624	299	923	67.6
Mbarara University of Science & Technology (MUST)	2014-2019	58	16	74	79.5
Uganda Management Institute (UMI)	2018-2020	00	11	09	00.0
Total		699	326	1,025	68.1

**5.3.6 Private Universities: From 1988 to Date.** As noted already private universities in Uganda came on board starting in 1988 with the Islamic University in Uganda (IUIU). Over time, these universities have launched PhD programmes. For example, as we illustrate in Table 5.20, IUIU awarded the first PhD in 2001 and has been occasionally awarding PhDs (e.g., one in each of 2002, 2003, 2006, 2008 & 2009; two in 2012) till recently in 2019 when at the 27<sup>th</sup> graduation ceremony (November 09, 2019), IUIU reaped as many as six PhDs (e.g., see IUIU, 2019a). IUIU has also since 2018 relaunched the PhDs with more vigour, adding the coursework component before research to one of its doctoral programs, the Multi-disciplinary PhD in Education (e.g., see IUIU, 2019b).

**TABLE 5.20***Numbers of PhDs Awarded Annually by IUIU 2001-2019*

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Total	1	1	1	0	0	1	0	1	1	0	0	2

Year	2013	2014	2015	2016	2017	2018	2019	Total
Total	0	0	0	0	0	0	6	14

*Notes: From respective graduation books***TABLE 5.21***Numbers of PhDs Awarded Annually by IUIU 2001-2019 by Sex*

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Male	1	1	1	0	0	1	0	1	1	0	0	2
Female	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	1	1	0	0	1	0	1	1	0	0	2

Year	2013	2014	2015	2016	2017	2018	2019	Total	Percentage
Male	0	0	0	0	0	0	5	13	93.0
Female	0	0	0	0	0	0	1	1	7.0
Total	0	0	0	0	0	0	6	14	100.0

*Notes: From respective graduation books***TABLE 5.22***Numbers of PhDs Awarded Annually by IUIU 2001-2019 by the Science vs Arts Dichotomy*

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Sciences	0	0	0	0	0	0	0	0	0	0	0	0
Arts	1	1	1	0	0	1	0	1	1	0	0	2
Total	1	1	1	0	0	5	0	1	1	0	0	2

Year	2013	2014	2015	2016	2017	2018	2019	Total	Percentage
Sciences	0	0	0	0	0	0	0	0	0.0
Arts	0	0	0	0	0	0	6	14	100.0
Total	0	0	0	0	0	0	6	14	100.0

*Notes: From respective graduation books*

Uganda Martyrs University (UMU), Nkozi awarded the first two PhDs in 2004 (UMU, 2004), but is yet to embrace taught PhDs. UMU has awarded an annual average of one PhD since 2004. Nkumba University has awarded a total of 55 PhDs since 2009, translating to an annual average of five PhDs in a period of 11 years (see Table 5.23). UCU which launched a taught PhD in Education Management in 2020, has only awarded PhDs since July 2018 (Nsubuga, 2018) and has so far awarded about five. Busoga University (BU) awarded the first and so far the only PhD in September 2014 (Kiyaga, 2014).

**TABLE 5.23***Numbers of PhDs Awarded Annually by Nkumba University 2009-2019*

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total
Total	1	0	1	2	4	5	3	9	7	13	10	55

*Notes: From respective graduation books***TABLE 5.24***Numbers of PhDs Awarded Annually by Nkumba University 2009-2019 by Sex*

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total	Percentage
Male	1	0	1	1	3	4	3	8	6	11	8	46	83.6
Female	0	0	0	1	1	1	0	1	1	2	2	09	16.4
Total	1	0	1	2	4	5	3	9	7	13	10	55	100.0

*Notes: From respective graduation books***TABLE 5.25***Number of PhDs Awarded Annually by Nkumba University 2009-2019 by the Science vs Arts Dichotomy*

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total	Percentage
Sciences	0	0	0	0	1*	1**	0	2*	1*	1*	1*	07	12.7
Arts	1	0	1	2	3	4	3	7	6	12	9	48	87.3
Total	1	0	1	2	4	5	3	9	7	13	10	55	100.0

*Notes: From respective graduation books*

\* In Natural Resources Management in the School of Sciences (SS)

\*\* In Information Technology in the School of Business Administration (SBA)

Kampala International University (KIU) awarded 21 PhDs in 2011, the first time for the University to award PhDs. Efforts to award 42 PhDs the following year caused an uproar leading NCHE to withdraw most of them. Although a good number of them were later upheld, the award of PhDs by KIU was greatly slackened (see Table 5.26), although still on course (e.g., see KIU, 2020). Most PhD programs at the KIU Main Campus are taught, while those at the Western Campus are by research only. Bishop Stuart University (BSU) awarded the first PhD in 2012 (Tumushabe, 2012). Two other private universities, namely Ndejje ("Ndejje starts PhD programme," 2018; Ndejje University [NDU], 2017a, b, 2020) and Bugema (Kiwanuka, 2015; Ssenyonga, 2016) are either in the process of starting or have just started offering doctoral programs.

**TABLE 5.26***Numbers of PhDs Awarded Annually by Kampala International University (KIU) 2011-2020*

Year	2011	2012	2013*	2014	2015	2016*	2017	2018	2019	2020	Total
Total	24	42	0	0	1	1	4	3	6	4	85

*Notes: From respective graduation books*

**TABLE 5.27***Numbers of PhDs Awarded Annually by Kampala International University (KIU) 2011-2020 by Sex*

Year	2011	2012	2013*	2014	2015	2016*	2017	2018	2019	2020	Total	Percentage
Male	20	22	0	0	1	0	4	3	4	3	57	67.1
Female	4	20	0	0	0	1	0	0	2	1	28	32.9
Total	24	42	0	0	1	1	4	3	6	4	85	100.0

*Notes: From respective graduation books***TABLE 5.28***Numbers of PhDs Awarded Annually by Kampala International University (KIU) 2011-2020 by Science vs Arts Dichotomy*

Year	2011	2012	2013*	2014	2015	2016*	2017	2018	2019	2020	Total	Percentage
Sciences	0	9**	0	0	0	0	1*	0	0	2	12	14.1
Arts	24	33	0	0	1	1	3	3	6	2	73	85.9
Total	24	42	NA	0	1	NA	4	3	6	4	84+	100.0

*Notes: From respective graduation books*

Tables 5.3, 5.6, and 5.9 show that doctoral training in Mak was/is biased in favour of males, equally, Table 5.12 for MUST shows that doctoral training in other public universities in Uganda was/is even more biased in favour of males than that in Mak. How gender-sensitive is doctoral education and training in private universities in Uganda? While IUIU has awarded PhDs since 2001, the first female doctorate was awarded in 2019 (see Table 5.21). This implies that of the 14 PhDs that IUIU has awarded so far, only one (about 7 percent) belonged to a female. Table 5.24 reveals that of the 55 PhDs that Nkumba University has so far awarded from 2009 to 2019, only nine (16.4 percent) were females. Table 5.27 suggests that only 28 (32.9 percent) of the 85 PhDs that Kampala International University (KIU) has so far awarded from 2011 to date were females. Bishop Stuart University (BSU) is yet to award a doctorate to the first female. Overall, the facts from private universities illustrate that doctoral education and training therein is also male-dominated.

Regarding the Science vs Arts dichotomy, all the 14 PhDs awarded by IUIU have been in the Arts (see Table 5.22). For example, of the six PhDs IUIU awarded in 2019, two were in the Arabic language; three in Islamic Studies; and one in Sharia or Law (IUIU, 2019a). Uganda Martyrs University (UMU) has never awarded a single doctorate in the Sciences. Table 5.25 reveals that of the 55 PhDs that Nkumba has awarded from 2009 to 2019, as many as 48 (87.3 percent) were in the Arts, meaning that during that period, doctoral training in Nkumba was a predominantly arts affair. Uganda Christian (UCU) and Busoga (BU) Universities are yet to award their first doctorates in the Sciences. Table 5.28 reveals that of the 85 PhDs that KIU has awarded from 2011 to 2019, as many as 73 (85.9 percent) were in the Arts, meaning that doctoral training in KIU has been/is predominantly an arts affair. Bishop Stuart (BSU) University is yet to award the first doctorates in the Sciences. Overall, the facts from private universities illustrate that doctoral education and training therein is dominated by the Arts and Humanities. This might be suggesting that private universities in Uganda only have capacity for doctoral education and training in the low-cost humanities and arts disciplines.

**TABLE 5.29***Totals for PhDs Awarded by Private Universities in Uganda 2001-2020*

University	Time Period	Total	Percentage
Bishop Stuart University (BSU)	2012	01	0.6
Busoga (BU)	2014	01	0.6
Islamic University in Uganda (IUIU)	2001-2019	14	8.1
Kampala International University (KIU)	2011-2020	85	49.4
Nkumba (NU)	2009-2019	55	32.0
Uganda Christian (UCU)	2018-2020	06	3.5
Uganda Martyrs (UMU)	2004-2020	10	5.8
Total		172	100.0

**TABLE 5.30***Totals for PhDs Awarded by Private Universities in Uganda by Sex*

University	Time Period	Number of Females	Number of Males	Total	Percentage of Females
Bishop Stuart University (BSU)	2012	00	01	01	00.0
Busoga (BU)	2014	00	01	01	00.0
Islamic University in Uganda (IUIU)	2001-2019	01	13	14	07.0
Kampala International University (KIU)	2011-2020	28	57	85	32.9
Nkumba (NU)	2009-2019	09		55	16.4
Uganda Christian (UCU)	2018-2020	02	04	06	33.3
Uganda Martyrs (UMU)	2004-2020	02	08	10	20.0
Total		42	130	172	24.4

**TABLE 5.31***Totals for PhDs Awarded by Public Universities in Uganda by the Science vs Non-science Dichotomy*

University	Time Period	Number in Sciences	Number in Arts	Total	Percentage of Sciences
Bishop Stuart University (BSU)	2012	00	01	01	00.0
Busoga (BU)	2014	00	01	01	00.0
Islamic University in Uganda (IUIU)	2001-2019	00	14	14	00.0
Kampala International University (KIU)	2011-2020	12	73	85	14.1
Nkumba (NU)	2009-2019	07	48	55	12.7
Uganda Christian (UCU)	2018-2020	00	06	06	00.0
Uganda Martyrs (UMU)	2004-2020	00	10	10	00.0
Total		19	163	172	11.0

**5.3.7 Conclusion.** With the foregoing narrative, Kasozi (2019) is not wrong to assert that, “most of Uganda’s PhD capacity is at Makerere University” (p. 5); “all the smaller new universities in Uganda look to Makerere for supplying them with academic staff” (p. 9); “for now, only Makerere University has capacity to conduct sufficient and diversified research” (p. 15). Hence, his proposals that, “the state should gradually make Makerere a trainer of high-level postgraduates and transfer the training of undergraduates to other universities” (p. 5); and that “the service Makerere can undertake



in *building for the future* is to focus on good postgraduate training” are not far-fetched. Nonetheless, the male dominated nature of doctoral education and training in Uganda needs urgent affirmative action to support females. Similarly, the domination of sciences in doctoral training in public universities needs urgent action to promote non-sciences; and private universities need capacity building if they are to successfully undertake doctoral education and training in the sciences.

#### 5.4 National-Level Structures to Support Doctoral Education and Training in Uganda

The historical development of national structures to support doctoral education and training in Uganda is almost synonymous with the history of Makerere University (Mak) and that of the National Council for Higher Education (NCHE). Mak started in 1922 as a humble technical and vocation school under the Department of Works. Later, as MaK became more academic, it was transferred to the Department of Education. This was the case when, for example, in 1929 all Directors of Education in East and Central Africa decided to make Mak the centre of higher learning in the region (Sekamwa & Lugumba, 2001). With time Mak grew to become an affiliate of the University of London in 1949 and the relationship went on up to 1963. The new relationship emerged in 1964 when Mak became an affiliate of the University of East Africa (UEA) with H. E. Julius Kamabarage Nyerere as the first Chancellor (Sebuwufu, 2018). From 1963 to 1970, Mak was a constituent college of the UEA with the other constituent colleges being Nairobi and Dar es Salaam University Colleges. In 1970, the UEA broke up and each of its three constituent colleges became a full-fledged university.

Hence, with the enactment of the Makerere University Kampala Act of 1970 (Uganda Government, 1970), Makerere University was born. This act put Mak under the direct control of the Government, making the President of the country the Chancellor of the University. The members of the University Council were to be appointed by the Minister in charge of Education. The first person to hold office as its Vice Chancellor, the Late Frank Kalimuzo was a non-academic, having been a Permanent Secretary in the Office of the President. According to the Act, the Senate was the supreme academic arm of the institution but was under the control of Government through the Council whose members were government appointees. It was however too “huge and blotted with over 100 members” (Sebuwufu, 2018 p. 162). When Idd Amin took over powers as Head of State and therefore the Mak Chancellor, the powers of the Council and the Senate were further diluted. Through the 1975 decrees which suspended the Act, Amin assumed absolute powers (Sebuwufu, 2018, p.163). This was manifested in the 1977 award of an honorary Doctor of Laws to the Head of State which was imposed by the Government (Mugerwa, 2002). Otherwise, the internal awards of doctorates seem to have been under the control of Senate.

However, with the liberalisation of Higher Education and hence the creation of other universities including private ones, The Makerere University Kampala Act of 1970 (Uganda Government, 1970) was no longer tenable. Thus in 1990, the UIIU got an act, The UIIU Statute, 1990 (Uganda Government, 1990). The Educational Policy Review Commission (1987-1989) in its report (EPRC, 1989) popularly known by the name of the Chair (the Late Professor William Senteza Kajubi) as the Senteza Kajubi Commission report, observed that although the Ministry of Education and Sports (MoES) had a Department of Higher Education (DHE), its influence on university affairs was negligible. The Ministry was mainly dealing with lower levels of education. So, the EPRC suggested the launch of a National Council for Higher Education (NCHE):

The Commission noted with concern an almost complete absence of a national policy on higher education in Uganda... There has hardly been any systematic planning in higher education... Consequently, the Commission recommends that: A National Council for Higher Education [NCHE] should be established... (EPRC, 1989, p. 73, Section 6.3 & R. 79)

The Uganda National Higher Education Equity Policy (Uganda Government, nd.) clarifies the roles and relationship between the DHE and NCHE as:

The Ministry of Education and Sports [MoES], through its Higher Education Department [DHE], is responsible for defining national policies in higher education... It relies on a buffer body, the Uganda National Council for Higher Education [NCHE] to ensure the quality and relevance of higher education and to guide the creation of higher education institutions... (p. 1, under Governance)

Hence in 2001, the Makerere University Kampala Act of 1970, the MUST Statute of 1989, the UMI Statute of 1992 and the ITEK Statute of 1993 were repealed in favour of the Universities and Other Tertiary Institutions Act of 2001 (UOTIA, 2001) (Uganda Government, 2001). In fact, section 73(1) of the UOTIA stipulates those repeals.

One of the first creations by the UOTIA (2001, Division Two, i.e., Sections 4-21) was the NCHE which became operational in 2002 (Government of Uganda, 2001). NCHE initially concentrated on other aspects of HE almost leaving doctoral training at the whims of individual institutions. The first Executive Director of NCHE (2002-2012), Professor Abdu B K Kasozi in his article titled, "Creation of the next generation of thinkers and innovators: Doctoral training in universities in Uganda" (Kasozi, 2019) noted that:

Although most of Uganda's forty or so universities train postgraduate students, the quality of products is questionable. Initially, the NCHE allowed only accredited [or chartered] universities (public and private) to offer postgraduate programmes. But this rule was neither kept by institutions nor enforced by the NCHE (p. 7).

Kasozi laments that the NCHE had developed its *Benchmarks for Conducting Postgraduate Programmes* (NCHE, 2014) wherein - Chapter Four relates to doctoral education and training - only in 2014, fourteen years after its creation when many institutions had already embarked on offering these programmes. He reported that, "many universities... with no capacities in terms of staff and facilities, were offering postgraduate programmes" (p. 7). He thus concluded that, it was not surprising that the knowledge production level of PhD holders in Uganda was low (citing UNCST, 2012). Kasozi went on to lament that:

Until the NCHE benchmarks for conducting postgraduate programmes were approved last year [2018], I was nervous, and I am still frightened, about the way doctoral studies were, and to some extent still are, conducted throughout Uganda. As Executive Director of the National Council for Higher Education, I had the difficult task in November 2012 of asking one Ugandan university to halt the award of some sixty doctoral degrees it was about to grant to candidates (pp. 7-8)

Even the popular press in Uganda welcomed what they termed the belated enactment of the guidelines (e.g., see Ahimbisibwe, 2014; Editorial, 2014). For example, the Editorial in *Sunday Monitor* of October 26, 2014 (Editorial, 2014) was accordingly titled, "Setting bar for Masters [and] PhD courses is good" (p. 10). In it the Editor pointed out that the move by the NCHE "to fix minimum standards for Masters and PhD studies is belated, but needful. The March 2015 plan to effect [the] benchmarks... comes 14 years late since NCHE was created in 2001" (p. 10). The Editor ended by calling upon NCHE to, "stamp its feet more firmly on these benchmarks to enforce quality..." (p. 10).

The NCHE developed the Uganda Higher Education Qualification Framework (UHEQF) “to provide a basis for assessment, certification, recognition and interpretation of learning acquired either through conventional or non-conventional modes and to provide a mechanism for equating of foreign qualifications” (NCHE, 2016, p. 2, Section 1.4). In Part Two (pp. 4-12) the UHEQF (NCHE, 2016) gives “UHEQF Level Descriptors.” NCHE explains that the framework is structured into qualifications levels to depict an increasing complexity of learning achievements as well as responsibility and autonomy conferred upon the learners. The UHEQF assumes a National Qualifications Framework with nine levels (Table 5.32); with Level One (Primary Education) as the most basic while Level Nine (Doctoral Education) as the most complex in terms of expected learning outcomes and autonomy conferred upon learners.

**TABLE 5.32***Levels of the Uganda National Qualifications Framework*

Levels	Education Levels	Typical Qualification at Each Level
Level 1	Primary	Primary Leaving Certificate
Level 2	Secondary	Uganda Certificate of Education (UCE) or Ordinary Level (O-Level)
Level 3		Uganda Advanced Certificate of Education (UACE) or Advanced Level (A-Level)
Level 4	Higher	Higher Education Certificate
Level 5		Ordinary Diploma
Level 6		Advanced/Higher Diploma
Level 7		Bachelor's
Level 8		Master's degree/Postgraduate Certificate/Diploma
Level 9		Doctorate

(Source: Table 2.1 in the UHEQF –NCHE, 2016, p. 4)

Subsection 2.2.6 of the UHEQF (NCHE, 2016) stipulates that, “A doctoral degree provides for a further enhancement of knowledge, skills and abilities. The degree qualifies individuals who apply substantial body of knowledge to research, investigate and develop new knowledge, in one or more fields of study/investigation, scholarship or professional practice. In addition to the competences of a masters degree holder, a doctorate is conferred on students who are able to: (a) Show a systematic comprehension, independent and an in-depth understanding of a discipline with a mastery of skills and research processes related to the field of study; (b) Contribute to the original research that broadens the boundary of knowledge through an in-depth thesis/dissertation and defense; (c) Use intellectual independence to think critically, evaluate existing knowledge and ideas, undertake systematic investigations and reflect on theory and practice to generate original knowledge (d) Communicate with peers, scholarly communities and society at large concerning the field of expertise; (e) Demonstrate ability to use technologies and make appropriate innovations; (f) Take leadership in the area of expertise in evaluating and making decisions in situations with limited information while considering social responsibilities and related ethics.

According to the UHEQF (NCHE, 2016, p. 12), doctoral degrees can be earned in any of the following ways: Doctoral degrees by Research only; Doctoral degree by Coursework and Research; Doctoral Degree by Publications; Integrated MPhil/PhD Programme. In Part Four, the UHEQF (NCHE, 2016) gives study programmes and programme pathways. In Section 4.1, NCHE explains that:

The programme design and description set out the expected standards of the qualification in terms of the knowledge, skill, abilities and attributes of the graduates. The programme document informs learners and other stakeholders about the full programme content which includes the goal, full curriculum content and quality assurance processes (p. 19).

The UHEQF (NCHE, 2016) goes on to give 12 programme requirements, of which the 11<sup>th</sup> reads as follows:

Every programme document shall clearly indicate the following elements: Programme name and corresponding award; Programme rationale; Programme description; Programme goals, objectives and learning outcomes; Admissions requirements; Programme regulations; Available and proposed human resources including their qualifications names of awarding institutions and year of award; Infrastructure facilities including Library and information resources; Didactic approaches; Minimum credits required for the award; Level of the programme within the Uganda Higher Education qualifications framework; Targeted employment opportunities (p.20, program requirement k).

The UHEQF (NCHE, 2016) equally gives elements required of every course in a programme (p. 20, program requirement l). In Section 4.2, the UHEQF gives minimum credits for the award of a qualification (NCHE, 2016, pp. 20-22):

The minimum credit units required for the award of higher education qualifications are based on a 30-week full-time academic year (15 weeks per semester). An average full-time equivalent student is expected to study for a 40-hour week, thus requiring a minimum 1200 hours. This is equivalent to 120 credit units per academic year. This therefore means that a three-year programme will require a minimum credit-load of 360 credits, while a four-year programme will require a minimum of 480 credit units.

On the workload for research students, it is stipulated that:

The workload for research students is estimated based on the average annual working time of a full-time employment which is about 45 weeks in year (considering 52 weeks in a year and take away four weeks of annual leave and about three weeks of all aggregated holidays) which is equal to 1800 hours and is equivalent to 180 credit units. A master's degree that combines teaching and research will therefore require 300 credit units (120 units accounting for the taught component and 180 accounting for the research component).

Hence the UHEQF (NCHE, 2016) stipulates that a doctorate requires a credit-load of 540 (last row in Table 4.1, pp. 21-22).

In Section 4.3, the UHEQF (NCHE, 2016, pp. 22-27) gives the “Admission and progression pathways...” In particular, in Subsection 4.3.6, the UHEQF (NCHE, 2016, p. 27) gives the minimum requirements for admission to different pathways to the doctorate as follows:

- a. Minimum admission requirements to a doctoral degree programme by research only shall be a relevant Master’s degree or its equivalent from a higher education institution recognized by NCHE and a research concept paper that will be reviewed by experts appointed by the institution to establish its clarity, relevancy and suitability.
- b. Minimum admission requirements to a doctoral degree programme by coursework and research shall be a relevant Master’s degree or its equivalent from a higher education institution recognized by NCHE.
- c. Minimum Admission requirements to a joint MPhil/PhD programme shall be a relevant Bachelors degree of at least second class upper or an equivalent qualification from an institution recognized by NCHE.
- d. Minimum admission requirements to a doctoral degree programme by publications are as follows: The applicant shall have a masters degree or equivalent qualification in a relevant field of study but shall not have a PhD or equivalent qualification; be actively involved in research; apply for admission with at least four peer-reviewed journal articles, book chapters or ranked peer-reviewed conference papers. The papers shall follow a particular thematic area of study and will form a basis for the award of a PhD. Each of the four papers shall have been published within a period of five years.

The UHEQF (NCHE, 2016) stipulates that, “an intermediate Master of Philosophy degree (MPhil) may be awarded for early exit after successful completion of all requirements as set under the benchmarks for postgraduate studies” (p. 27).

Lastly in Part Six, the UHEQF (NCHE, 2016, pp. 34-43) gives guidance on the “nomenclature of awards.” In particular, in Section 4.1, the UHEQF contends that “the names given to higher education qualifications should therefore be consistent with the programme name. It is important that programme names, award titles and the way they are abbreviated be unambiguous and should easily be understood by all stakeholders, including (potential) students, employers and the general community” (p. 34).

In Subsection 6.3.1, the UHEQF (NCHE, 2016) elaborates on three qualification attributes, namely the qualification title, field of study or designator and qualifier. The qualification title is the first attribute given to any qualification. Each qualification title has a descriptor stating its purposes and how it relates to other qualifications in the qualifications framework. Qualification descriptors are broad, generic and cross-field statements of achievement at a particular level of study and often not specific to any field of study. The field of study or designator is the second attribute given to any qualification, to indicate its broad discipline or profession. “Designators [in the UHEQF] shall not be used for Higher Education Certificate, Diploma, Postgraduate Certificate and Postgraduate Diplomas” (p. 35). The third attribute given to a qualification is the qualifier. Qualifiers may be used in any type of qualification in order to indicate a field of specialization or a “Major.” The word “in” shall be used to link a qualification title (or its designator) to the qualifier.

In particular, in Subsection 6.5.7, the UHEQF (NCHE, 2016, p. 43) gives guidance on the nomenclature of doctorates, thus: “The designator of Philosophy is typically used for doctoral degrees” (p. 43, first sentence under Designator). Thus “the naming of doctorates will take the format Doctor of Philosophy, in short PhD” (p. 43, first sentence under guideline a). “However, other designator [than Philosophy] may be used to denote the areas of study or the name of the discipline” (p. 43, second sentence under Designator). Thus “for professional doctorates and taught doctorates where there is interest to pronounce a given knowledge area, then the naming shall be Doctor of XXXX, e.g., Doctor of Education” (p. 43, guideline b).

## 5.6 Institutional Level Structures to Support Doctoral Education and Training in Uganda

**5.6.1 The Graduate School.** NCHE (2014a) devotes Chapter One to the structure and leadership of the graduate school. NCHE starts the chapter by noting that, “globally, graduate education, research and innovation are increasingly organized into graduate schools. The major role of the graduate school is to enhance quality of graduate education by: (i) Promoting graduate studies, research and innovations; (ii) Coordinating graduate studies, research and innovations across the institution; and (iii) Improving mentorship of graduate students. The graduate school, therefore, according to NCHE (2014a), fosters excellence in graduate studies, research and innovation by providing leadership and administrative support guided by the principles of quality, diversity and integrity.

The graduate school works with academic units where the research is being undertaken. In Section 1.2 titled the, “Structure of the graduate school,” NCHE (2014a) notes that:

The Universities and Other Tertiary Institutions Act, 2001 (as amended) provides that Senate or Academic Board is the supreme body on all academic matters. The Senate is therefore responsible for oversight in all-graduate academic matters. In order to provide an effective oversight role to graduate studies, there is need to establish a senate committee, to provide oversight and guidance on policy and technical matters of the graduate school. The senate committee (commonly known as the Board of Graduate Studies) recommends to Senate admissions, new academic programs and courses, examination results, award of degrees, diplomas and certificates. Normally, the graduate school acts as the secretariat for the Board. The basic administrative structure for an institution that operates on a four-tier system (Graduate School, College, School/Faculty, and Department) (as shown in Figure 1 at p. 10 of NCHE, 2014a). For a three-tier structure (Graduate School, Faculty/School, Department) the college box is dropped.

NCHE (2014a) goes on to give three benchmark standards to operationalize the above. Under Section 1.3, NCHE gives guidance on the “essential infrastructure and human resource requirements” for the graduate school:

The graduate school shall be headed by the Director or Dean (or similar connotation) who is a senior academic with a PhD qualification and at the rank of at least a senior lecturer. The minimum administrative structure shall include a registrar, an information technologist and administrative staff. The graduate school shall be allocated ample office



space for its staff and an appropriate boardroom. The graduate school is expected to implement its mandate in partnership with other units within the higher education institution. It is important that such units have appropriate infrastructural, ICT and human resources that can produce quality graduates.

NCHE (2014a) goes on to give nine benchmark standards to operationalize the above.

**5.6.2 The Directorate of Quality Assurance.** The Education Policy Review Commission (EPRC, 1989, p. 82, Subsection 6.7.2) observed that:

the basis for the maintenance of high academic standards in institutions of higher learning very largely, depends on the provision of adequate physical, manpower [sic] and financial resources. In addition, there must be improvements in the institutional management patterns; the redesigning and restructuring of courses and programmes of studies; carefully co-ordinated staff-development strategies and adoption of... modern educational technology (p. 82, Subsection 6.7.2).

Hence in its Recommendation 99 (R.99), EPRC (1989) suggested that, “the proposed National Council for Higher Education [NCHE] should produce guidelines for the improvement of academic standards and quality of education in higher education institutions (p. 83, R.99). When proposing to the Government of Uganda to start the NCHE, EPRC (1989, p. 74-75, Subsection 6.3.4) suggested the following functions of the NCHE relating to quality assurance (QA), among others: (b) Planning and evaluation of programmes pursued in the institutions of tertiary education; (f) Validating various academic and professional courses and associated qualifications; (g) Ascertaining the credibility of institutions awarding different kinds of certificates; and (i) Ensuring uniform standards of education in tertiary institutions of equivalent level.

The Universities and Other Tertiary Institutions Act (UOTIA, 2001, as amended) (Government of Uganda [GoU], 2001) in Section 5 gives the following functions of the NCHE relating to QA: (g) To monitor, evaluate and regulate institutions of higher education; (i) To ensure minimum standards for courses of study...; (j) To require and ensure that all universities, whether private or public, adhere to minimum criteria set by the National Council for admission to... programmes; (j) To set and coordinate national standards for admission of students to different institutions of higher education; (l) To certify that an institution of higher education has adequate and accessible physical structure and staff for the courses to be offered.

In fulfilment of these functions, in October 2006, NCHE came up with the Quality Assurance Framework for Ugandan Universities (NCHE, 2006a, b) and later published them in January 2014 (NCHE, 2014b), with three main sections and three appendices. The three sections are the Background (Section 1.0); the Regulatory Component of the Quality Assurance Framework (Section 2.0); and Measures for Quality Assurance at Institutional Level (Section 3.0). Under Section 3.0, NCHE (2014b) starts with the assertion that: “Institutions are primarily responsible for quality and quality management at their own institutions. Each university shall therefore have an independent quality assurance [QA] unit that sets quality assurance control guidelines in a university and that continuously reviews all programmes, teaching and assessment” (first two sentences under Section 3.0).



NCHE (2014b) asserts that, “Institutional audits are the core of the institutional quality assurance framework. The NCHE will, at regular intervals, undertake external audits to assess the capacity of institutions for quality management taking into account their missions, goals and objectives... The internal audit will be carried out by the [QA unit of the] institution itself with guidance of the NCHE... After reviewing the institution’s portfolio, NCHE will determine the nature of the external audit to be carried out in a given institution” (extracts from Section 3.1).

What are the criteria for the institutional audits? “The NCHE... identifies nine areas to examine or evaluate in institutional audits” (first sentence of Section 3.2). They are: Institutional Governance (Subsection 3.2.1); the Quality of Teaching and Learning (Subsection 3.2.2); the Quality of Academic Staff (Subsection 3.2.3); Sufficiency of Educational Facilities (Subsection 3.2.4); Research and Publication (Subsection 3.2.5); the Quality of Outputs (Subsection 3.2.6); Institutional Finance Management (Subsection 3.2.7); the University and the Community (Subsection 3.2.8); and Any Other Item Worth Auditing (Subsection 3.2.9).

## 5.7 Alignment between Doctoral Education and Training and the National Development Agenda

The national development agenda of Uganda is summarised in the *Uganda Vision 2040 (Government of Uganda [GoU], 2013)*. In its Executive Summary (pp. xiii-xvi), we read that:

*Uganda Vision 2040 [GoU, 2013]* provides development paths and strategies to operationalise Uganda’s Vision statement which is, ‘A transformed Ugandan society from a peasant to a modern and prosperous country within 30 years... It builds on the progress that has been made in addressing the strategic bottlenecks that have constrained Uganda’s socio-economic development... including... underdeveloped human resources... Achieving the transformational goal will thus depend on the country’s capacity to strengthen the fundamentals including... Science, Technology, Engineering and Innovation (STEI)... human resource (p. xiii).

In the next two pages it is stated that:

*Uganda Vision 2040 [GoU, 2013]* identifies [13] key core projects that need to be started including: Globally competitive skills development centres; and science and technology parks in each regional city. However, to achieve all this, some [15] key strategies and policy reforms must take place. These include: Pursuing policies aimed at leapfrogging especially in the areas of science, technology, innovation, and engineering; human resource development...; Develop[ing] and implement[ing] a national science technology and engineering system...; Accelerat[ing] government reforms in the education system and the curriculum to obtain a globally competitive human resource with skills relevant to... development...; Develop[ing] and implement[ing] a specific policy to attract and retain top rated professional in universities to make Uganda a Center of Excellence in Education (pp. xiv-xv)

At the last page of the Executive Summary (p. xvi), we read that, “The *Vision*... will be implemented in line with... 5-year national development plans and annual budgets” (p. xvi).

As the above quotations show, while the *Uganda Vision 2040 (GoU, 2013)* has stipulations that could be of relevance to doctoral education and training, it does not mention the word PhD or doctoral education anywhere in the Executive Summary, and not anywhere in the contents. Similarly, Uganda has now had three national development plans (*NDP1, NDP11 & NDP111*) (*GoU, 2010, 2015, 2020*) which like their parent *Uganda Vision 2040 (GoU, 2013)* only imply the importance of the doctorate but do not state it explicitly. This scenario depicts failure by the Government of Uganda to integrate doctoral education and training in the national development agenda with regard the percentage of the Gross Domestic Product (GDP) devoted to doctoral education and training, setting of national targets and aspirations for doctoral education and training. This condition is in line with the findings of a study on doctoral programs in Ethiopia, Ghana, Kenya, Nigeria, Senegal and South Africa (British Council & DAAD, 2018) which revealed that:

in terms of institutional decision-making on disciplinary focus of PhD programmes, ... the most common factors are: institutional mission, departmental or faculty level capacity in terms of human resources, and to a lesser extent... the national research or national development agenda... Without paid studentships in priority areas, and the fairly high cost of PhD studies, it is not surprising that PhD research output reflects the demand side of individuals’ research interests, capabilities and access to research resources, rather than the supply side of nationally-dictated priorities (p. 18).

Government of Uganda through the Ministry of Education and Sports (MoES) prepares the Education and Sports Sector Strategic Plans (ESSSPs). In the ESSSP of 2007-2015 (MoES, September 2017), the Permanent Secretary MoES while affirming the need for these strategic plans noted that:

It is essential to bear in mind the critical role that the education sector is primed to play in the realisation of the national development agenda.... Investment and interventions in the sector are geared towards improving access to quality education, training and sports for the people of Uganda in order to create a critical mass of adequately skilled labor force to actualize the demographic dividend. It is through human capital development that Uganda’s development objectives will be realized. The ESSP 2017-2020 has been formulated to support the country’s drive towards middle income status by 2020 through consolidation of the gains made by the Government in the Education and Sports sector over the years. (MoES, September 2017)

In spite of such a declaration, doctoral education and training was not prioritised anywhere in the three objectives of the ESSP as highlighted under section 2.5 on performance of the 2007-2015 ESSP (MoES 2017, pp. 26-30). For the 2017-2020 ESSP, save for objective 2 (xv) under section 3.2.2 (p. 36), not much is mentioned about doctoral education and training in the priorities to be underscored in the planned period. Even objective 2(xv) only states that the Government plans for research and technology incubation facilities at universities to support universities to effectively collaborate with the private sector in research and development work aimed at creating new technological innovations and products. In this regard, it is stated that universities will be supported to establish and maintain incubation facilities for PhD graduates with promising science and technological innovations; successful innovations will be provided with seed capital in form of affordable loans and grants so as to establish private companies for commercialization of their inventions; and for proper implementation of this programme, universities will be supported to specialize in particular disciplines. From the foregoing, it is clear that Government of Uganda expected to render a hand only to those who have already completed PhDs, but not those enrolling for doctoral education and training. Therefore, doctoral education and training has not been integrated into national development planning.

# CHAPTER SIX

## FINDINGS OF THE BASELINE STUDY OF THE STATE OF DOCTORAL EDUCATION AND TRAINING IN UGANDA

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### 6.0 Introduction

We sought to understand the conditions of doctoral education and training provision in Uganda. We aimed at uncovering the extent to which national structures, policies and frameworks provide for innovative doctoral education and training in Uganda; and the extent to which institutional structures, policies, processes and practices support innovative doctoral education and training in Ugandan universities. We hinge the findings we relay in this chapter on the seven Principles of Innovative Doctoral Training and the corresponding constructs we used as the analytical lens in the study. These principles are: Research Excellence; Attractive Institutional Environment; Interdisciplinary Research Options; Exposure to Industry; International Networking; Transferrable Skills Training; and Quality Assurance. We report the findings at two levels of analysis: systems and institutional. At systems or national level, we reviewed policies, laws, plans and reports before conducting an FGD with the NCHE. At the institutional level, we reviewed documents such as strategic plans, policies and guidelines on doctoral education and training and reports in addition to key informant interviews with institutional stakeholders. In the subsequent sections, we give our findings according to the Seven Principles of Innovative Doctoral Training.

### 6.1 Research Excellence

The first Principle of Innovative Doctoral Training stipulates that an innovative doctoral programme should strive for excellence in research (European Commission [EC], 2011). Deriving from the EC definition, we operationalized Research Excellence in a doctoral programme in terms of the academic standards that the programme sets and its curriculum, the critical mass of academic staff, and the extent to which the programme trains doctoral students to be creative, critical and autonomous intellectual risk takers, pushing the boundaries of frontier research.

**6.1.1 Academic Standards for the programme and its curriculum.** From review of documents at the systems or national level, we found that the Government of Uganda commits to ensuring high academic standards at all levels of education. In *Uganda Vision 2040 (GoU, 2013)* it is stipulated that, “Uganda will build a modern world class education system that provides students with first class education” (p. 68 para. 184). However, there is a bias in favour of science, technology, engineering and mathematics (STEM) disciplines illustrated by statements such as: “Government will employ and support policies aimed at leapfrogging... science, technology, engineering and innovation...” (p. 17, para. 35).

Beyond *Uganda Vision 2040 (GoU, 2013)*, we interrogated other documents closely linked to the national research agenda about academic standards. We found that the *National Science, Technology and Innovation Policy (Ministry of Finance, Planning & Economic Development [MFPED], nd.)* and the Uganda National Council for Science and Technology (UNCST) that implements the policy is committed to ensuring academic standards but with a bias in favour of STEM disciplines. For example, the second of the four objectives of the policy is “to build the science, technology and innovations (STI) sector capacity to generate and transfer technology” (p. 14).

The body in charge of overseeing Higher Education (HE), and hence doctoral education in Uganda - the National Council for Higher Education (NCHE), in the *Uganda Higher Education Qualifications Framework (UHEQF) (NCHE, 2016)* defines a doctoral degree in a way that demands academic standards in terms of rigour and relevance: “A doctoral degree provides for a further enhancement of knowledge, skills and abilities. The degree qualifies individuals who apply substantial body of knowledge to research, investigate and develop new knowledge” (NCHE, 2016, p. 11, Subsection 2.2.6). We found the same definition in NCHE’s *Benchmarks for Conducting Postgraduate Programmes* (NCHE, 2014a, p. 48, Section 4.1). To this definition, NCHE adds that:

In addition to the competences of a Master’s degree holder, a doctorate is conferred on students who are able to: (a) Show a systematic comprehensive, independent and in-depth understanding of a discipline with a mastery of skills and research processes. (NCHE, 2016, p. 11, Subsection 2.2.6a)

In the Proposed Strategic Plan for Higher Education 2003-2015 (NCHE, 2003), NCHE commits to guaranteeing Research Excellence by ensuring that academic programmes and their curricula are relevant to national needs. In particular, the first of the 10 strategic objectives in the plan was, “Reforming the tertiary curriculum” (pp. 11-14, Section 9.1), and the major thrust of the plan was, “to reform the higher education curriculum to make it more relevant to the needs of the nation” (p. 11). Further, the sixth strategic objective in the plan was, “to produce graduates who... ably operate in the local economy and ably work in the global market” (pp. 21-22, Section 9.6). Further, in the *Uganda Higher Education Qualifications Framework (NCHE, 2016)*, NCHE commits to safeguarding Research Excellence by ensuring that academic programmes and their curricula are relevant to national needs. This is reflected in the eighth of the 11 objectives which is, “to guide and support HEIs in curriculum development and review to ensure quality and labour market-driven programmes are offered to the public” (p. 2, Section 1.5 viii).

In the *Benchmarks for Conducting Postgraduate Programmes (NCHE, 2014a)*, NCHE demands that course work and research in a taught PhD strive for advanced standards and rigour, when it guides that:

an individual pursuing a doctoral degree by coursework and research is expected to undertake prescribed courses of study. These courses are [expected to be] at the highest pinnacle of knowledge and are therefore expected to be advanced, rigorous and intensive. (p. 58, Subsection 4.3.3)

NCHE further demands that a doctoral thesis/dissertation exhibits Research Excellence in terms of conforming to local/institutional and international standards. In particular, NCHE stresses that while, “a thesis is written in the format according to stipulated regulations of an institution... it should also conform to international standards” (NCHE, 2014a, p. 70, Section 4.10).

At systems level, commitment to ensuring research excellence in doctoral education and training in regard to academic standards of the programs offered and the curricula is further demonstrated by information we obtained from FGD with NCHE. One of the stakeholders from NCHE stressed that NCHE had developed benchmarks for conducting postgraduate studies in Uganda:

to ensure that sustainable quality education is provided at all higher education institutions... what NCHE has done is to develop benchmarks for conducting post graduate programs in Uganda... We have benchmarks for doctoral admission system, benchmarks for regulation of candidate study, we have benchmarks for doctoral examination requirements, benchmarks regarding accreditation requirements and we do have benchmarks regarding the workload...

Another officer from NCHE added that in developing the benchmarks, NCHE used the HEIs as the experts:

It is important to note that you as the higher education institutions are the very experts we consult when we are developing our minimum standards. In ensuring excellence, we pick from experts within the different disciplines. So, we engage experts in developing these minimum standards, and in the inspections, we ensure regular compliance from the higher education institutions...

We asked the FGD participants about what would be the preferred models of doctoral education and training in Uganda to ensure high academic standards for the programmes and their curricula. The participants from NCHE emphasised that NCHE respects institutional autonomy and thus expects each institution to decide which model of doctoral education and training is suitable to its capacity and facilities. One participant expressed that:

what NCHE usually does is to give you the minimum, you can either do by research only or you can have a PhD by course work and research or a PhD by publication, or you can have an integrated program of Masters of Philosophy and Doctor of Philosophy. Now the onus is on the institution, the capacity you have to run these programs is what will determine the programs that are suitable for you but for us, we give you those four areas, and that can be run depending on the capacity. . .

Another participant supplemented by saying that:

one thing that NCHE recognizes is that each institution is autonomous, therefore... it is up to the institution to come up with a PhD program in line with the guidelines given by the NCHE, but it should be tailored according to your capacity.

The NCHE therefore underscores institutional autonomy, and expects institutions or universities offering doctoral education and training in Uganda to come up with their preferred models of doctoral programmes depending on their capacity in terms of infrastructure, facilities and staffing. The following FGD excerpt demonstrates this stand of NCHE:

the autonomy of the institution has been underscored and maybe it is actually the institutions to provide us with the data of the preferred model. You create the model that is tailored to the benchmarks but also adequately provided for in terms of resources, teaching facilities, the supervision... So, what is the preferred model in Makerere? that would be a very interesting answer and data that we intend to collect moving forward..., or better still ask yourselves what has been the performance of doctoral graduates who have opted for one or the other option? How have they performed in the work place? What has been the demand for one or the other? If the items are patterned there, we will be very interested in knowing which option actually favours the work place or completion on time and knowledge transfer at higher speed. I think we shall pursue that input from Makerere and other institutions further. . .

At the institutional level, we found that PhDs by research only are still the predominant model. However, universities or institutions offering doctoral education and training in Uganda are progressively embracing the taught PhD (PhD by course work and research). Several institutional documents we reviewed considered the taught PhD as superior to the traditional PhD by research only. For example, in the curriculum for cross-cutting doctoral courses, Makerere University made a case for the taught PhD, stating that until 1999:

academic units were offering PhD degree programs by research only. With regard to value addition and intellectual discourse, PhD degree programs by research alone were considered inadequate. Subsequently, a few faculties such as Faculty of Computing and Information Technology, School of Education, and the Faculty of Economics and management developed PhD programmes by coursework and research. (Makerere University, 2015, Section 1.0)

Indeed, the pioneer of taught PhDs in Makerere University and hence Uganda, the then Makerere University Department of Higher Education pointed out that their, "programme of PhD by coursework and thesis (dissertation) is designed in response to the current demands for strong higher degrees in terms of academic and professional content so as to enable the graduates compete competently on the world market" (Makerere University Department of Higher Education, 2001).

Therefore, at the institutional level, the PhD by course work and dissertation is seen to be superior in ensuring Research Excellence than the PhD by research only because it gives a student a wider knowledge:

The PhD degree programme by course work and dissertation in Education Management is... conceived specifically to equip its graduates with the necessary deep theoretical and practical knowledge necessary for leadership and academic positions in various educational institutions and other organisations. (Makerere University Department of Higher Education 2001, Section 2.2)



From interviews with participants at the institutional level, we encountered several voices making a case for the taught PhD for a number of reasons. One participant expressed that:

if one is doing a PhD by research only, they are not grounded so they are lost. They lack the qualitative and quantitative theories and methodologies, so they start seeing it hard and harder, they become poorer and poorer hence giving up the course.

Another participant stated that, “students on the PhD by research only don’t move fast enough like those on a taught PhD. It helps when the methodological concepts are embedded within there. Hence the basis for our proposed taught PhD”. Another participant in support of the taught PhD noted that:

... the curriculum... ours is taught and then research. So, the students and candidates are grounded into the theoretical debates, the recent paradigms and paradigm shifts of their specific domains. This helps them in areas of conceptualization, theorization and so on.

Another participant contended that the taught PhD makes the student plan better than the one by research: “A taught PhD helps students to create timelines for themselves. The student gradually gains knowledge and skills better than the one by research. From another perspective, we came across a claim that the taught PhD is better at keeping students up to date than the one by research only. A participant said: “Science is dynamic, there are new concepts, new advances in the field. If students do not take classes as part of the PhD, they can get PhDs but with deficiencies. The taught PhD produces very excellent students”.

However, from review of documents and interviews at the institutional level, we found that other models of the doctorate such as professional doctorates, practice-based and work-based doctorates were not offered in Ugandan universities. While most institutions use definitions, which suggest the existence of both academic and professional doctorates, only one institutional attempt had been made to propose a professional doctorate, that is, the Doctor of Business Administration (DOBA) programme in Makerere University Business School (MUBS, 2010). MUBS underscores the virtues of the professional doctorate by stating that:

The Doctor of Business Administration degree program is intended to enhance the management of skills; knowledge and attitude by providing an avenue for applied research, which addresses the real-life business problems that these managers face in their day-to-day operations. The programme focus is on... students who are already business professionals...The distinction between the proposed DOBA and the existing PhD programme is that whereas the PhD programme focuses on more theoretical research geared towards creation of knowledge, the DOBA will focus on practical business problem solving through applied research. (MUBS, 2010, Introduction)

Despite the dearth of variety in the models of doctoral programs offered, we found that all the institutions commit to attaining high academic standards in the doctoral programmes and their curricula. From review of documents at the institutional level, we found that all institutional documents that defined a doctoral degree, had done so in a way that reflected or demanded academic standards in terms of rigour and relevance. For example, in the Guidelines for PhD Programmes for Nkumba University, it is clearly stated that:

the Doctor of Philosophy (PhD) programme of Nkumba University is intended to offer the highest rewards of learning and discovery... The study programme demands major investment of time, money and effort from both the University and the candidates. This programme is designed to furnish participants with knowledge, skills and abilities needed to meet the highest academic requirements in the market. (Nkumba University, 2013, p. 3, Section 3.0)

Similarly, in the Makerere University Appointments and Promotion Policy (Mak, 2009a), a PhD degree is defined in a way that demands Research Excellence in terms of length of study, standard of study and passing numerous vigorous examinations:

PhD (Doctor of Philosophy) is one of the highest academic degrees conferred by a university after [a student] spending several years in advanced study of specialization by writing an acceptable dissertation/thesis and by passing numerous vigorous examinations. After this qualification, the person is competent by reason of skills and knowledge to teach or expound authoritatively a subject or field of knowledge. (Sub-section 14.1 iv)

Beyond those definitions and characteristics of the doctorate that reflect or demand for Research Excellence, we found commitments to attain Research Excellence in institutional documents. For example, in the Nkumba University Strategic Plan 2013/14-2023/24 (Nkumba University, 2013), Nkumba University makes a commitment to Research Excellence nationally, regionally and globally, as per its vision which is to be a, "leading national, regional and global hub for academic and professional excellence" (pp. x, 7). Similarly, Mbarara University of Science and Technology (MUST) commits to attaining in Research Excellence, stating that, "MUST pursues world-class community-oriented science excellence since 1989 contributing to national and regional development by offering training in specialized areas that have made her renown for producing fit-for-purpose graduates" (MUST, nd, p. i). Thus, institutional documents reflected statements of commitment to attain excellence in academic programmes offered.

Surprisingly, interviews with participants at the institutional level revealed misalignment between institutional aspirations to attain research excellence expressed in the documents and the actual practice at the units offering doctoral education and training. Some PhD programmes, especially PhDs by research only, were being offered without written curricula; or the curricula were not approved by NCHE. Expressions made by the following participants attest to this fact: "We do not have a defined curriculum for PhD, we use the normal programme which is followed by the university". Another participant said: "We have our curriculum but it has not been approved. Processes are slow". Astonishingly, another participant made a stiff argument against formal written curricula for the PhD:

First of all, when somebody says he does not believe in syllabuses, people will say so now what do you believe in...Well knowledge is not about the syllabus; not at all, knowledge is about what is going on. I can tell you...I do not finish a syllabus, no. Because finishing syllabuses is not understanding the meaning of why people are at school...I never finished a syllabus never, but I produce people who publish, who even get jobs on their own without finishing the syllabus...If you want them to cram finish the syllabus...-

Personal, informal initiatives were being taken to either update or decide on what to offer in some PhD programmes. One participant argued that constant updating of knowledge by a lecturer informally is more important than strict adherence to written curricula:

If I discover that the syllabus I am using is no longer working, I drop it.  
For me...every five years I have been changing the syllabus, that is even  
the syllabus I don't finish, but every five years I change it...

The curricula for some of the PhD programmes were too loaded as per NCHE guidelines. For example, one participant hinted that on their doctoral programme, "a student has to achieve 60 credit units before research". Another participant described the curriculum for the PhD programme they offer as quite heavy:

Unfortunately, I think the current revised curriculum... is quite heavy and reviews have been ongoing for the past one and half years trying to down size it to acceptable levels and in that case, it is highly likely that we will have reduced course work but focusing on possibly three areas that will be about the philosophical angle, then about research and then the substance to allow our doctoral students to be more grounded in the philosophy and the research... I think... in relation to the course load... the current one is quite comprehensive and quite heavy on the student.

We also found that some PhD programmes had less load as opposed to what NCHE guidelines demand (NCHE, 2014a). This is explicit in what this participant voiced:

Actually, we are below National Council, we are now currently for the curriculum review because as a taught programme we are supposed to carry out four taught semesters and we have three, so currently we have a curriculum review and we want to add the fourth...

These findings reveal that there was disparity between guidelines set by the NCHE, aspirations expressed in institutional documents and the practice at unit level in regard to PhD curricula offered in Ugandan institutions/universities.

In order to attain research excellence, the participants acknowledged the importance of enriching the curricula for PhD programmes by research only with cross-cutting courses. For example, one participant expressed that, "we realise that many of our students come to the graduate level of study late. We put in place compulsory cross-cutting courses". However, other participants had reservations about the effectiveness of the cross-cutting courses as the following extract exemplifies:

The University runs cross-cutting courses but the numbers of students that are taken on is limited. They take on very few. Worse still the timing of these courses is not favourable, hence a limitation, also somebody may teach Academic Writing, but when they do not know how to make it relevant to, for example, Engineering

Similarly, another participant decried failure by students pursuing PhDs by research only to enrol for the cross-cutting courses because they are not mandatory: "We have cross-cutting courses that help those students on PhD by research only. However, a student is a student regardless of age. If these courses are not mandatory, very few will take them".-

—**6.1.2 Originality, creativity, autonomy and critical thinking.** We found explicit commitment to ensuring that doctoral programmes offered in Uganda cultivate originality, creativity, autonomy and critical thinking among the students at the systems level. NCHE gives characteristics of the doctoral degree that demands Research Excellence in terms of inculcating originality or creativity among students by asserting that: “in addition to the competences of a Master’s degree holder, a doctorate is conferred on students who are able to... contribute to the original research that broadens the boundary of knowledge through an in-depth thesis/dissertation and defence (NCHE, 2016, p. 11, Subsection 2.2.6b).

The NCHE further demands that a doctoral thesis/dissertation exhibits Research Excellence in terms of being publishable or being able to generate publications: “the thesis should... be capable of development for publication as a scholarly publication (book) or articles in peer-reviewed scholarly journals” (p. 70, Section 4.10, benchmark standard a iv). It is further stated that, “the chapters containing research findings, analysis, discussions as well as conclusions and recommendations constitute the key contributions of the candidate and shall constitute at least 60% of the entire dissertation” (p. 71, Section 4.10, benchmark standard c). NCHE demands every doctoral student to publish in peer-reviewed journals as original contribution to knowledge. NCHE (2014a) gives a pertinent benchmark standard to the effect that, “every doctoral candidate shall be required to have at least two articles published or accepted for publication in peer-reviewed journals” (p. 72, Section 4.11, benchmark standard a).

Further, the NCHE gives characteristics of the doctoral degree that demands Research Excellence in terms of making students autonomous critical thinkers by asserting that:

In addition to the competences of a Master’s degree holder, a doctorate is conferred on students who are able to... use intellectual independence to think critically, evaluate existing knowledge and ideas, undertake systematic investigations and reflect on theory and practice to generate original knowledge. (NCHE, 2016, p. 11, Subsection 2.2.6c)

At the institutional level, the documents we reviewed demonstrated commitment to inculcating originality, creativity, autonomy and critical thinking in doctoral students. For example, Nkumba asserts that:

the specific aims of this PhD programme are to; (a) Make an original and significant contribution to knowledge and understanding in the area of study; (c) Develop a critical and analytical approach....; (f) Enable students [to] develop critical thinking (Nkumba University, 2013, pp. 3-4, Subsection 3.1).

In the Doctoral Supervision Guidelines of Makerere University (Makerere University Directorate of Research & Graduate Training [Mak DRGT], 2016), a doctoral degree programme is defined as having rigour; relevance to both the academia and the professional field; and imparting critical thinking among students. Specifically, it is asserted that the purpose of doctoral training is “to develop independent and critically minded researchers... This includes both theoretical and practical training... aiming at building human resource... capable of critical thinking” (p. 4).

In practice, according to information we obtained from interviews, mechanisms to embed and assess originality, creativity, autonomy and critical thinking in doctoral programmes varied across programmes. For example, many participants claimed that creativity was embedded in their doctoral programmes by default: “Our PhD is by research which focuses on the main domain of creativity”; another participant noted that “PhD on Art and Design is on creativity”, in the same way,

another participant claimed that “much of this is expected in the research a student will do”. Some participants claimed that they teach philosophy in order to enhance the creativity of their doctoral students: “We teach the course titled Philosophical Foundations; it is to do with creative thinking”. Yet, other participants observed that in order to instil creativity among doctoral students, the supervisors had to first be creative themselves: “Supervisors should be creative. However creative a student is, if the supervisor is not, it is a waste of time”.

Equally, the participants made claims about Critical Thinking as being embedded in doctoral programmes by default: “Depending on the discipline, critical thinking definitely comes in through how you argue literature review; how you develop your methodology and how you present your findings demonstrates your critical thinking”. Another participant claimed that in teaching Philosophy they were enhancing the critical thinking of their doctoral students. “We teach Epistemology which promotes critical thinking among these PhD students”

Participants attributed the development of autonomy and academic risk taking among doctoral students to mentoring and student-centred learning. One participant expressed that, “we mentor our students to be self-reliant. We tell a PhD student; you are the driver. We want students to explore”. Another participant explained that, “about the autonomy of the students, we believe in student centred learning; we allow them to explore based on what is needed at community. The department comes in at facilitation level not as teachers”. Equally, another participant claimed that their doctoral students exhibit autonomy as follows:

the students are very autonomous... this is seen in; one, they are the ones to determine which topics they want to do and then they are given supervisors in those areas to support them. Secondly, they choose which specialization they want to go for, we don't pre-determine for them which areas they have to go to.

Many participants explained that they encourage or allow their doctoral students to be independent academic risk takers. For example, one participant said that, “we encourage students to go into new areas, areas not researched so much”.

**6.1.3 Critical mass of academic staff.** From the review of documents, we found that commitment to ensuring that institutions or universities offering doctoral programmes have the required critical mass of academic staff was obvious at the systems level. We inferred this from the ninth strategic objective in *The Proposed Strategic Plan for Higher Education 2003-2015 (NCHE, 2003)*, which was, “Attraction and retention of academic staff” (p. 23, Section 9.9). In the plan, NCHE listed six ways that owners of HEIs would be made to achieve this, including being asked: (i) To institute salary packages commensurate with the staff training and skills; (ii) To establish and enforce appropriate staff student ratios; (iii) To establish transparent hiring, promotion and firing procedures; (v) To establish competitive research funds; (vi) To put in place clear and transparent guidelines for selecting staff to benefit from staff development programmes.

All the participants we interviewed underscored the importance of a critical mass of academic staff, particularly for supervising doctoral students. However, they all decried the acute shortage of experienced critical mass of academic staff to effectively run the doctoral programmes in Uganda. The dominant view expressed was that research excellence in doctoral education and training rests to a larger extent on the availability and quality of the critical mass of academic staff as illustrated by the following interview excerpt:

Research Excellence starts with us the staff. What have we done to push the frontiers of knowledge? We have dealt with raising the problems, but when shall we suggest the solutions? Students are not to push boundaries which we have not pushed...We need to focus on ourselves before we look at the program.

But, the participants, mainly from private universities and other public universities other than Makerere University, explained that their institution relied on other institutions for supervisors for their doctoral students as depicted by this representative quote: "So what we do, we get supervisors from all over Uganda. Because we don't... have capacity to supervise all of them".

Participants expressed that PhD supervision work load is too high due to the shortage of the critical mass of academic staff with PhDs in Uganda. To overcome the challenge of supervision overload, some institutions resorted to hiring international staff. However, challenges of relying on external supervisors were overt as summarized in this illustrative interview extract:

We face international staffing challenges, they do not pay attention to our students, our students are not their priority..., we get delayed responses, we always beg them...sometimes we fail to effectively manage their remuneration...so many students drop out on the way due to lack of attention...

In some of the institutions, there were disciplinary variations in regard to the challenge of having the critical mass of academic staff. Some areas of specialization had the required staff while others did not have as noted by this participant: "We do not have enough academic staff. Not in all fields" In a few instances, we heard voices priding in having the critical mass of academic staff required for the PhD programmes they offer: "In terms of capacity we are 19 members and 17 of these have PhDs from Europe and USA while two are pursuing their PhD in the department. So, in terms of capacity, we are ok". However, these participants highlighted various staffing challenges they face, staff motivation featured as the commonest: "Doctoral training is constrained by lack of staff motivation. Staff are not recognized for their efforts. If people are doing well, they need to be recognized..." It was therefore evident that poor staff motivation contributed to lack of commitment on the part of the few available critical mass of academic staff. This translated into constrained supervisory capacity and therefore the low through-put rates of doctorates in Uganda.

## 6.2 Attractiveness of the Institutional Environment

The second principle of Innovative Doctoral Training stipulates, "doctoral candidates should find good working condition to empower them to become independent researchers (or practitioners) taking responsibility at an early stage for the scope, direction and progress of their project. These should include career development opportunities..." (European Commission [EC], 2011). Deriving from the EC definition, we operationalized the Attractiveness of the Institutional Environment in terms of the following constructs which are not mutually exclusive: infrastructure; academic staffing; instructional facilities; financial health; facilities for people with disabilities (PWDs); and organisational issues. We present the findings under these constructs as sub-themes.



**6.2.1 Infrastructure.** We operationalized the infrastructure for a given doctoral programme as the office, lecture, library, laboratory, and conferencing facilities plus the availability of overheads (e.g., toilet, power & water supplies). From review of documents at the systems level, we found explicit Government commitment to ensure Attractive Institutional Environments in HEIs in Uganda. In the *Universities and Other Tertiary Institutions Act (UOTIA)* (Government of Uganda, 2001), Government of Uganda bestows the mandate on the NCHE to ensure attractive Institutional Environments in higher education institutions (HEIs). In particular, Section 5 of the Act gives the functions of the NCHE, including one relating to Attractive Institutional Environments, namely; “To certify that an institution of higher education has adequate and accessible physical structure and staff for the courses to be offered by it” (Section 5, function I).

Hence, in the *Proposed Strategic Plan for HE 2003-2015 (NCHE, 2003)*, NCHE committed to ensure that HEIs in Uganda have Attractive Institutional Environments in terms of infrastructure and materials. In particular, under the sixth of its 10 strategic objectives namely, “Quality assurance to produce graduates who... [could] ably operate in the local economy and ably work in the global market” (pp. 21-22, Section 9.6), NCHE listed six elements to underpin a detailed framework of quality assurance (QA) for HE. The elements include the quality of material and physical resources that support the learning process. In regard to doctoral education and training particularly, NCHE demands for Attractive Institutional Environments for doctoral students in HEIs by stipulating that, “every PhD programme document shall clearly indicate the... infrastructure facilities demarcated for the doctoral studies; library and information resources for doctoral students” (NCHE, 2014a, p. 61, Section 4.4, benchmark standard I).

However, at the institutional level, we found that infrastructure for doctoral programmes were inadequate. Participants expressed dissatisfaction with the quality and adequacy of the available infrastructure. Typical responses we got from our interviews in both public and private institutions illustrate this. For example, one participant lamented that, “even the graduate school is housed in a very small place, their budget is small so they work with faculties to co-manage the students and the number of staffs at the graduate school is very minimal”. Similarly, another participant said, “if we lack facilities for staff, what about students? Space is grossly lacking in the University”. One of the participants echoed the need to improve infrastructure at units where doctoral programmes are offered: “Infrastructure is certainly not adequate, the spaces that doctoral students use are not there... But as it were, doctoral students are more attached to their units and so it would be ideal to improve the infrastructure within their vicinity or proximity”.

Although the most dominant voices from our interviews were lamentations about the inadequacy of infrastructure, we encountered a few voices that prided in the good infrastructure for their PhD students. However, where infrastructure was good and available in these institutions, there was gross underutilization in terms of space and time utilization as the PhD programmes had not attracted enough students. For example, one participant said, “people are not enrolling for PhD...we advertise, we don’t get enough students... but the rooms are there”. Another participant explained that special facilities for PhDs were available, but have not been fully utilized as few students enrol for the PhD programme:

Now in terms of environment we have special rooms up where we have what we call the PhD class room, we have the PhD revision room. The class rooms are really furnished like this office of mine. And if you consider how other masters or postgraduate level classes look... the PhD has that kind of ambiance, the rooms have different tables, different chairs, have internet throughout both their revision room and their study room...I doubt if these rooms have ever been filled to capacity.



We found a similar scenario in one of the institutional documents proposing to start a PhD programme. It is stated that: “There are ample spaces in the university lecture rooms and seminar rooms. The several lecture rooms of the different faculties... are currently underutilized in space (occupancy factor) and in time (frequency of use factor)”. Other participants expressed that they had adequate facilities for as long as the numbers of PhD students remained small. For example, one pointed out that, “we have a PhD block which is enough for the two cohorts. We have two cohorts so far. But as the cohorts increase, we shall get challenged by space for teaching and library”.

On the other hand, we got one deviant response that physical infrastructure was not very important for a PhD student. One of the participants said, “A PhD does not need a built environment”. This raises questions about the place of ICT supported online environments for digitalising PhD programmes. At the time of data collection, we found that most PhD programmes were not yet digitalised, PhD programmes were offered in built environments with very minimal, intermittent online teaching and learning and supervision.

**6.2.2 Academic staffing.** We operationalized academic staffing in terms of staff: student ratios; percentage of staff with PhDs; and workload. At systems level, we found explicit commitment to ensure adequate and appropriate academic staffing in HEIs in Uganda. For doctoral education and training in particular, in the Benchmarks for Conducting Postgraduate Programmes, NCHE set minimum standards for doctoral supervision and doctoral committees (Section 4.8), outlining the role of supervisors (Subsection 4.8.1); supervision teams/doctoral committees (Subsection 4.8.2); in addition to fixing supervisory workload (Subsection 4.8.3). NCHE stresses that, “under no circumstance shall an institution admit... doctoral students when there is no evidence of competent, willing and able prospective supervisors or lecturers to teach prescribed courses” (NCHE, 2014a, p. 67, Subsection 4.8.2, benchmark standard a).

Additionally, NCHE calls for adequate autonomy for supervisors, stressing that, “The supervisors shall be given sufficient autonomy to supervise and manage the candidate’s progress” (p. 67, Subsection 4.8.2, benchmark standard c), and for regular doctoral supervisory meetings by stipulating that, “Every institution shall put in place a mechanism to enable all supervisors to meet regularly... and agree on the direction of study. The major supervisor shall have the final say on any decisions regarding the candidate’s work” (NCHE, 2014a, p. 68, Subsection 4.8.2, benchmark standard k). In the same Benchmarks, NCHE set standards on supervisory loads as follows:

A supervisor shall be allocated no more than four doctoral students at any given time. Where the supervisor also has Masters degree students, the following alternatives shall apply: (a) No more than three doctoral students and two Masters degree students at any one time; (b) No more than two doctoral students and four Masters degree students at any one time; (c) No more than one doctoral student and six Master’s degree students at any one time; (d) No more than 8 Master’s degree students at any one time. (NCHE, 2014a, p. 69, Subsection 4.8.3, benchmark standards a-d).

At the institutional level, such commitments and standards set at the systems level have not translated into actual practice. All universities/institutions offering doctoral education and training decried the acute shortage of doctoral supervisors and mentors. The shortage was either institution wide, or for some specific disciplines or fields of specialization. Participants mainly attributed this to the acute shortage of PhD holders in Uganda as illustrated by this quote: “I think the acute shortage of PhDs in higher education institutions at the level of supervising research is something we have already noted in our data collection, ... it’s a chronic challenge in higher education”. Another partic-

participant noted that this Critical Mass is concentrated in Makerere University: "...as you rightly put, there are only about twenty-six researchers per million inhabitants, well below world average of 1, 083... and majority of these are in Makerere".

The shortage of PhD holders in Uganda translates into constrained doctoral supervision capacity. During the FGD, participants expressed that the same supervisors are shared among the institutions/universities offering doctoral education and training as illustrated by this representative excerpt:

when universities come to accredit the PhD programmes, they present to us the list of staff, but then you find that the same list of staff or a few are appearing on other lists, meaning that they are sharing these staff for PhD programmes... So, we have noted the acute shortage of PhD holders in Uganda.

Institutions/universities have made commitments to comply with NCHE benchmarks and standards, but, are constrained by the shortage of PhD holders. For example, in the Doctoral Supervision Guidelines of Makerere University (Mak, 2016), it is stipulated that PhD supervisors are not only well qualified but also, not overloaded:

Academic staff members who qualify to supervise doctoral students must have a doctoral degree of at least two years' duration/standing, and may supervise up to 3 doctoral students in addition to not more than 5 Master degree students at the same time (p. 6).

However, in practice, we found that there were fewer experienced academic staff in the top ranks, meaning the critical mass of academic staff is scanty. For example, in the Mak Annual Report 2018 (Mak, 2019), it is reported that in 2018, of the 1,492 academic staff that MaK had, only 94 (6 percent) were Professors; 157 (11percent) Associate Professors; and 209 (14 percent) Senior Lecturers (p. 50, Section 5.2). The Makerere University Fact Book 2018-2019 (Mak, 2019, p. 31, Table 15) gives the same facts. Given that all the other institutions/universities rely heavily on Makerere University to staff their PhD programmes, they equally lack the critical mass of academic staff at higher ranks to appropriately run the PhD programmes.

Therefore, the most dominant responses we got during interviews with stakeholders at the institutional level decried the inadequate academic staffing for PhD programmes and the resultant constrained supervisory capacity. One of the participants made this illustrative statement:

For the staff, we are grossly understaffed, we use part timers from other institutions... This lowers the quality of our products. You can imagine in PhD we still have small classes but there is lack of timely release of results.

Nevertheless, there were very few instances where participants reported that they had adequate staff to run the PhD programmes. For example, one participant said, "for staffing we have enough staff, we have over 25 PhDs, in five years we shall have all staff with PhDs. There is a good relationship between the staff and the students. No delays in supervision and reading thesis" However, this scenario pertained only where PhD enrolments were very low.

—**6.2.3 Instructional facilities.** We defined instructional facilities operationally in terms of PhD students access to library facilities; computers; and access to the Internet. We found statements of commitment to attain appropriateness in regard students access to instructional facilities in institutional documents. For instance, in the current Nkumba University Strategic plan 2013/14-2023/24 (Nkumba University, 2012), the third, fourth, and seventh priority areas are: 3. Developing and improving physical facilities; 4. Enhancing the students' welfare; 7. Enhancing the use of ICT (p. xi). Similarly, in the 2017/18-2019/20 Strategic Plan (MUST, 2020), Mbarara University of Science and Technology commits, "to provide a modern and conducive learning and work environment" and "to strengthen ICT infrastructure and connectivity to support learning, research and management" (p. vi). Equally, in the 2010-2020 Strategic Plan, Uganda Martyrs University commits to:

create an education environment that will deliver specific programmes to meet national and international standards... Student numbers shall be supported by adequate and appropriate lecture rooms, library space and resources, computer labs, ICT facilities, dining room, auditorium, sports facilities and housing for accommodation. (UMU, 2010, p. 26)

Much as institutional documents pronounced commitment to provide appropriate instructional facilities for PhD programmes, the greatest success was in Makerere University. According to the Makerere University Annual Report 2018 (Mak, 2019), "The University adopted a cumulative improvement in the library resources. In 2018, the stock stands at: 294,890 library catalogue records (titles), 11,352 journal holdings and 9,839 authority records accessible by users" (p. 59). From the same report, we found that Mak has invested in ICT infrastructure: "The University has continued to commit 3% of the gross university budget towards supporting ICT as a priority area..." (p. 59). Therefore, PhD training capacity in terms of instructional facilities was better developed in Makerere University compared to the other institutions/universities.

Many of the participants we interviewed attested to great improvements in the instructional facilities for the doctoral programmes they offer. One participant said, "we have improved a bit... We can now access a number of e-libraries. Not an issue any more". Another participant expressed that their library facilities were the best in the country: "we have our good library, I don't know whether you have visited our library, it is good compared to other universities, I think it is the best in the country... and then they have access to Internet". In the same way, other participants expressed that at least they had adequate book bank facilities and Wi-Fi connectivity eases access to online resources as illustrated by this excerpt:

We have no library but a book bank. But it has served us. We do not have many PhD students; our maximum at any time is five. We have a reasonable number of computers...Before the university brought Wi-Fi, we already had our own. Our Wi-Fi is good enough to facilitate access to online libraries.

Nevertheless, in other institutions/universities, especially private universities, the story was different. Participants reported inadequacy in instructional facilities, particularly computer and internet-based facilities for the PhD programmes they offer. The following representative interview extract illustrates this finding:

I don't think we have the right internet speed at campus. When the students go beyond a certain number the speeds go down, we don't have adequate... computers, the computer laboratory is not adequate, ... we encourage the students to work on their own laptops, I think with the e-reading, that could also affect the supervisors themselves.

Thus, PhD students, self-financed as they mainly are, use private laptops to access e-resources and quite often using private subscriptions for internet data bundles.

**6.2.4 Financial health.** We considered the financial health as the percentage of the budget for the doctoral programme that the department responsible for the program gets. In the *Proposed Strategic Plan for HE 2003-2015 (NCHE, 2003)*, NCHE envisaged under the seventh strategic objective "Establishing a functional research development programme". It was envisaged that the higher education sector in Uganda would have a policy for institutions to establish a research fund; evolve a policy for publishing research results; develop a policy for implementing research recommendations (pp. 22-23, Section 9.7). Thus, naturally, doctoral education and training which is at the heart of research and innovations would benefit from such a functional research development programme. However, such national initiatives have not come to fruition, as such, doctoral programs offered in Ugandan universities are heavily dependent on funding from donors and development partners, and many doctoral students are self-financed.

From the FGD with participants at the national level, it was evident that the financing of doctoral programmes was a big challenge affecting the inputs, processes and outputs, and therefore the quality of doctoral education and training in Uganda. Budget allocation for research and innovations, and by implication, to doctoral education and training is negligible. One participant lamented that, "we advocate for at least 10 percent budget allocation out of the university revenue as a minimum but we are finding that in the field, we have 0.1 percent as budget allocation to research and innovations". Another participant reiterated the point by saying:

I think the funding of PhD programmes isn't conducive, rather isn't compliant to the requirements of the national development programme. I do not have the figures here currently but I have shown you for instance that universities allocate somewhere between 0.1 percent of their revenue towards research and we also have to bear in mind that most universities are highly dependent on tuition fees and leave hardly anything for research.

The participants underscored the need to build local capacity for funding research and doctoral education:

In many incidences NCHE has looked for ways of strengthening research in higher education to build that capacity and came up with a proposal for research fund that is competitively given out... candidates can vie for... A lot of funding for our research is coming from our development partners. Makerere has had the experience of most of the development partners...like sida SAREC ... sida is actually funding research in other public universities but still coordinated by Makerere. So... PhD funding is very limited and is highly dependent on development partners... and cannot be afforded at the moment by most universities who are highly dependent on tuition fees.

Therefore, FGD participants said NCHE had implored Government of Uganda to put in place a national doctoral programme as the following narrative explains:

The issue of financial health is a big challenge in Uganda...and the situation is even worse with the private universities as they cannot get this funding. We are in the process of proposing to the Government we must have a national PhD programme that should be targeted in order to increase the number of PhDs and the quality of PhDs in this country.

Another participant added that:

we proposed to government the need to have a national PhD programme... for government to support and facilitate these institutions in Uganda to educate and increase the number of PhDs because we discovered one of the issues is funding...that is why we have low numbers of PhDs.

The participants were optimistic that the national PhD programme will come to fruition:

the national PhD programme is underway... it was proposed through the Prime Minister's Office and we are hoping that this will sustain the number of PhDs required at higher education and solve the acute shortage of staff that we are currently experiencing.

Participants at the institutional level equally reiterated the challenge of financing doctoral education and training in Uganda. The dominant expression was that institutions mainly rely on tuition fees to run doctoral programmes and doctoral students are self-financing:

The programme is self-financing. Actually, that is the biggest challenge we have, sometimes they are challenged with field work costs sometimes they are challenged with tuition. Especially those who stay longer on the programme. It becomes a bit costly but it is self-financing. We don't have other sources for them.

One participant claimed that their doctoral programme was run as a prestige programme. The institution did not aim at profit, and therefore, was subsidizing the programme:

funding is largely student based, they meet their costs, but also to some extent subsidized. What do I mean? It runs mainly on students' fees but not all costs can be met by the student fees. So, the institution subsidizes it, for example, students pay 10 million tuition fees but bringing in a visiting professor costs about 13 million, and in a semester, we can bring in like four, so that would mean that four of 10 students would have paid for that and yet there are other costs. So... we are still running it as a prestigious program. But not an income generating program and for that reason the institution puts in a lot of money"

Overall, financing of doctoral programmes was entirely based on two major sources: Funding from development partners or donors and student tuition fees. The government of Uganda had not integrated doctoral education and training into national development planning, and hence there was no direct government funding.

—**6.2.5 Facilities for people with disabilities (PWDs).** We defined facilities for PWDs in terms of the adequacy of facilities such as ramps, toilets, parking space, braille, special seats and audio-visual aids for PWDs on doctoral programmes. At systems level, participants echoed the need for equity and creation of institutional awareness about facilities for PWDs and that NCHE ensures compliance with the minimum standards:

NCHE is very aware of the need to have institutional awareness on equity issues and that includes the people with disabilities, gender issues, and so on. They are well stipulated in the minimum standards and we do collect gender data especially in the STEM subjects, science, technology, engineering and math and we also collect data on PWDs. We ensure when we come for those inspections for compliance that your infrastructure including your buildings are compliant to suit the needs of people with disabilities in terms of means and your teaching facilities...

At the institutional level, we encountered mixed reactions about facilities for PWDs. The dominant expressions made showed that majority of the institutions did not have adequate facilities for PWDs. One participant stated that they were partly ready for PWDs although they did not have them on PhD programmes:

The University has a disability policy in place which is always referred to, but facilities are still limited especially for the blind, deaf, but infrastructure, we have toilets, chairs, pathways and a fully formed department in the faculty of people with special needs. But we don't have such PhD students yet...

Other participants regretted not having the facilities for PWDs although they said their institutions were working to put them in place. One participant noted that, "going up there may be difficult. No special facilities for PWDs especially on the old buildings. May be in the new building under construction now, we have catered for them". Another participant noted that they did not have the facilities, nor the PWDs and did not advise PWDs to apply for the programme, saying, "we don't have PWDs. We don't have the facilities. I do not advise a PWD to apply for the PhD in our school". It was therefore evident that many institutions/universities offering doctoral education and training were not prepared to enrol PWDs on doctoral programmes, and they were also non-compliant in regard to the benchmarks and minimum standards set by the NCHE.

**6.2.6 Organisational issues.** We considered organisational issues related to a given doctoral programme in terms of the organisational culture (ethics/morals, norms, values) and policies (how favourable they are to the doctoral programme). From the review of documents at the institutional level, we found that institutions/universities expressed commitment to create Attractive Institutional Environments generically, not particular to doctoral programmes offered. For example, according to the Makerere University Strategic Plan 2020-2030 (Mak, 2020), the university commits to creating an Attractive Institutional Environment via five core values: "Accountability...; Professionalism...; Integrity...; Respect...; Inclusivity..." (pp. 6-7). In the second goal of the strategic plan, it is stated that:



...the university is committed to creating the appropriate environment and support to students to meet their academic and professional aspirations. Teaching and learning will be all-inclusive integrating gender and special needs requirements (p. 12).

In the third goal of the strategic plan, Mak commits to ensuring gender equity; good organizational culture; financial management; and student and staff support services: "Makerere University will be an equal opportunity and gender responsive institution with institutional cohesion - networking and transparency with clear organizational development processes. There will be prudent financial management, cost-effective and efficient student and staff support services" (pp. 16-17).

In the Guidelines for Writing Graduate Theses and Dissertations of Kyambogo University Faculty of Education (KyU FoE, 2016), KyU FoE demands that supervisors give "appropriate support to students, meet students regularly, complete quarterly progress with the students and submit to relevant offices" (p. 9). In the same document, it is stated that each department with graduate programmes should appoint their own departmental graduate coordinator to manage students' affairs in the department." The other institutions/universities equally expressed generic commitments to provide the appropriate institutional environments in their strategic plans, vision and mission statements.

For postgraduate training in particular, we found that institutions/universities had well written guidelines for running post graduate programmes at the institutional level. From our interviews, we got voices priding in well written guidelines for their doctoral programmes; that supervisors and students get adequate guidance written down in graduate handbooks:

on organizational issues which would come along to affect the institutional environment, ... the processes are well; the processes are not all that bureaucratic, the processes are clear. That graduate research handbook by the Directorate of Graduate Training is very clear. If the students and supervisors follow it, you wouldn't have a problem, personally I like it, I don't have a problem with it.

Participants reported working through doctoral committees to support the doctoral students and that doctoral committees have enhanced supervisor-supervisee relationships. For example, one participant said, "we are open-minded; we are young in terms of doctoral education. So, we have opened up for advice. We insist on supervisors meeting a student together...we follow doctoral committee progress". However, lack of motivation and proper facilitation made doctoral committees less functional as echoed by this participant: "In the university, doctoral committees sit during defense. Minutes for meetings are not filed, no progressive reports by students because the committees are not paid and are demotivated, hence a back log".

We found that although institutions/universities had well written guidelines for running postgraduate programmes, graduate student support services were not well established and not well coordinated, particularly for the PhD programmes. This partly contributes to delayed progress of students as illustrated by what this participant expressed:

In our evaluation last year, we found a weak centre of coordination and support for the PhD programme. We need to strengthen these structures by tracking progress for each PhD student.... We have been questioned why students are delaying to graduate...



Although the institutions/universities had well written guidelines for running post graduate programmes, those guidelines were not widely circulated and therefore not followed in practice at the units. Participants noted that there was a bad culture of people flouting institutional guidelines:

The University graduate policy is very clear, but students never follow it, even supervisors are not using it. Our programme follows the general university guidelines, but no specific guidelines from the school. The only paper given to a student we admit is an admission letter and yet the admission letter says nothing about the programme.

Overall, we found that the quality of the postgraduate training environment in Ugandan universities was low. In the FGD with the NCHE, participants acknowledged the absence of an Attractive Institutional Environment for doctoral education and training as the following narrative demonstrates:

If I may start for instance with infrastructure there is a minimum there... for instance under the Covid-19 environment, we look at minimum standards to open distance and electronic learning...the internet capacity, the ICT infrastructure, the skills, research and innovation levels. We have noted that we have a situation in universities that is quite dismal...

Yet, to ensure that HEIs in Uganda have Attractive Institutional Environments, NCHE had taken a number of steps: First, NCHE had come up with Benchmarks (NCHE, 2014a) as the following narrative suggests: "It is still within the framework of managing the benchmarks that have been set for infrastructure, for academic staffing, and instructional facilities". Secondly, NCHE holds annual exhibitions to enable HEIs to showcase the Attractiveness of their Institutional Environments:

what NCHE does every year is to provide a platform where by all the institutions demonstrate their research capacity in the programmes that are running. So, every institution that has a PhD programme will always have an exhibition where each and every institution can demonstrate their capacity, their approaches and the attractiveness to run that particular programme and the prospective candidates can therefore choose and opt to go anywhere where the institution has convinced them that the environment in which they are operating is satisfactory.

Thirdly, the FGD participants revealed that NCHE is planning to start ranking HEIs in terms of Attractiveness of Institutional Environments: "National Council will soon begin the ranking system and make the choices for candidates much easier in terms of where they want to do their research and that to a large extent revolves around the environment and facilities offered for research". Therefore, the need to create an enhanced postgraduate environment (EPE) in Ugandan institutions/universities is evident.

### 6.3 Interdisciplinary Research Options

Principle number 3 for Innovative Doctoral Training stipulates that doctoral training must be embedded in an open research environment and culture to ensure that any appropriate opportunities for cross-fertilization between disciplines can foster the necessary breadth and interdisciplinary approach (European Commission [EC], 2011). We operationalized Interdisciplinary Research Options using three constructs that are not mutually exclusive. These are Multi-disciplinarity; Inter-disciplinarity; and Trans-disciplinarity. We defined Multi-disciplinarity in a doctoral program as the extent to which

the program instills multi-disciplinary skills in doctoral students, that is, the ability to have different disciplines to work independently to solve a common problem. We defined Inter-disciplinarity in a doctoral programme as relating to how the programme instills inter-disciplinary skills in doctoral students, that is, the ability to have different disciplines to work jointly by blending resources, expertise to solve a common problem. We used the term Trans-disciplinarity to refer to the extent to which a given doctoral programme instills trans-disciplinary skills in the doctoral students, that is, the ability to blend resources and expertise from both the academia and the relevant industry when solving common problems. We use the term cross-disciplinarity to encompass inter-, multi-, and trans-disciplinarity to refer to the extent to which doctoral programs transcend disciplinary boundaries.

In the Benchmarks for Conducting Postgraduate Programmes (NCHE, 2014a), NCHE demands for cross-disciplinarity in doctoral education and training via cross-cutting courses. NCHE proposes five cross-cutting doctoral courses, namely, Philosophy of Knowledge (Epistemology); Research Methodology; Introduction to Institutional Pedagogy; Scholarly Writing and Publication Skills; and Computer Applications in Research (pp. 62-63, Section 4.5, benchmark standard a). NCHE (2014a) is categorical when it states that, "all doctoral candidates shall be required to undertake the... cross-cutting courses" (p. 62, Section 4.5, benchmark standard a). NCHE underscores the importance of the cross-cutting courses when it guides that, "each course... shall carry no less than two (2) credit units" (p. 63, Section 4.5, benchmark standard c).

During FGDs, participants from the NCHE emphasized that in the process of accrediting PhD programmes, NCHE checks to ensure that PhD programmes have cross-cutting courses that can foster cross-disciplinary linkages:

with regard to accreditation of the PhD programme what do we look for? We look at the rationale of the programme, yes why are you running this programme? What are the objectives, what are the learning outcomes? What are the goals? ...do we have cross cutting issues here that can refer to the current challenges. So, when we accredit these programmes, we look at what issues are you trying to address in the country, so, normally we have those checks in our accreditation process.

The FGD participants acknowledged the need to appropriately align doctoral programmes to national development goals through cross-disciplinary interactions. We found that NCHE was in the process of fostering linkages with the National Planning Authority and the private sector through signing memorandum of agreement (MoU):

... currently NCHE is having MoUs with National Planning Authority, the main planner of the country in terms of the requirements of our PhD graduates and other graduates. While we are having MoUs with the private sector which takes the majority of our graduates and we are in the process of developing the labour market information system. So, we need to have a balance between the supply and demand, and what kind of PhD programmes, and what kind of PhDs we need in the market, so, we are in high level gear in terms of discussion with relevant bodies.

Thus, at systems level, there is explicit commitment to ensure that PhD programmes are embedded in an open research environment and culture to ensure appropriate opportunities for cross-fertilization. Nonetheless, we note that the dimensions of cross-disciplinarity are not explicitly stated in the guidelines NCHE uses as criteria to approve doctoral programmes. Therefore, there are no clear indicators to guide programme evaluation in regard to cross-disciplinarity.

At the institutional level, from review of documents, we found that some institutions/universities expressed commitment to foster cross-disciplinarity in doctoral programmes. For example, in the Mbarara University of Science and Technology (MUST) Strategic Plan 2017/18-2019/20, MUST commits to fostering multidisciplinary collaborative research. In the second thematic area of Research and Innovations, MUST undertakes, “to enhance the quality and quantity of research and innovation output by supporting multidisciplinary collaborative research teams and research partnerships” (MUST, 2016, p. 11). Consequently, the Faculty of Interdisciplinary Studies in MUST offers interdisciplinary PhD. In the document for Academic Programmes (MUST, nd), MUST comments on the programme as follows:

The Doctor of Philosophy in Development Studies follows interdisciplinary approaches. Taking an interdisciplinary approach to research and training provides a unique opportunity that gives students the freedom to create their own individual graduate programme based on specific research interests. (p. 53)

The foregoing is quite an impressive statement to show the commitment and desire to promote interdisciplinarity. However, the Faculty of Interdisciplinary Studies fails to show how cross disciplinarity is embedded in the doctoral programmes. Therefore, mere commitment to taking an interdisciplinary approach to research and training based on individual research interests is not enough to prove this commitment.

Similarly, Makerere University Business School (MUBS) offers a taught PhD Programme in Energy Economics and Governance that fosters trans-disciplinarity (MUBS Department of Economics, Faculty of Economics [MUBS DoE FoE], 2017). MUBS DoE FoE (2017) reports as follows in this regard:

The PhD programme... provides training for those who intend to apply Economics to energy industry, teaching and scientific research.... Indeed, energy economics is increasingly applied in finance, insurance, environmental studies, climate changes and health sciences.... Energy economics is a powerful tool for interdisciplinary research....” (Section 1).

Equally, Makerere Institute of Social Research (MISR) offers the Interdisciplinary MPhil/PhD Programme in Social Studies. MISR asserts that the programme allows a student to be grounded theoretically while also giving them a broad foundation:

Four broad themes define the programme’s intellectual focus: Political Studies, Political Economy, Historical Studies, and Literary and Cultural Studies. Students specialize in one field, but take classes across all four. This allows a student to be grounded theoretically, while also giving them a broad foundation in historically informed debates in the humanities and social sciences. In addition, there is a set of core courses with a focus on theory and historiography, required of all students. (MISR, 2020 an advert in the *Daily Monitor* of May 25, 2020, p. 5).

The courses are taught by MISR faculty, faculty from other Makerere departments, and by prominent visiting scholars through the MISR Global Scholars Programme (MISR, 2020).

The PhD in Management and Administration by Coursework and Dissertation in Uganda Management Institute (UMI) gives students five Interdisciplinary Research Options. UMI points out that:

The first five modules are compulsory.... These give foundations of management and administration and research methodology. Thereafter, students can specialize in any of the five major concentrations...: Public Administration, Public Procurement, Business Administration, Institutional Management and Leadership, as well as Higher Education Management and Administration (UMI, 2012 an advert in *Daily Monitor* of Friday, November 30, 2012, p. 24).

In the same spirit, Makerere University (Mak) has instituted cross-cutting courses to embed doctoral programmes in an open research environment and culture to ensure appropriate opportunities for cross-fertilization. In the Curriculum for cross-cutting doctoral courses approved by Senate July 31, 2015, it is stated:

the Mujaju Report (1999) requiring the PhD qualification in order to be hired as a Lecturer at Makerere University, ... led to a number of initiatives.... Until then, academic units were offering PhD... programmes by research only. With regard to value addition and intellectual discourse, PhD... programmes by research alone were considered inadequate. Subsequently, a few faculties such as Faculty of Computing and Information Technology, School of Education, and the Faculty of Economics and Management developed PhD programmes by coursework and research. Feedback from the students showed... inadequacy in terms of... basic skills required for... research and publication. Areas identified included Research Methodology, Data Analysis, Information Management, Philosophy of Method and Scholarly Writing and Communication (Section 1.0).

In the same document, Makerere University points out the value of cross-cutting courses stating that, "the value of... these courses is manifested in having students from both the humanities and natural sciences attending the same course leading to useful cross-fertilisation and learning from one another" (Subsection 3.2).

However, cross-cutting courses at Makerere University are heavily dependent on funding from donors and development partners. In particular, the *Mak Annual Report 2018 (Mak, 2019)* gives Table 9 (p. 20) titled *Cross-Discipline Professional Skills Enhancement Training Courses* that shows that during the year under review, 60 PhD students had attended the "Information Competence and Management" cross-cutting doctoral training funded by the Makerere Sweden Bilateral Cooperation; 40 supervisors of postgraduate students had attended the "Postgraduate Supervision" training funded by the Stellenbosch University African Doctoral Academy; 90 PhD students had attended the "Philosophy of Method" cross-cutting doctoral training funded by the Makerere Sweden Bilateral Cooperation; 40 PhD students had attended the "Advanced Gender Research Methods" cross-cutting doctoral training funded by the Makerere Sweden Bilateral Cooperation; 92 PhD students had attended the "Advanced Research Methods" cross-cutting doctoral training funded by the Makerere Sweden Bilateral Cooperation; 40 PhD students had attended the "Writing for Publication" cross-cutting doctoral training funded jointly by the Stellenbosch University African Doctoral Academy and Makerere Sweden Bilateral Cooperation (p. 20, Section 3.1).

Interviews with stakeholders at the institutional level revealed that many institutions / universities were progressively embedding doctoral programmes in an open research environment and culture to ensure appropriate opportunities for cross-fertilization. Participants acknowledged the need to blend expertise and resources through interdisciplinarity and multidisciplinary as illustrated by these excerpts: “Yes, the doctoral programme has some courses of specialty offered by other departments, and other electives like Psychology picked from another department. We have them; we encourage them; we are not experts at everything”. In the same way, this participant explained that inter-disciplinarity is embedded in the programmes they offer:

Most of our programmes have a mix...social scientists, information technologists, medics.... We have a broad spectrum of students from different disciplines learning together. It is very hard to innovate within one discipline.... We need to talk more about how we can cooperate.

The strategies commonly used to embed doctoral education and training in open research environments for cross-fertilization were development of multidisciplinary research themes, cross-cutting courses, use of multi-disciplinary supervisors, guest lecturers, cross-disciplinary workshops and publishing in multi-disciplinary journals.

Cross-cutting courses were the commonest strategy used for cross-fertilization as expressed by this participant: “we have... common modules as I told you... we linked them to professors in education they are the people teaching pedagogy, we have also linked them to people in statistics and data analysis”. Some participants explained that they develop multidisciplinary research themes to ensure cross-fertilization. In this line a participant said, “we make the themes for students to select research topics from multidisciplinary... most of our research here touches other disciplines”. In addition, the use of multi-disciplinary supervisors featured prominently as a means to ensure cross-fertilization as noted by this participant: “80 percent of our PhD research have a component of multi-disciplinarity. You have a supervisor from one discipline, business and another one is social science”.

In instances where there were taught PhD programmes, participants reported using guest lecturers to enhance cross-fertilization: “We have been doing that, in particular, we would have students from... [mentioned three colleges/disciplines]. We would actually at times bring in some body from one of those units or two of the units to talk to the students....” Cross-disciplinary workshops were also being used to ensure cross-fertilization in doctoral programmes as explained by this participant: we engage our students in workshops. We send students to workshops where they share new ideas. We invite experts, in the lockdown we have had seminars, yesterday (September 02, 2020), there was one, even today.... Encouraging doctoral students to publish in interdisciplinary journals was another avenue used to ensure cross-fertilization in doctoral programmes.

However, cross-disciplinary PhD programmes have been praised and bashed at the same time due to a number of considerations. One participant expressed that:

Actually, I could say that multi-disciplinarity is one of our areas of strength, but some other people say it is an area of weakness.... much of our studies are actually inter disciplinary but examiners always criticize that certain studies are not anchored in a given discipline.

Thus, the traditional discipline-based academic culture militated against cross-fertilization in doctoral education and training. More to that, participants explained that cross-fertilization through trans-disciplinarity was difficult, and therefore not well institutionalised. A participant expressed that, “we don’t have internship we don’t have apprenticeship. But if somebody wants to do a study in collaboration with an industry there is nothing that prohibits it”. Other participants claimed that in so far as their

students are already employed, their doctoral programmes are already trans-disciplinary. For example, one participant in this regard said, “most students are... employed, so their experiences help to enrich the programme”.

We also got candid responses whereby participants said that trans-disciplinarity was hard to effect because of organizational secrecy, limited resources and weak linkages between the academia and the non-academia. One participant noted, “this trans-disciplinarity is a challenge because industries have secrecy but students want to publish their findings. Industries are economic oriented while students are academic and learning oriented”. Hence, trans-disciplinarity was left to the discretion of individual students as illustrated by this participant:

For PhD that [trans-disciplinarity] is generally lacking especially with the limited resources. The students should attain this only at a personal level. It is done by students depending on the experience they have, so we help them to link them to the industry. I also blame it on our country, there is minimum appreciation of the academia. Government is not linking up with academia to raise issues in the community. Limited attention is given by government and industry to the academics

To some participants, trans-disciplinarity was not applicable in the current economic setting where neither Government nor industries are ready to fund doctoral research:

At PhD, ... who is training you to linking to work and industry? You know this training is largely an undergraduate diploma question. You know that PhD is an animal which is very unique. Who enrolls for PhD...? is a certain kind of learner... but remember it is never government sponsored, you scheme yourself sponsorship...it is largely privately sponsored. Somebody comes to do a PhD with his goals, that is why it has not been an area where there is a conversation between the industry and our graduate of PhD... its really personal. So, industry I don't think it has been done because there is no logic, industry cannot sponsor them, this so-called industry link.... They do not pay money for research. These industries of Uganda... don't contribute any money in the research.

Some participants held the view that trans-disciplinary fertilization works better at lower levels of education than the PhD as illustrated by what this participant expressed: “It has worked largely for under-graduate. They [industry] want interns because internship gives free labour, that is what they want from them. They also want to hire them because at that level they are cheaper. But when you come to PhD training, train you for my industry to give me what?”

Overall, we found that institutions/universities in Uganda valued and committed to embedding doctoral education and training in an open research environment and culture through cross-disciplinarity to ensure cross-fertilization. However, trans-disciplinarity was not institutionalised due to concerns about resource limitation, cultural mismatch between academia and the industry and lack of trust. Doctoral programmes were therefore largely academic-discipline based and opportunities for cross-fertilization risked being missed.



## 6.4 Exposure to Industry

The fourth Principle of Innovative Doctoral Training stipulates that an innovative doctoral program should expose students to the relevant industry (European Commission [EC], 2011). EC uses the term “industry” in the widest sense to include all fields of future workplaces and public engagement, from industry to business, government, NGOs, charities and cultural institutions. According to EC, Exposure to Industry entails placements during research training; shared funding; involvement of non-academics from relevant industry in informing/delivering teaching and supervision; promoting financial contribution from the relevant industry to doctoral programmes; fostering networks of alumni/alumnae that can support the candidates (for example mentoring schemes) and the programme, and a wide array of people/technology/knowledge transfer activities. Deriving from EC definition, we operationalize Exposure to Industry as Industry placements during research, Co-funding with industry, Co-teaching with industry partners, Co-supervision with industry partners, Fostering Alumni/ Alumnae networks and Knowledge sharing with industry.

At systems level, we found that the Government of Uganda recognizes that there is poor Exposure to Industry in HEIs as reflected by a mismatch between university admissions and national skills gaps. In this regard for example, in the *National Development Plan III (GoU, 2020)*, Government of Uganda points out that, “challenges still exist [in Uganda’s education system] including... weak linkage of... universities with industry; ...mismatch between university admissions and national skills gaps; low staffing levels; limited incubation of research and STIs into goods and services” (p. 160, para. 316). We found that Government of Uganda is committed to enhancing Exposure to Industry in institutions in Uganda, when in *Uganda Vision 2040 (GoU, 2013)* it stipulated that, “The curricula and learning content will be progressively reviewed and developed in order to align what students are taught and what industry globally requires” (p. 58, para. 146).

However, Government of Uganda revealed its bias in enhancing Exposure to Industry in HEIs in favour of STEM disciplines as we see at several spots in *NDP III (GoU, 2020)*: “The plan has identified eighteen (18) programs... to deliver the required results [including the following one]... Innovation, Technology Development and Transfer Program [which] aims to increase development, adoption, transfer and commercialisation of technologies & innovations through the development of a well-coordinated STI ecosystem” (pp. xix-xx). In *Uganda Vision 2040*, Government of Uganda makes such commitments: “Government in partnership with the ICT industry actors and the academia, will use technology demonstrated hubs to build innovative services and processes” (p. 59, para. 149). “World leading universities in hi-tech shall be facilitated to establish a bridge between academia and industry” (p. 61, para. 157). Another commitment in the same line is to the effect that:

To enhance the academia-industry-government cooperation, Government will promote cooperation through joint projects and programs of mutual interest to R & D [research and development] centres, SMEs [small and medium enterprises] and large firms to spur innovation and entrepreneurship. Government ministries will be required to budget and implement STEI joint initiatives between their R & D departments, academia and industry. (p. 77, para. 215)

In the Proposed Strategic Plan for Higher Education 2003-2015, NCHE envisaged HEIs to devise ways to strengthen Exposure to Industry through public-private partnerships (PPPs) in research (NCHE, 2003). The seventh of the 10 strategic objectives is “establishing a functional research development program” (pp. 22-23, Section 9.7). In the Uganda Higher Education Qualifications Framework (UHEQF) (NCHE, 2016), NCHE calls HEIs to embrace Exposure to Industry when designing and/or reviewing their curricula. In particular, under Programme Requirements (pp. 19-27, Section



4.1), NCHE stipulates that, “all institutions shall consult all relevant internal and external stakeholders when designing and reviewing programmes” (p. 19, Section 4.1, programme requirement a). Even in the Quality Assurance Framework for Uganda Universities (NCHE, 2014b), NCHE demands for Exposure to Industry during doctoral education and training by guiding that for one to get a PhD from an institution in Uganda, one ought to have had “internship and/or requirement for practicals” among other requirements (Table 2.3).

However, in the FGD, participants from NCHE acknowledged the lack of exposure to industry in HEIs in Uganda. One of the participants had this to say:

In Uganda we have noted one thing in higher education, the higher education institutions tend to be disengaged from private sector... yet these are the areas we should be doing research around to make sure that you work closely with the private sector and industry. I am sure in one way or the other we would be attracting funding from some of these industries and private sector...because you are doing work/research which can be put in use to improve the operations of the industry and performance... so as you work on this project you should bear in mind that higher education should work towards developing, working, coordinating and liaising with industry so that they develop partnerships and collaborations to support research and innovation.-

Another participant revealed that NCHE is liaising with the government and private sector organisations by signing MoU to foster linkages:

Linking with industry, NCHE is at the final level of entering into an MoU with private and other government bodies, for instance, we have built MoU with National Planning Authority. They need to know how many PhD holders do you need for instance in medicine, how many PhDs do you need the next five years, so, we are in higher stages of writing MoU... so basically these are work in progress.

Another participant revealed that NCHE is liaising with the Ministry of Science, Technology and Innovation to foster business and technology incubation centres in HEIs:

We are currently working with the Ministry of Science, Technology and Innovation again in an MoU mode to foster, to promote, to actually develop business and technology incubators at institutional levels within universities. These are some of the interventions we are putting to guide our minimum requirements and to guide institutions as they move forward to link their disciplines with other interdisciplinary research as well as non-academia. It is also important and we have assigned these in our minimum requirements that our researchers have standards for publishing which will ensure these links to other disciplines.

At the institutional level, we found that almost all the institutions/universities made commitments to pursue various avenues to expose students to the relevant industry, at least in their documents, generically. However, the commitments have not come to fruition as we illustrate in the following segments:

**6.4.1 Industry placements during research training.** The most common response from the participants was that many doctoral students were already exposed to industry in so far as they are employed. One of them said: “PhD students are already employed so field placements are not our problem”. Thus, field placement during doctoral research training was not institutionalised at Ugandan universities, students mainly had personal, informal attachments by virtue of being employed in the relevant industry. In instances where students pursued doctoral studies out-side their field of employment, then there were no institutionalised mechanisms to link them to the relevant industry for research training placements, particularly in non-STEM disciplines.

**6.4.2 Co-funding with industry.** Participants revealed that doctoral students were largely self-financed. In a few instances, mainly in science-based disciplines, particularly the applied sciences, funding came through external scholarship schemes or programmes funded by donors and development partners. It was evident that industry in Uganda was detached from doctoral education and training. A typical response from the participants was, “there is no co-funding from the relevant industry”. A participant noted that they had not explored the possibilities of getting funding from industry; but also lamented that getting any funds from industry especially for non-STEM disciplines is extremely hard:

We have not yet explored it... and also may be as we discuss we also look at the unique context of the institution.... Maybe we shall learn from your study how people in social sciences are getting co-funders from the industry itself. It is quite different for the natural sciences.

Thus, links between industry and doctoral programmes was undefined; industry was largely detached, save for very few instances in STEM fields, co-funding of doctoral programmes with industry was not a common practice in Ugandan institutions/universities.

**6.4.3 Co-teaching and Co-supervision with industry partners.** Mechanisms to co-teach and co-supervise with partners from the relevant industry were not institutionalized. Personal, informal connections between individual supervisors were being used in very few instances to attach students to industry partners for supervision. Given that most PhD programmes were by research only, co-teaching and co-supervision was rarely practiced. Therefore, opportunities for cross-fertilization to enhance the relevance of doctorates in the world out-side academia risk being missed.

**6.4.5 Alumni/Alumnae networks.** Mechanisms for fostering networks of Alumni/Alumnae were not institutionalised. Some of the PhD programmes, particularly PhDs by course work and dissertation had been newly launched, the first cohorts had not yet completed the first cycle, thus Alumni/Alumnae networks were naturally non-existent. For example, one participant said “there are no PhD alumni networks since the cycle of five years has not been completed”. Most doctoral programmes offered were PhDs by research only which tends to be highly individual and lonely; networks of doctoral Alumni/Alumnae were non-existent.

**6.4.6 Knowledge sharing with industry.** By design, doctoral programmes offered in Ugandan universities were lacking in the aspect of knowledge sharing with the industry. The only prominent mechanism participants mentioned to foster knowledge sharing was organising seminars and workshops in which industry partners are occasionally invited as expressed by this participant:

We have had seminars... and during the seminars we have facilitators who come to talk about pertinent issues regarding research... and then we have those who have finished their doctorates especially young doctors coming in to share what is coming out of their researches...

Knowledge sharing with the relevant industry was more apparent in the STEM disciplines compared to non-STEM disciplines. Participants held the perception that knowledge sharing with the relevant industry was more natural and by default in the STEM disciplines, but very difficult to attain in the non-STEM disciplines. The expression made by this participant attests to this:

one of the principles would be having a PhD training which has linkage to non-academia as a way of solving societal problems, but we don't see it coming up. It is not going to come. It is a few in sciences, I know the sciences have taken a leaf, you know they are never with us because by design science is really a living thing, science has no choice... maybe they have also ended there accidentally. I don't think they aimed seriously to contribute, ... in agriculture whether you are a joker or not you must be doing some practical on the farm and before you know it, ... you have killed a germ.

Participants acknowledged the need to deliberately embed mechanisms to foster knowledge sharing with industry in the design of doctoral programmes as noted by this participant:

but you can see here it is haphazard... so, industry, forget about it if your design is not correct. But in developed countries this is the way to go because they design them correctly.... I attended one meeting in Korea in a place where I was doing some training, they sit with industry.... So, design, go back and design these things.

From review of documents at the institutional level, we found that some universities were progressively embedding exposure to industry in doctoral programme design. For example, the taught PhD Programme in Energy Economics and Governance in MUBS. In the programme document for the PhD programme in Energy Economics and Governance, it is clearly stated that:

The PhD programme... provides training for those who intend to apply Economics to [the] energy industry.... Indeed, energy economics is increasingly applied in finance, insurance, environmental studies, climate changes and health sciences.... Energy economics is a powerful tool for interdisciplinary research. (MUBS Department of Economics Faculty of Economics [MUBS DoE FoE], 2017, Section 1)

In order to offer doctoral programmes that are better linked to the relevant industry, only one institution- Makerere University Business School, had moved in the direction of broadening the scope of doctoral programmes offered to develop a professional doctorate in addition to the PhD programmes, namely the Doctor of Business Administration (DOBA) (Makerere University Business School [MUBS], 2010). In the programme document it is clearly stated that:

Doctor of Business Administration degree programme is intended to enhance the management of skills; knowledge and attitude by providing an avenue for applied research, which addresses the real-life business problems that these managers face in their day-to-day operations. The programme focus is on... students who are already business professionals.... The... DOBA... will focus on practical business problem solving through applied research (Introduction).

Therefore, generally, institutionalized mechanisms to link doctoral programmes to the relevant industry were not well developed in Ugandan universities, particularly in the non-STEM disciplines. In the STEM disciplines, mainly the applied fields, linkages to the relevant industry were largely by default, but not by design and institutionalization.

## 6.5 International Networking

The fifth Principle of Innovative Doctoral Training states that doctoral training should provide opportunities for international networking through collaborative research, co-tutelle, dual and joint degrees. Mobility should be encouraged, be it through conferences, short research visits and secondments or longer stays abroad (European Commission, 2011). Basing on EC definition, we operationalized International Networking using the following constructs: Internationalisation at Home; International Partnership Programmes/Collaboration; and Diversity Management. We present the findings under these constructs as sub-themes in the subsequent segments.

At systems level, both on review of the documents and in the FGD, we found that there is no deliberate attempt to entrench internationalisation in doctoral programmes in the available policies, strategic directions and reports in terms of its importance, demand and commitment. FGD participants from NCHE underscored only the need for ICT infrastructure for enhancing international networking:

International networking depends to a large extent on...enabling infrastructure and skills especially digital skills, to be able to access resources out there. It also depends on the same to support networks, research and education networks between scholars. We have today platforms that support not only band width affordability here but also the ... Uganda National Education and Research Network here...and it has its regional component that is the Ubuntu net which are fostering that connection.

The participants pointed out that NCHE has minimum standards in this regard, but, institutions/universities had the autonomy to identify the global networks relevant to them:

In our minimum standards we advocate for infrastructure and skills. The availability of resources... to ensure that we can have this international networking, but it is up to the institutions to identify the global networks... the regional like the Ubuntu network. But it is a progressive access from the national to regional to the global gateway of resources. We encourage subscription to some of the resources out there.

The participants noted that in coming up with international benchmarks, NCHE was trying to make it easier for HEIs in Uganda to achieve International Networking. From the foregoing, we therefore note that international networking is left to institutions to promote through establishing a strong ICT infrastructure.

**6.5.1 Internationalisation at home.** Operationally, we defined internalisation at home in terms of a given doctoral program giving doctoral candidates exposure to international literature, financing home international events, organizing short courses to give doctoral students international exposure, and (co-)financing doctoral students to attend international meetings that take place within Uganda. At systems level, from documents we scrutinized, we were not able to find any commitment or demand for internationalisation of the PhD programmes at home. Even during FGD the NCHE, the team did not have any substantive answer to that effect. Therefore, internationalisation at home seems to be neglected in attempting promoting international networking of doctoral students.

At the institutional level, we found strategies being used for internationalising PhD students without taking them abroad were: benchmarking and selective borrowing of good practices from other international providers, organizing international conferences and doctoral symposia within Uganda, and through visiting or guest lecturers. One of the participants said, “yes, we have benchmarked other curricula and doing everything here”. Other participants indicated holding local conferences and allowing PhD students to participate as one of the avenues for internalisation at home. For example, one participant said, “yes, we organize conferences locally and every conference has a doctoral symposium where the doctoral students present their work to an international audience”. Bringing international guest lecturers to talk to the PhD students was another avenue for internationalisation although less frequent due to challenges of funding. Participants expressed that they encourage doctoral students to interface with international literature and use international avenues to publish and disseminate their work, for example in international peer reviewed journals as illustrated in this representative excerpt:

Networking at PhD level is done by sharing literature, methodology through publications, we require a PhD student to publish at least two articles in reputable journals and even in other settings, so it is inevitable that sharing knowledge has to happen internationally.

In addition, doctoral students were subjected to external examinations by international experts. In this regard a participant reported that, “we also network in examinations. Our research is vetted externally by lecturers in other universities, and we also reciprocate”.

**6.5.2 International partnership programmes.** We operationalized international partnerships in a doctoral programme in terms of students and staff involvement in joint research projects; funding of academic trips (e.g., for conferences) for students and/or staff abroad; inviting visiting international scholars to facilitate on parts of the programme; sending students for long term placements abroad (e.g., of six months or more); enrolling and training full-time doctoral candidates from other countries; and organizing short courses for doctoral students from other countries.

At the institutional level, review of documents revealed that many of the PhD programmes offered in Ugandan universities are heavily dependent on international partnerships in regard to funding. The most prominent international partnership programmes were at Makerere University. Commitment to foster international partnership programmes at Makerere University is explicitly expressed in the strategic plan. The fourth and last goal in the strategic plan is to be, “An engaged university with enhanced partnership with industry, the community and international institutions” (Makerere University Strategic Plan 2020-2030 [Mak, 2020], pp. 9, 19).

Indeed, beyond such a commitment, we found that Makerere University has a large network of international partners (Makerere University Annual Report 2018 [Mak, 2019]). For example, it is reported that “At the international level a number of research collaborations have been initiated and MoU signed” (p. ii). The University acknowledges the support of development partners in advancing the frontiers of knowledge through support for research and innovations (p. ii). The same report acknowledges that Makerere University owes the outstanding research profile largely to external funding through partnership programmes:

External funding... continued to significantly contribute to the research profile of Makerere.... Several of these are multi-year projects from partners, notably, the sida Collaborative Research Program; Carnegie Corporation of New York's Nurturing Emerging Research Leaders through Post-doctoral Training (NERLP); Cambridge Africa Partnership for Research Excellence (CAPREx); Consortium of Advanced Research Training in Africa (CARTA); Africa Regional International Staff/Student Exchange (ARISE); DAAD; NORAD/NORHED Program; and the African Centres of Excellence supported by a World Bank facility to Government of Uganda (p. 24, Section 3.3).

Equally, Makerere university owes the implementation of cross-cutting doctoral courses to funding through international partnership programmes. In the Curriculum for Cross-cutting Doctoral Courses (Mak, 2015) it is stated:

Realising the need by PhD students to be grounded in the... [cross-cutting] areas identified, the School of Graduate Studies with support from development partners (... sida/SAREC of Sweden, the Carnegie Corporation of New York, Norad of Norway) ..., a number of courses were developed and offered as cross-cutting courses to PhD students (Section 1.0).

In this vein, in the Makerere University Annual Report 2018 (Mak, 2019), Table 9 (p. 20) titled *Cross-Discipline Professional Skills Enhancement Training Courses* shows that during the year under review, 60 PhD students had attended the "Information Competence and Management" cross-cutting doctoral training funded by the Makerere Sweden Bilateral Cooperation; 40 supervisors of postgraduate students had attended the "Postgraduate Supervision" training funded by the Stellenbosch University African Doctoral Academy; 90 PhD students had attended the "Philosophy of Method" cross-cutting doctoral training funded by the Makerere Sweden Bilateral Cooperation; 40 PhD students had attended the "Advanced Gender Research Methods" cross-cutting doctoral training funded by the Makerere Sweden Bilateral Cooperation; 92 PhD students had attended the "Advanced Research Methods" cross-cutting doctoral training funded by the Makerere Sweden Bilateral Cooperation; 40 PhD students had attended the "Writing for Publication" cross-cutting doctoral training funded jointly by the Stellenbosch University African Doctoral Academy and Makerere Sweden Bilateral Cooperation (p. 20, Section 3.1).

Doctoral programmes in other institutions/universities, both public and private, were equally relying heavily on international partnership programmes. For example, Makerere University Business School (MUBS) owes the start of the taught PhD Program in Energy Economics and Governance to funding through international networking. In the programme document it is stated that, "initially, the programme will be supported by NORAD Project with Makerere University Business School (2016-2021)" (MUBS Department of Economics Faculty of Economics [MUBS DoE FoE], 2017, Section 1).

Thus, we found that all aspects of international networking in doctoral programmes such as involvement in joint research projects; funding of academic trips (e.g., for conferences) for students and/or staff abroad; inviting visiting international scholars to facilitate on parts of the program; sending students for long term placements abroad (e.g., of six months or more); enrolling and training full-time doctoral candidates from other countries; and organizing short courses for doctoral students from other countries depended on funding arrangements under partnership programmes.



Where funding was available under partnership programmes, some institutions/universities offered joint/double/dual PhD degrees in partnership with international institutions:

we do offer joint PhDs with the Italian University.... So, we register them here and they are also registered there. Then professors come here to teach and we find it enriching because some professors come with their personnel like administrators and they work together with us.

However, offering dual or joint degrees was not a common practice at Ugandan institutional/universities. At the time of data collection, some institutions/universities were yet in the process of developing such programmes as expressed by this participant: "The idea of joint/dual PhD programmes is in the offing. We are in the process of developing a policy".

Equally, sending students for long term placements abroad, and enrolling and training full-time doctoral candidates from other countries was less common. Only few doctoral programmes had registered international students as the following interview excerpts suggest: One of the participants said "we recently had one doctoral student from Canada, who unfortunately did not complete his doctorate". Another participant stated that "we have international students, for example, I have supervised a *Muzungu* from the University of Columbia, and a Ugandan from the University of Michigan. Colleagues have had similar exposures. We have short courses for foreigners, summer courses, seminars". Another participant said the PhD programme they offer draws international students widely: "The programme has attracted international students from South Sudan, Kenya, Tanzania, Rwanda, Zimbabwe". Another one said, "We have three students from Zanzibar; and three applicants from Nigeria". However, there were no international students in many of the doctoral programmes.

In institutions/universities or units where international partnership programmes were not prominent, doctoral students were self-financed, and therefore, did not get opportunities for international exposure. International networking activities were not institutionalised, personal, informal initiatives were taken by students or their supervisors. This was evident in the responses we got during interviews with stakeholders at the institutional level. For example, one of the participants explained that it was not mandatory for doctoral students to present in international conferences but they only encourage them to do so:

In the hand book it is not mandatory for the students to have presented at conferences, once students have publications that's good. But here we have to ask them to do conference presentations, go to a conference present your work, you meet giants in your field at the conference and you network, or you meet people who are interested in your work, other academicians and you network. So, we encourage them.

Doctoral students were exposed to international networks mainly through personal connections cultivated by their teachers and/or supervisors as expressed by this participant: "School of... has staff with very huge network of partners. Students get embedded in there. For example, I have one with partners in San Diego State University, US; one of my supervisees has a doctoral committee with somebody from London". Similarly, one of the participants expressed that exposing doctoral students to international conferences is, "not general/broad. This is supervisor-specific. Where a supervisor has an international network, then a student gets exposed to international opportunities".

**6.5.3 Diversity management.** We defined diversity management operationally to mean nurturing of multi-culturalism in doctoral programmes. We considered mechanisms embedded in doctoral programmes to develop the students' knowledge and skills for interacting with different cultures, and institutional structures to support diversity.



At the institutional level, we found that institutions/universities expressed commitment to promote diversity management. For instance, some institutions had established internationalisation offices and others were in the process of planning to establish such offices. A participant had this to say: "For issues on diversity management, the University Coordinator's Department has an office specifically to handle multiculturalism. The Dean of Students was challenged to come up with an Internationalisation office that supports international students to settle down with ease". However, where internationalization offices had been established already, participants echoed that they were not giving the desired support to doctoral students as demonstrated by this participant who said, "much as...this university has an international office, it leaves a lot more to be desired. Issues of the International Office that cater for foreign students should be decentralized...."

We found that many doctoral programmes had no mechanisms for diversity management at all, as the following quotation exemplifies: "There is no mechanism for handling diversity or international students yet". As such, many international doctoral students did not have access to support services, suffered linguistic challenges and other problems. For example, one participant noted: "International students from Somalia, DRC are challenged because of the language problem". Therefore, institutional support structures were inadequate for management of diversity that comes mainly with the presence of international students.

Overall, the most prominent aspect of international networking embedded in doctoral programmes was international partnership programmes through which institutions/universities accessed funding for running doctoral programmes. However, such partnerships were more prominent in Makerere University, more so, in STEM disciplines. As such capacity for doctoral education and training was better developed at Makerere University STEM fields compared to other universities. Opportunities for international networking were very narrow or absent in many doctoral programmes offered in Ugandan universities. This may affect international competitiveness of doctorates produced in Ugandan universities/institutions.

Hence, FGD participants from NCHE underscored the need for ICT infrastructure for enhancing international networking:

International networking depends to a large extent on...enabling infrastructure and skills especially digital skills, to be able to access resources out there. It also depends on the same to support networks, research and education networks between scholars. We have today platforms that support not only band width affordability here but also the ... Uganda National Education and Research Network here...and it has its regional component that is the Ubuntu net which are fostering that connection

The participants pointed out that NCHE has minimum standards in this regard, but, institutions/universities had the autonomy to identify the global networks relevant to them:

In our minimum standards we advocate for infrastructure and skills. The availability of resources... to ensure that we can have this international networking, but it is up to the institutions to identify the global networks... the regional like the Ubuntu network. But it is a progressive access from the national to regional to the global gateway of resources. We encourage subscription to some of the resources out there.

The participants noted that in coming up with international benchmarks, NCHE was trying to make it easier for HEIs in Uganda to achieve international networking.

## 6.6 Transferrable Skills Training

The sixth Principle of Innovative Doctoral Training is Transferable Skills Training. The European Commission defines transferable skills as, “skills learnt in one context (for example research) that are useful in another (for example future employment whether that is in research, business....)” (European Commission [EC], 2011). According to the principle, transferable skills enable subject- and research-related skills to be applied and developed effectively. Transferable skills may be acquired through training or through work experience. It is essential to ensure that researchers have skills demanded by the knowledge-based economy. EC gives examples of such skills as communication, team work, entrepreneurship, project management, interpersonal relations and ethics. Based on EC definition, we operationalized transferrable skills as skills for self-management; and skills for relating with others. We defined transferrable or soft skills for self-management as those relating to self-awareness; effective time management; ethical behaviour; and entrepreneurship. We operationalized transferable skills for relating with others in terms of communication skills; stress management; emotional intelligence; empathy; interpersonal relations; conflict resolution; negotiation; lobbying and advocacy; team work; transformative leadership; project management; strategic planning; and resource mobilization. We present the findings in the following segments.

At the systems level, Government of Uganda recognizes the need for Transferrable Skills Training in Uganda’s education system and commits to enhancing Transferrable Skills Training in institutions in Uganda. In *Uganda Vision 2040 (GoU, 2013)* it is guaranteed that, “Uganda will... address the critical skills gap, technology deficiency, lack of creativity and innovativeness, low productivity and negative attitudes towards work” (p. 68, para. 183); “all government-supported tertiary education will be devoted to skills development” (p. 92, para. 261); and “the entire education system will be changed to emphasize practical skills, aptitude and moral values” (p. 92, para. 262).

The need for Transferable Skills Training is further articulated in the *National Development Plan III (2020-2025) (GoU, 2020)*. Government of Uganda acknowledges the critical skills gap and commits to enhancing transferable skills training in Uganda’s education system. It is stated that: “Uganda’s human capital is characterized by low labour productivity... attributed to (i) weak foundation for human capital; (ii) lack of appropriate skills and attitudes” (p. 157, para. 307); “Based on the review of the country’s performance during the past ten years of implementing NDPs, a number of lessons have been learnt including... re-focusing efforts on the production of appropriately skilled labour force” (p. xvii).

However, Government of Uganda guarantees enhancement of Transferrable Skills Training in institutions in Uganda with a bias in favour of STEM disciplines. For example, in *Uganda Vision 2040 (GoU, 2013)*, we read that, “ICT shall be mainstreamed in education to take advantage of ICT-enabled learning and to prepare future generations of ICT-savvy workers, and ensure their effective utilization” (p. 58, para. 146); “Partnerships with renowned training institutions in leading countries like Japan, Israel and Germany in the area of BT/VET will be established to enable the country acquire the relevant state-of-the-art skills for faster development and transformation” (p. 69, para. 188). In *NDP III (GoU, 2013)* it is stated that for successful implementation of NDPIII, key development strategies will be pursued to enhance skills and vocational development; and to promote science, technology, engineering and innovation as well as ICT (p. xviii).

The NCHE defines a doctoral degree in a way that reflects/demands transferrable skills training, particularly in the areas of ability to communicate, to use technologies and to lead others. In the *Uganda Higher Education Qualifications Framework (UHEQF) (NCHE, 2016)*, NCHE stipulates that:-

...a doctorate is conferred on students who are able to... (d) Communicate with peers, scholarly communities and society at large concerning the field of expertise; (e) Demonstrate ability to use technologies and make appropriate innovations; (f) Take leadership in the area of expertise in evaluating and making decisions in situations with limited information while considering social responsibilities and related ethics (Subsection 2.2.6 d-f).

In the *Uganda Higher Education Qualifications Framework (UHEQF) (NCHE, 2016)*, NCHE commits to guiding and supporting HEIs ensure Transferrable Skills Training. The eighth of the 11 objectives of the framework is, “to guide and support HEIs in curriculum development and review to ensure quality and labour market-driven programmes are offered to the public” (Subsection 1.5 viii).

Furthermore, in the *Benchmarks for Conducting Postgraduate Programmes* (NCHE, 2014a), NCHE demands for Transferrable Skills Training in doctoral education and training via cross-cutting courses. In the *Benchmarks*, NCHE proposes five cross-cutting doctoral courses, namely Philosophy of Knowledge (Epistemology); Research Methodology; Introduction to Institutional Pedagogy; Scholarly Writing and Publication Skills; and Computer Applications in Research (pp. 62-63, Section 4.5, benchmark a).

Commitment to foster transferable skills training at systems level is further evidenced by what participants articulated during the FGD. Participants expressed the need for transferable skills in order for doctoral programmes to be relevant to national development. One of the participants expressed a concern that: “there is the issue of having relevance to actual demand, issues for national development and solutions that touch community development...is it relevant to communities... is it going to be transferable...” This participant added that, “the best indicator [of transferability of skills] usually comes from industry and the ability to link our students and the industrial sector...even the demand for our programmes”. However, descriptors of the desirable transferable skills for doctoral education and training were not explicitly stated.

To emphasize the foregoing, FGD participants observed that transferrable skills training was generally lacking in doctoral education and training in Uganda, particularly in research training. In this line, a participant noted that:

this area is something that needs improvement... institutions have not conducted any reforms in teaching research methodology and strictly adhere to theoretical issues without aligning it to the dynamic society within which the researchers are working.... So, it is important to align all these issues we have mentioned here within research methodology teaching. It is important to foster transferable skills in terms of what happens in the full cycle from research to project, to a project that is scalable.

The participants called for the development of incubators to teach students on how they can transfer skills and grow their research into tangible products; and training in Intellectual Property (IP) rights as illustrated in this representative extract:

Incubators foster an incubation cycle and teach students on how they can transfer skills, grow their research into actual products. We are advocating as NCHE that our students are advised on Intellectual Property rights when they are into this incubation cycle, so, the pre, during and after incubation is known by the students and how they can foster growth from a research concept up to an actual product. That is actually transferable, but they need the skills as entrepreneurs on how to register a patent, and here, we encourage institutions to bring in services of like Registration Service Bureau which registers and is very conversant of this, they do the rounds in institutions for researchers to be able to know what is out there. They must have those entrepreneurial skills and project management and the interpersonal relations.

Participants called for enhancement of ICT skills as part of transferrable skills training in doctoral education and training:

... the issues of digital skills. In this day and age, if a researcher does not have digital skills, they cannot really conduct research, they cannot have access to regional networks, they cannot have their transferable skills because digital skills are now at the centre of accessing resources, managing data and networking with other researchers. These are the demands of the knowledge-based economy.

On the way forward, participants expressed the need for institutional evaluation to strengthen transferrable skills training:

We need to strengthen the transferable skills element... it is important for institutions to start this evaluation.... At the same time, we need... engagement of NCHE to recommend some of these attributes at individual levels of students and lecturers... well, in terms of communication and team work and entrepreneurship.

Thus, commitment to foster transferable skills training in Uganda's education system was evident. For doctoral education and training in particular, the need for evaluation and review of doctoral programmes and doctoral qualifications frameworks was strongly echoed at systems level.

At the institutional level, from review of documents, we found that a few institutions expressed commitment and aspiration to foster transferrable skills training at least in their plans, policies and programme documents. For example, the third objective of the Quality Assurance Policy of Makerere University is "To ensure that graduates attain valuable skills, knowledge and attitudes" (Makerere University Quality Assurance Policy (Mak, 2007a) p. 10). Further, in the Curriculum for Cross-cutting Doctoral Courses (Mak, 2015), Mak commits to Transferrable Skills Training in doctoral educational training via cross-cutting courses. It is stated, "Feedback from the students showed... inadequacy in terms of... basic skills required for... research and publication. Areas identified included Research Methodology, Data Analysis, Information Management, Philosophy of Method and Scholarly Writing and Communication" (p. 1).

Interviews with stakeholders equally showed the inadequacy in Transferable Skills Training in doctoral programmes at Ugandan Universities. Of all aspects of transferable skills, most of the participants acknowledged embedding only skills of time management and ethics in doctoral education and training. With regard to time management, one participant noted that:

Time management, that one is conducted under meetings. We normally have workshops with our students... that is how they are taught to programme themselves to say this is when one needs to be in the field, this when I need to graduate.

With regard to ethics, a participant expressed that, "we have a paper called ethical issues, it cuts across all PhDs, its core, it is meant for soft skills like life skills and functional skills are emphasized". This meant that they were using that paper to instil transferrable or soft skills in their doctoral students.

Only a few of the skills for relating with others featured in the responses from the participants. Participants claimed that such skills were embedded in doctoral programmes mainly by default and not by design. A participant noted that, "communication skills is embedded in the programme curriculum as scholarly writing as demanded by NCHE, interpersonal relations skills are informally learnt but not designed as part of the curriculum". In regard to communication skills, another participant explained that:

The university tests communication ability right from the synopsis, defending the proposal to the panel, if one does not pass you do it again, the aim is to see one can talk to the proposal. When they go to the field, they have to present the findings before writing for examinations. Then after that they have to defend. We have seminars where the students are supposed to present to the general university.

In other instances, cross-cutting courses were seen as avenues for imparting transferable skills as expressed by this participant:

For us there is course unit called Pedagogy which is one of the cross-cutting courses. The way we implement it here is, we require PhD students to take some courses at a given time under a supervisor. Eighty percent of PhDs teach so, we take them through pedagogy, teaching ethical code of conduct, methodology of teaching. So, we train them to become teachers. At that level they gain other skills like ICT, SPSS. By the time they graduate they can run an assessment, manipulate the data to get findings. The resource persons inculcate that kind of understanding and how you present yourself. Soft skills are offered. -

In some few instances, some participants held the view that their PhD programme stressed team work and critical thinking as transferrable or soft skills:

we promote skills like team work. More so... most of the assignments are teamwork assignments.... Actually here... we never teach them just as you can say teaching, we give them what to read they go out read these articles or these chapters in certain books they come and make presentation and then we make our contributions as facilitators... we promote individuals' critical thinking, we promote joint critical thinking, joint decision making in as far as that is concerned. And then when it comes to examination... we do not just examine theory we examine certain practices so we find that most of our examination are case... studies.

Other participants intimated that although some effort is made, many students do not benefit because of being part-time students: "currently...we are doing it across the board. The Dean is promoting this by inviting key speakers... but most of the doctoral students miss out because they are not regular attendants". Another participant reported that:

I am seeing those transferable skills actually picking up in some. I can't say in every body.... But there are some who pick very easily and they are able to roll very easily and also, they are able to translate what they are picking in their research into their teaching into their working with colleagues, you can see that growth is taking place. They are managing their projects very well; their research you know they are able to deliver on the timeline. I can see some who have been able to defend from synopses, now proposals. I have seen them present their findings and you can see that learning is taking place and you can see that they are not quite offended when they get comments, they take them in good faith.... I am observing that within their thinking capacity, their ability to do analysis to make sense of their findings and also to incorporate new knowledge.

Some participants were candid to acknowledge that transferrable skills training had proved a challenge to them. For example, this participant said: "this is a major weakness in our programme. But we try to teach ethics, professionalism... that are mandatory to have as a student under the College...." Another participant noted that transferable skills training is still a challenge at PhD level:

At PhD many of these soft skills are still a challenge. We need to train and mentor students to think beyond the PhD journey. What are they able to do after the PhD? We need to look at personal growth plans for the student.

Other participants observed that transferrable skills would have been better taught through cross-cutting courses: "These skills should have been acquired on this programme through cross-cutting courses, but no, there is no mechanism to enforce them". Some participants pointed out that it was very hard to measure the effectiveness of transferrable skills training. One participant noted that, "I am not sure whether that is measurable". Another participant said that, "We don't have any assessment tool so far for soft skills". One participant pointed out that transferrable skills training was contingent on the supervisor, saying: "Some do it. But it depends on you and the supervisor. Some have the stress management mentored by the supervisor so it depends on the supervisors' skills to cultivate all the skills which the mentee needs". Related to this, one participant suggested that PhD mentors as opposed to PhD supervisors were better at transferrable skills training:

We have supervisors and not mentors for our PhD students. The latter look at such things as transferrable skills training too ... The mentors develop other skills other than academic ones in their students. We need to encourage seminars which bring out other skills.

One participant was of the view that the taught PhD was better at instilling transferrable skills than the PhD by research only:

The only way you can influence the soft skills is by course work.... Right now, we are not doing a good job, we are not passing on good skills... modelling not good, data analysis is not good, at least one should be able to run a simple regression and describe it. The slides are not good representations. We are looking for the time when we shall launch our curriculum by course work and we silently stop that by research.

In summary, there were no institutionalized mechanisms to embed transferable skills training in doctoral education and training. Therefore, haphazard attempts were made at integrating transferable skills training into doctoral programmes. There was no assessment tool for measuring transferable skills in doctoral assessments and examinations and in evaluation of doctoral programmes.

## 6.7 Quality Assurance

The seventh Principle of Innovative Doctoral Training states that accountability procedures must be established on the research base of doctoral education and for that reason; they should be developed separately from the quality assurance in the first and second cycle. The goal of quality assurance in doctoral education should be to enhance the quality of the research environment as well as promoting transparent and accountable procedures for topics such as admission, supervision, awarding the doctorate degree and career development. It is important to stress that this is not about the quality assurance of the PhD itself, rather the process or life cycle, from recruitment to graduation (EC, 2011). Operationally, we defined Quality Assurance (QA) in doctoral programmes in terms of QA of the inputs: the programme and its curriculum, academic staff, financing; QA of the processes: selection, admissions, doctoral pedagogy, assessment and examinations, supervision, mentorship; QA of outputs: the doctorate/graduates and their research outputs; Feedback: evaluation and continuous improvement in doctoral programmes.

At the systems level, we found that the Government of Uganda acknowledges the poor quality of education in the country, and hence, the need for QA measures at all levels of education. In the National Development Plan III (NDPIII) (Government of Uganda, 2020), it is explicitly stated that, "there are a number of outstanding challenges... the quality of education remains low" (pp. xvi-xvii); and that, "challenges still exist [in Uganda's education system] including... weak quality assurance systems" (p. 160, para. 316). Long before NDPIII, the Education Policy Review Commission (EPRC, 1989) had underscored the importance of Quality Assurance in Uganda's education system. The EPRC observed that:

the basis for the maintenance of high academic standards in institutions of higher learning, very largely, depends on the provision of adequate physical, manpower and financial resources. In addition, there must be improvements in the institutional management patterns; the redesigning and restructuring of courses and programmes of studies; carefully co-ordinated staff-development strategies and adoption of... modern educational technology (p. 82, Subsection 6.7.2).



Hence, in its Recommendation 99 (R.99), EPRC (1989) suggested that, “the proposed National Council for Higher Education should produce guidelines for the improvement of academic standards and quality of education in higher education institutions (p. 83, R.99).

The EPRC suggested the following functions of the NCHE relating to QA among others: (b) Planning and evaluation of programmes pursued in the institutions of tertiary education; (f) Validating various academic and professional courses and associated qualifications; (g) Ascertaining the credibility of institutions awarding different kinds of certificates; and (j) Ensuring uniform standards of education in tertiary institutions of equivalent level (EPRC (1989, p. 74-75, Subsection 6.3.4). Thus, we found that in the Proposed Strategic Plan for HE 2003-2015 (NCHE, 2003), NCHE made commitments to enhance the quality of graduates from Uganda’s HEIs by making academic programmes more relevant. The sixth of the 10 strategic objectives in the plan is “quality assurance to produce graduates who... ably operate in the local economy and ably work in the global market” (pp. 21-22, Section 9.6).

**6.7.1 Quality assurance of inputs into doctoral programmes.** From review of documents, we found that NCHE commits to guiding and supporting HEIs to ensure the quality of their programmes. The eighth of the 11 objectives in the Uganda Higher Education Qualifications Framework (UHEQF) (NCHE, 2016) is, to guide and support HEIs in curriculum development and review to ensure quality programmes are offered to the public (p. 2, Subsection 1.5 viii). NCHE demands that, “Every programme shall be submitted to NCHE for accreditation before the institution launches it” (NCHE, 2016, p. 20, Section 4.1, programme requirement i); and that, “Every institution shall undertake self-assessment and peer assessment of the programme at least once before expiry of the period” (NCHE, 2016, p. 20, Section 4.1, programme requirement j).

In the same UHEQF (NCHE, 2016), NCHE sets minimum standards for admission to each of the four pathways to the PhD as follows: For the PhDs by research only; by coursework and research; and via the integrated MPhil/PhD route, NCHE sets a minimum of a Master’s or its equivalent recognised by NCHE (NCHE, 2016, p. 27, Subsections 4.3.6a, b, c). For the PhD by publications, NCHE sets a minimum bachelor’s degree or equivalent; and having at least four peer-reviewed journal articles, book chapters or ranked peer-reviewed conference papers (NCHE, 2016, p. 27, Subsection 4.3.6d). NCHE sets minimum standards for the PhD in terms of course load/number of credit units (540 – see NCHE, 2016, pp. 21-22, Table 4.1).

From FGD with participants from the NCHE, we found that PhD programmes offered at Ugandan universities go through accreditation process to ensure compliance with the benchmarks and minimum standards set by NCHE:

with regard to the issues of quality assurance...this is what we do, the process starts all the way from accreditation. First of all, the accreditation of the institution itself and even the accreditation of the programmes, so, when we are looking at the accreditation of these programmes, we are looking at the content. What are you delivering? How is the process of delivery? We make visits, we make inspections to these institutions... and now we go beyond... looking at the inputs, processes and outputs more than we used to do... I would like to tell you that we have MoUs with the private sector, with the public, the industry they tell us the kind of products we are giving out. And this helps to inform when we are accrediting this programme. So, how can we identify, basically by looking at the content of programme that we are accrediting, how is it delivered?

The participants asserted that NCHE can recall a doctoral programme if it falls short of benchmarks even after accreditation as illustrated by what this participant affirmed:

In the event that the programme has been implemented and the process has been filled, through monitoring exercise there is possibility that even the PhDs can be re called. Remember the case of... sometime back, the Council does not just stop at the point of just giving, I mean, accrediting the programme, we monitor and if it does not fulfil the requirements, it is not cleared at all and it will not take off.

Another participant further asserted:

Yes, we don't just bark we can bite as regulators although as we always say, regulators are there to facilitate, not to police institutions, but where it requires, doctoral programs have been stopped and institutions have incurred the public... public appearances which are negative to their doctoral programs. So, these recommendations are not only on paper, it is not only in advocacy but it is actually practiced as we do our monitoring...

It is therefore evident that commitment to ensure QA of inputs into doctoral programmes at the systems level was not just barely at advocacy level. NCHE had put in benchmarks and minimum standards and practically accredited institutions and their programmes. In instances where institutions do not comply, PhDs have been recalled or programmes have been halted.

At the institutional level, from review of documents, we found that institutions expressed commitment to ensure QA in the programmes they offer. For example, in the Quality Assurance Policy (Mak, 2007a), Makerere University (Mak) commits to Quality Assurance practices some of which are of direct relevance to doctoral education and training. The first, second, fourth through tenth objectives of the policy are (Mak, 2007a, pp. 9-10):

(a) To provide guidance in development and implementation of internal and external quality assurance procedures; (b) To ensure that the quality of academic programmes at Mak meet the stakeholders' needs and expectations....; (d) To ensure that the University's policies, systems and processes are functioning efficiently and effectively....; (f) To guide in maintaining and developing quality academic programmes....; (g) To facilitate the development of a culture of continuous quality improvement; (h) To strengthen the independence of the Quality Assurance Unit; (i) To ensure that various quality assurance aspects/activities are consistent with international standards; (j) To ensure effective and efficient performance of staff and students

We found that most institutions had thorough written guidelines on QA in doctoral education and training. For example, we found that each institution has standards to ensure that it admits good PhD students. The majority of the institutions set a Master's degree as a standard. For example, in the Gulu University (GU) *Institute of Research and Graduate Studies Handbook (GU IRGS, nd)* we found that for admission to a PhD, any "applicant must have at least a Master's degree from a recognized university/institute. The Master's degree should be relevant to the field of study the applicant intends

to pursue for the PhD degree” (p. 9). Many institutions also require a concept paper when one is applying for doctoral study. For example, in the same *GU IRGS (nd)* we found that, “The application form should be submitted with... a concept paper. No application will be considered without a concept paper” (p. 9). Some institutions go beyond the concept paper, and require a full proposal as one is applying for doctoral study. For example, in the Islamic University in Uganda (IUIU)’s *PhD Programme in Education (IUIU, 2019)*, the minimum requirements for admission are:

A Master’s degree in Education or any other relevant qualification with a minimum of second-class lower division from any accredited institution. Other requirements include; submission of research proposal, two letters of credible academic referees and the candidate should show ability to undertake academic research by presenting [a] written full thesis/dissertation or research paper or part of it (IUIU, 2019 an advert in the *New Vision* of Monday, January 14, 2019, p. 23)

We noted from that quote that not only did IUIU demand a proposal but also that the candidate should show ability to undertake academic research. Through interviews we learnt that this meant a thorough background check via an oral interview. We found that many institutions/universities had strict admission requirements including oral interviews as noted by this participant:

We are strict on admission; a student must satisfy university entry requirements. Then, we check his/her mental ability which should equally be good. We also check the student’s ability to cope with the stress that comes with the PhD work. We have oral interviews where we create hypothetical scenarios to find out how a student can handle programmes that are intense and time inflexible. We give assignments that practically assess the students’ ability to pay fees, tasks done on time, elements of hard work. Personally, I may also meet their spouses because there is need for support from home to this PhD student.

Beyond the strict admission process, some participants highlighted the need for support and mentorship to assist doctoral students to write their synopses that are needed before admission. One noted that, “There is bureaucracy in the structure of graduate training approval processes. A concept is needed yet students are not conversant with writing one. There is need for mentorship”. Another participant elaborated that:

by mere fact that they applied [via a concept] they are interested... instead of just say writing back to the director [graduate studies] saying the following... have not passed and they lack this and that..., we developed a mechanism of calling them and then addressing the areas of their weakness... We created what we nicknamed nursery classes... as a way of quality management. We said ok when they come let us let us take them through: (a) What is this PhD thing you are looking for? This is what a PhD means. (b) What is the basic competences desired for a PhD learner? Now you are enrolling as a learner you need to know how to read, how to perfect your writing, you need some basic skills...they will be taken through that...

However, giving students such support services at the time of admission was not widely practiced. This therefore raises questions about the quality of support services and mentorship schemes for doctoral students at Ugandan institutions/universities.

Some institutions gave pre-entry examinations before one is admitted to their PhDs. For example, from the *Nkumba Guidelines for PhD Programme July 2013 (Nkumba University [NU], 2013)*, we found that their application and admission procedure include the need to pass an aptitude test, and writing and presenting a concept paper/synopsis (pp. 5-8, Section 4.0). For UMI's *PhD in Management and Administration (Coursework and Dissertation) Programme (UMI, 2012)*, we found that beyond a Master's degree, "the admission will also involve a pre-entry examination through a written Graduate Admission Test for ALL applicants for the PhD programme" (UMI, 2012 an advert in *Daily Monitor* of Friday, November 30, 2012, p. 24). In the *Proposal for PhD Programme in Social Studies (KIU, 2009)*, KIU points out that students will take and pass comprehensive examinations in their major fields of specialization before each student will be recommended as a candidate for the doctorate (Subsection 5.1)

In addition to a master's degree, a concept paper and passing either oral or comprehensive examinations as pre-conditions for admission, some institutions demand that an applicant to the doctorate shows the profile of the proposed supervisor and proof of his/her willingness to supervise. For example, in its *Academic Programmes (MUST, nd.)*, Mbarara University of Science and technology sets standards for admission to a PhD as; "A good Master's degree from a recognized university; a concept paper; profile of proposed supervisor indicating his/her willingness to supervise" (p. 5, Subsection 2 c ii).

While most institutions demand for a Master's degree for admission to a PhD, the Makerere Institute of Social Research (MISR) sets the minimum standard for admission to its *Interdisciplinary MPhil/PhD Programme in Social Studies (MISR, 2020)* to be a bachelor's degree; but allowing even PhDs to apply so long as they are ready to go all the way through the program. In particular, it is stated that:

the MISR interdisciplinary MPhil/PhD programme is open to applicants who have earned a BA Upper Second or equivalent.... Applicants who have a Masters or PhD are welcome to apply; however, all students must complete the entire programme, including two years of coursework, regardless of prior academic qualifications (MISR, 2020 an advert in the *Daily Monitor* of May 25, 2020, p. 5).

**6.7.2 Quality Assurance of Processes.** In the *Benchmarks for Conducting Postgraduate Studies (NCHE, 2014a)* and in this case *Conducting Doctoral Studies (Chapter Four)*, NCHE sets minimum standards for the taught PhD in terms of course load/number of credit units. In particular, NCHE guides that, "each candidate shall complete at least 30 credit units of coursework" (p. 59, Subsection 4.3.3, benchmark standard d); and, "research shall take a minimum of 60 credit units" (p. 59, Subsection 4.3.3, benchmark standard e). Thus, NCHE gives a total of  $30 + 60 = 90$  CUs for the taught PhD, which is too low in comparison to the 540 CUs that NCHE gives in the *UHEQF (NCHE, 2016)*. This indicates contradictions and points to the need for harmonization the benchmarks for conducting postgraduate studies and the standards set in the UHEQF in terms of the standard credit units one ought to complete to qualify for the award of a doctorate.

In the same *Benchmarks (NCHE, 2014a)*, NCHE sets minimum standards for the design and

hence review of PhD programmes. Therein, NCHE stipulates that:

every PhD programme document shall clearly indicate the following elements: Programme name and corresponding award; programme rationale; programme description; programme goals, objectives and learning outcomes; admission requirements; programme regulations; available and proposed human resource including their qualifications, names of awarding institutions and years of award; infrastructure facilities demarcated for the doctoral studies; library and information resources for doctoral students; minimum graduation requirements; [and] crosscutting course units (NCHE, 2014a, p. 61, Section 4.4, benchmark standard I).

Therefore, despite the contradictions in regard to the number of credit units, NCHE has set adequate written guidelines on QA processes.

At the institutional level, we found that institutions/universities have set standards on the duration of the study for PhDs which are generally flexible. For example, in the *Guidelines for PhD Programme July 2013 (Nkumba University [NU], 2013)*, Nkumba University (NU) stipulates that a PhD, "takes a minimum duration of 3 years and a maximum of 6 years (p. 4, Section 3.2). In its *PhD in Business Administration (UMU, 2019)*, Uganda Martyrs University (UMU) set a flexible duration for the programme for full time study; and part-time study respectively. "The normal duration of the programme shall take three (3) years for full time and four (4) years for part time" (UMU, 2019 an advert in the *New Vision* of Monday, November 18, 2019, p. 43). We note therefore that, the flexibility in the duration for the PhD in the different institutions indicates that NCHE has given universities/institutions some degree of institutional autonomy to run doctoral programmes.

Most institutions have thorough written guidelines for guiding processes in doctoral education and training. For example, in the *Guidelines for PhD Programme July 2013 (Nkumba University [NU], 2013)*, Nkumba university (NU) gives detailed guidelines on "PhD Training in Research" (NU, 2013, pp. 8-9, Section 5.0); and the "Research Process." dealing with the "Proposal Development Process;" "Preparation for Field Research;" "Field Research;" and "Report Writing" (pp. 10-11, Section 6.0). NU gives guidance on the Doctoral Supervision Process, outlining "Supervision Obligations;" and "The PhD Vetting Committee" (pp. 12-14, Section 7.0). NU gives guidance on the "PhD Proposal Format" (pp. 15-21, Section 8.0); the "Format of the PhD Thesis," detailing the "Thesis Format;" and "Contents of the Thesis" (pp. 22-30, Section 9.0). Other institutions equally had such through guidelines.

Regarding the structuring of doctoral programmes, the common trend among institutions was a preference for a taught PhD. The taught PhD was seen as a better option for ensuring quality of the processes than the PhD by research only. For example, in the *Proposal for PhD Programme in Social Studies (KIU, 2009)*, KIU pointed out that for the taught PhD:

The student is compelled to attend at scheduled times and pass such courses as research ethics and scientific writing, advanced research methods, advanced methods of statistical analysis, and applications of computers in research. By this he/she is not allowed to proceed lazily. Neither the student nor the lecturer can alter the contact times and response times as is the case with the 'research only' paradigm" (KIU, 2009, Section 2.1)

However, most PhD programmes were still by research only, only few institutions were in the process of developing taught PhD programmes.

Concerning the process of doctoral supervision, NCHE set minimum standards for PhD supervision in the Benchmarks (NCHE, 2014a, Section 4.8). NCHE outlines the role of supervisors (Subsection 4.8.1); and supervision teams/doctoral committees (Subsection 4.8.2); sets standards on supervisory workload (Subsection 4.8.3). NCHE demands that admission to doctoral study should be contingent on the availability and willingness of competent supervisors, pointing out that, “under no circumstance shall an institution admit... doctoral students when there is no evidence of competent, willing and able prospective supervisors or lecturers to teach prescribed courses” (NCHE, 2014a, p. 67, Subsection 4.8.2, benchmark standard a).

NCHE calls for adequate autonomy for supervisors, stating that, “The supervisors shall be given sufficient autonomy to supervise and manage the candidate’s progress” (NCHE, 2014a, p. 67, Subsection 4.8.2, benchmark standard c). NCHE calls for regular supervisory meetings, when it directs that, “Every institution shall put in place a mechanism to enable all supervisors to meet regularly... and agree on the direction of study. The major supervisor [however] shall have the final say on any decisions regarding the candidate’s work” (NCHE, 2014a, p. 68, Subsection 4.8.2, benchmark standard k). NCHE sets minimum standards for supervisory loads, guiding that:

A supervisor shall be allocated no more than four doctoral students at any given time. Where the supervisor also has Master’s degree students, the following alternatives shall apply: (a) No more than three doctoral students and two Master’s degree students at any one time; (b) No more than two doctoral students and four Master’s degree students at any one time; (c) No more than one doctoral student and six Master’s degree students at any one time; (d) No more than 8 Master’s degree students at any one time (NCHE, 2014a, p. 69, Subsection 4.8.3, benchmark standard a-d).

Thus, when institutions follow these guideline and minimum standards, the quality of the doctoral supervision process would be assured. However, the extent to which such guidelines have translated into actual practice remains uncertain.

At the institutional level, from review of documents, we found that most institutions/universities have written guidelines to ensure the quality of doctoral supervision. For example, in the *Doctoral Supervision Guidelines 2016 (Mak DRGT, 2016)*, Makerere University (Mak) directs that:

Academic staff members who qualify to supervise doctoral students must have a doctoral degree of at least two years’ duration/standing, and may supervise up to 3 doctoral students in addition to not more than 5 master degree students at the same time (p. 6).

The *Mak guidelines* direct that, “Supervisors shall post their profiles and academic work/publications on the university website” (Mak DRGT, 2016, p. 13). Some of the institutions set the standard for one to qualify as a doctoral supervisor to go beyond a PhD of a standing of a given number of years, and demand that the prospective PhD supervisor should have published a given number of papers. For example, on the PhD in the Faculty of Computing and Informatics (FoCI), *MUST (nd.)* asserts in part that:



The main supervisor shall be a PhD holder in the same discipline with at least two years of research experience after the PhD and should have published at least three papers in either refereed journals or as a book chapter in a book with an ISBN published by a recognized publisher. (p. 53)

Thus, congruent to commitments and aspirations expressed at the systems level to assure quality in the process of doctoral education and training, institutions/universities made similar commitments and aspirations in written documents such as policies, guidelines and plans. However, from interviews with participants at the institutional level, we found that written aspirations and commitments had not translated into actual practice.

Challenges of staffing and staff motivation affected the quality of processes such as doctoral supervision. Participants described poor motivation of the academic staff as the most serious killer of quality in doctoral supervision as illustrated by this excerpt:

that is the worst thing which has killed the whole PhD training in Uganda.... a supervisor in this country... is playing a game of pretence...He goes on pretending to supervise, students pretend to be supervised. So, there is a pretence, yes you just look at the time the supervisor spends with a student, they go there to take instructions, read this read that... change grammar, change writing style, make sure the conceptualization is strong.... Now, yes why should a supervisor give you time? Let us leave these morality issues when the economy has gone capitalistic..., the supervisor must be paid money.... So, there is completely a joke, we are all living on prayers.... Can I tell you, less than 0.05 percent of academic staff supervise... check in your school how many of you are supervising PhD? ...

In regard to doctoral examinations and assessment, NCHE calls for good assessment pointing out that, "student assessment shall be carried out professionally at all times and the methods of assessment shall be clear, consistent, effective, reliable, in line with best/current practices, and supportive of the attainment of the learning outcomes" (NCHE, 2014a, p. 72, Section 4.12). In the Benchmarks (NCHE, 2014a), NCHE underscores the role of external examinations in quality assurance stating that:

external examination is an age-old quality assurance practice in higher education institutions.... intended to quality assure the standards of awards by a discipline expert... who is external to the institution. The external expert is to ensure that students are treated fairly in the assessment process and the awards given by a[n] institution have met the minimum national and professional standards" (p. 63, Section 4.6).



We found that institutions have written guidelines on the submission, assessment and defence of the PhD thesis/dissertation. For example, in the *Guidelines for PhD Programme July 2013 (Nkumba University [NU], 2013)*, Nkumba university (NU) gives detailed guidelines on, "Submission of Proposal and Thesis for Assessment." It deals with "Submission of Proposal;" "Assessment of the Proposal Framework;" and "Submission of Thesis" (pp. 31-36, Section 10.0). NU gives guidance on, "Final Submission and Graduation," specifically dealing with "Final Submission of Thesis;" and "Graduation" (pp. 37-38, Section 11.0). Other universities/institutions equally had such comprehensive guidelines in place.

It is almost a uniform practice for institutions/universities to demand for three-month notification before a candidate submits a thesis/dissertation. For example, in the *Guidelines for Writing Graduate Theses and Dissertations (Kyambogo University Faculty of Education [KyU FoE], 2016)*, KyU FoE demands that, "Notice of submission of thesis/dissertation to be given at least three (3) months in advance with consent of all supervisors, the Dean, Graduate School, Dean Faculty of Education and Head of Department" (KyU FoE, 2016, p. 30). As KyU FoE (2016) also suggests, it is also almost a uniform practice for a thesis/dissertation to be examined by one external and two internal examiners; and for oral defence to be organized for both the proposal and the thesis/dissertation. In addition, we found that it is almost a uniform practice for institutions to demand two articles in accredited journals as a standard before graduation. For example, in the Academic Programmes (MUST, nd), Mbarara University of Science and Technology (MUST) demands that, "Before graduation, each student under the guidance of his/her supervisor(s) is expected to publish at least two articles in accredited journals" (p. 53). The same scenario pertains in the other institutions.

From interviews with participants at the institutional level, we found that institutions considered Doctoral Committees as central in assuring quality of the examination process:

The Doctoral Committee does quality assurance by vetting and approving. Before the Doctoral Committee approves anything, it can't go anywhere. In examination we still follow the structure...Internal, external examination, followed by a viva with an opponent and panellists.

Despite being central in doctoral examinations and assessment, we found that doctoral committees rarely held meetings due to poor facilitation, and therefore were largely ineffective. Participants decried the non-effectiveness of doctoral committees. For example, one participant said, "Doctoral committees are not very effective due to poor facilitation. They only meet once in a while". Given that doctoral committees were ineffective, the participants noted that supervisors/mentors need to be systematic in the doing their work if they are to ensure quality. In this regard one of the participants said, "It is important therefore for the supervisors to go step by step. A supervisor should not expect the student to be completely self-driven. So, quality should be step by step". - We found a number of challenges were affecting the quality of both the internal and external doctoral examination process. Prominent among the challenges facing internal examinations was finding experts in fields of specialization. For external examinations, external examiners were not readily available. One participant observed, "sometimes we struggle to get people to look at things especially externally, for internal examiners non-speciality is a challenge, but challenges are worse at the external wing". But, some participants opined that external examiners were doing a better job at examination and assessment than internal examiners:

There is a huge difference between internal examiners and external examiners. External examiners are more on quality, while internal examiners are more focused on getting the student done. Internal examiners are on minor issues while external examiners are on major issues. External

examiners give the real quality and substantive comments that a PhD holder must be conversant with. Issues missed out by internal examiners are captured by external examiners. The quality of internal examiners should be improved.

Therefore, the quality of the doctoral examination process seemed to be compromised largely internally due to lack of expertise in areas of specialization. This brings to the fore the shortage of the critical mass of experienced doctorates with requisite knowledge and skills in the various fields of specialization in Uganda.

**6.7.3 Quality Assurance of Out-puts.** We operationalized quality assurance of the out-puts of a given doctoral programme in terms of quality of the graduates and their research outputs. At systems level, from review of documents, we found that the NCHE has set minimum standards for graduation for the PhD in terms of course load/number of credit hours (CHs) and internship. In the *Quality Assurance Framework for Uganda Universities (QAFUU) (NCHE, 2014b)*, NCHE directs that for one to get a PhD from an institution in Uganda, one ought to have spent a minimum of three years; having accumulated 240 credit hours of study; having had “internship and/or requirement for practicals, and a dissertation/thesis (second last column of Table 2.3). In the same framework, NCHE identifies nine criteria to be used as benchmarks for institutional audits some of which are of direct relevance to doctoral education and training. They are; the Quality of Teaching and Learning (Subsection 3.2.2); the Quality of Academic Staff (Subsection 3.2.3); Sufficiency of Educational Facilities (Subsection 3.2.4); Research and Publication (Subsection 3.2.5); and the Quality of Outputs (Subsection 3.2.6).

At the time of data collection, we found that, NCHE had not yet carried out comprehensive audits and tracer studies to determine the quality of outputs from doctoral programmes offered in Uganda. FGD participants from NCHE regretted that evaluations and tracer studies with respect to doctoral education and training in Uganda had not been done:

...for each programme...after a period of say three to five years, we run what we call tracer studies, we follow up on how the graduates are performing and so forth, and we use that feedback for improving the programme. Unfortunately, so far, we have not done for the PhDs.... Once we have funds and the possibility of doing a PhD tracer study, we should be able to have that feedback mechanism.... I believe it will work....

At the institutional level, participants reported that they gauged the quality of the graduates they produced in terms of publications in peer reviewed outlets and the rigour of the processes they go through as expressed by this participant:

Each of our PhD graduands has to have two publications in peer reviewed high level impact journals. He/she has to have relied on international literature. I rate the theses in my school at an average of 80 percent, and so do I to the resulting publications. Public defense presentations also add to the rigour of the PhD, where a student has to convince the public.

In a similar way, another participant said they used the yard stick of publications in international journals to determine the quality of the graduates and their out-puts:

I can rate the doctoral theses from our program as scoring between 70 and 90 percent with a median of 80 percent. I rate publications therefrom at 80 percent because we have limited local publication space. So, they go through the rigour of international journals.

In only one instance, PhD by publications and writing of policy briefs was seen as another yardstick for determining the quality of the graduates and their research out-puts. One of the participants prided in the fact that their PhD students do not only publish, but they also write theses by publication, and accompany them with policy briefs:

Each of our PhD students has to have at least two and a maximum of four publications in peer reviewed journals, journals that are indexed... They should go where they can be indexed. Our norm is PhD by publication. Our policy briefs... reinforce research findings [and] are part of evidence of the rigour.

Nevertheless, it was not a common practice for PhD graduates to write policy briefs, and there was no policy requiring doctoral candidates to write policy briefs as a prerequisite for graduation at both systems and institutional levels.

Another participant observed that Quality Assurance is a long process involving several stakeholders such as students and supervisors, and artefacts like concept notes and proposals. As such what is commonly done is ensuring that students theses/dissertations are of quality:

our processes through supervisors, doctoral committees are aimed at ensuring that this work is of quality...we also do peer to peer review. You get the students to speak to their colleagues... ideas, their concepts, about the gaps, about the conceptual framework and the gap they are trying to identify and fill... so that their colleagues speak into their work. And by you exposing the student to fellow colleagues, it is a check to make sure that the work is good. And then it will be presented to the doctoral committee. And each doctoral committee will have seven or so members who will think through and speak into the student's work.

Determining the quality of the graduates in terms of their suitability to the relevant industry was more fluid. There were no mechanisms or parameters in place. Generally, the PhD graduates were deemed to be more suitable for the academia as expressed by this participant: "I can rate 80 percent of our doctoral outputs as fit for the academia; and 20 percent as fit for both academic and professional endeavours. Zero percent are professional doctorates". This participant observed that the taught PhD was better at producing doctorates that were fit for both the academia and non-academia: "There is need to go to the drawing board to cross-pollinate the programme with the taught PhD. We need a hybrid because cross-cutting brings in seminar series that help students to be more grounded and hence to graduate faster".

**6.7.4 Feedback.** We operationalized feedback as the mechanisms in place for the assessment and evaluation of doctoral programmes for continuous improvement. In the Benchmarks for Conducting Postgraduate Studies, NCHE mandates that: "every institution intending to conduct PhD programmes shall put in place mechanisms for the periodic review of the assessment criteria and learning outcomes based on the feedback of all stakeholders including external examiners" (NCHE, 2014a, p. 65, Section 4.6, benchmark standard k).

At the institutional level, from interviews with the participants, we found that structured, institutionalized feedback mechanisms were not embedded in doctoral programmes. Most programmes had not done formal self-evaluation or assessments and therefore got feedback haphazardly. For example, one of the participants explained as follows: “The feedback within the unit, at graduation we write citations, we get feedback from the office of graduation... We have a committee in charge of seminars”. Another participant said that, “feedback forms are given to students for evaluation”. Yet, another participant revealed that students often ignored evaluation forms: “We do... But our students are timid. They ignore our suggestion box. We have not done any tracer studies yet but we do monkey surveys but have no response yet”.

It was therefore evident that both external and internal formal structured assessment and evaluation of doctoral programmes has not been done. One of the participants stated, “None. The students fear to challenge authority. No doctoral student forum”. Another participant stated that getting feedback is not mandatory and that they only get feedback from funders of projects: “Most of our feedback is from our project sponsors. Feedback issues are based on good will and are not mandatory”. On the whole, most PhD programs had neither undertaken self-assessments and evaluations nor tracer studies. A participant expressed that, “our PhD is still maiden. We have not made any review of it. Apparently, our students assume that whatever we are giving them is good”. Nevertheless, the participants generally acknowledged the need to do evaluation of PhD programmes: “We do tracer studies but for Masters. We need to add the PhD”. In the same line, another participant said, “on feedback, we have no forum for improvement. No, no one has carried out a tracer study to check the effectiveness of the programme”. Thus, there were no institutionalised mechanisms for evaluation and assessment of PhD programmes; tracer studies had not been done. This participant sums it up by saying, “tracer studies on PhDs? There are no guidelines, we do not do it.” Overall, the need to embed quality assurance mechanisms in doctoral programme design was overt as expressed by this participant who said “quality assurance is key... it is going to help only those who sow QA from the design level.... Quality assurance should be built in the system not as a stage”.

## 6.8 Summary of Findings

Having presented, analysed and interpreted the data, we now present summary of the findings on the state of doctoral education and training in Uganda in the subsequent segments.

### 1. Doctoral education and training capacity in both public and private universities/institutions in Uganda is low.

This is evidenced by the low completion and through put rates. Only about 1,197 PhDs have been awarded in Ugandan universities/institutions between 1970-2020. The total of PhDs awarded by public universities in Uganda between 1970-2020 is 1,025, of these, 923 (90.2%) were awarded by Makerere University (Table 5.17). Private universities awarded only 172 (9.8%) PhDs between 2001-2020 (Table 5.29). Therefore, only Makerere University has some capacity for doctoral education and training.

### 2. There is gender inequality against females in doctoral education and training in Uganda.

Doctoral education and training in Uganda is male dominated. Of the 1,025 PhDs awarded by public universities between 1970-2020, only 240 (23.4%) were female. Of the 172 PhDs awarded by private universities between 2001-2020, only 42 (24.4%) were females (Table 5.30).

### 3. Doctoral education and training in Uganda is biased in favour of STEM fields in public universities, but biased in favour of non-STEM fields in private universities.

In private universities of the 172 PhDs awarded between 2001-2020, only 19 (11%) were awarded

in STEM fields (Table 5.31). In public universities, 699 (68.1%) of the 1,025 PhDs awarded between 1970-2020 were in STEM fields, only 326 (31.9%) were in non-STEM fields (Table 5.19). This is an indicator of lack of capacity for science education in private universities/institutions in Uganda.

#### **4. There is misalignment between aspirations and commitments to attain research excellence expressed in written documents and the actual practice at the units offering doctoral education and training in Uganda.**

The NCHE has set minimum standards and benchmarks to ensure research excellence in doctoral programmes. However, the NCHE underscores institutional autonomy and expects institutions/universities offering doctoral education and training to come up with their preferred models of doctoral programmes depending on their capacity in terms of infrastructure, facilities and staffing. Thus, there were variations across institutions in terms of course loads, length of study and programme design. Majority of the PhD programmes offered were PhDs by research only. Given the mono-disciplinary focus of the traditional PhD, opportunities for nurturing research excellence by giving doctoral students exposure to study in more open research environments were missed. Some of the programmes were being offered without written curricula, or their curricula were not yet approved by NCHE. The curricula for some of the PhD programmes were too loaded as per NCHE guidelines, while some PhD programmes had less load as opposed to what NCHE guidelines demand.

#### **5. The quality of the postgraduate training environment in Ugandan universities/institutions is low.**

With the exception of some STEM-based units mainly at Makerere University, absence of an Attractive Institutional Environment for doctoral education and training was overt. This was reflected by the following:

- The available infrastructure in terms of space facilities like lecture rooms and offices was largely inadequate; where infrastructure was good and available, there was gross underutilization in terms of space and time utilization as the PhD programmes had not attracted enough students.
- Constrained doctoral supervision capacity. Commitments and standards set at the systems level to ensure appropriate staffing for doctoral programmes had not translated into actual practice. All universities/institutions offering doctoral education and training decried the acute shortage of doctoral supervisors and mentors. The shortage was either institution wide, or for some specific disciplines or fields of specialization. This can be attributed to the acute shortage of PhD holders in Uganda. The same supervisors are shared among the institutions/universities offering doctoral education and training. The critical mass of academic staff is concentrated in Makerere University, but there are fewer experienced academic staff in the top ranks. Given that all the other institutions/universities rely heavily on Makerere University to staff their PhD programmes, they equally lack the critical mass of academic staff at higher ranks to appropriately run the PhD programmes.
- Lack of government funding for doctoral education and training. Doctoral programmes rely entirely on inadequate, restrictive, undiversified and therefore, not sustainable funding from development partners and donors and student tuition fees. Only in few instances, some institutions sponsored staff for PhD studies under staff development programmes. Doctoral research focus tends to be directed by individual interests of students and that of the donors or development partners. This translates into low responsiveness to national, social and economic needs.
- Facilities for PWDs were not well developed or non-functional. Many institutions/universities offering doctoral education and training were not prepared to enrol PWDs on doctoral programmes. Some of the universities/institutions or units were non-compliant in regard to the benchmarks and minimum standards set by the NCHE to cater for PWDs.

## 6. Doctoral programmes offered in Ugandan universities/institutions are largely academic-discipline based.

Commitment to ensure that PhD programmes are embedded in open research environments and culture in order to appropriately align doctoral programmes to national development goals through cross-disciplinary interactions is explicit in written documents at both systems and institutional level. Most of the institutions/universities were progressively embedding doctoral programmes in an open research environment and culture to ensure appropriate opportunities for cross-fertilization. The strategies commonly used for cross-fertilization were development of multidisciplinary research themes, cross-cutting courses, use of multi-disciplinary supervisors, guest lecturers, cross-disciplinary workshops and publishing in multi-disciplinary journals. However, such practices were not widely spread and not institutionalized. The traditional discipline-based academic culture militated against cross-fertilization in doctoral education and training through cross-disciplinary research options.

## 7. 'Industry' in Uganda is detached from doctoral education and training.

Aspirations and commitments to ensure exposure to industry in all levels of HE in Uganda was explicit at the systems level. Government of Uganda recognizes the poor Exposure to Industry in HEIs as reflected by a mismatch between university admissions and national skills gaps. However, aspirations and commitments expressed at systems level have not translated into actual practice at the institutional level. All the institutions/universities offering doctoral education and training made commitments to pursue various avenues to expose students to the relevant industry, at least in the strategic plans and programme documents, generically. In actual practice, the commitments made have not come to fruition. Institutionalized mechanisms to link doctoral programmes to the relevant industry were not well developed, particularly in the non-STEM disciplines. In the STEM disciplines, mainly the applied fields, linkages to the relevant industry were largely by default, but not by design and institutionalization. Co-funding of doctoral programmes with industry was not a common practice in Ugandan institutions/universities; mechanisms to co-teach and co-supervise with partners from the relevant industry were not institutionalized. Personal, informal connections between individual supervisors were being used in very few instances to attach students to industry partners for supervision. Most doctoral programmes offered were PhDs by research only which tends to be highly individual and lonely, thus, networks of doctoral Alumni/Alumnae were non-existent. Equally, knowledge sharing with the relevant industry was not apparent, more so in the non-STEM fields; seminars and workshops in which industry partners are occasionally invited were the commonest avenues for knowledge sharing with the relevant industry. Therefore, opportunities for cross-fertilization to enhance the relevance of doctorates in the world out-side academia risk being missed.

## 8. International networks to foster productive interactions in doctoral programmes are low and predominantly North-South.

The most prominent aspect of international networking embedded in doctoral programmes in Uganda was North-South international partnership programmes through which institutions/universities accessed funding for running the programmes. However, such partnerships were more prominent in Makerere University, more so, in STEM fields.

- All aspects of international networking in doctoral programmes such as involvement in joint research projects; funding of academic trips for students and/or staff abroad; inviting visiting international scholars to facilitate on parts of the programme; sending students for placements abroad; enrolling and training full-time doctoral candidates from other countries; and organizing short courses for doctoral students from other countries all depended largely on funding arrangements under international partnership programmes.
- In universities/institutions or programmes where international partnership programmes were



not prominent, doctoral students were self-financed, and therefore, did not get opportunities for international exposure. International networking activities were not institutionalized, personal initiatives were taken by students or their supervisors. Doctoral students were exposed to international networks rarely, mainly through personal connections cultivated by their teachers and/or supervisors. The lack of international knowledge sharing limits full development of the knowledge creation capacity of doctoral students, sharing of good practices for doctoral programme development and further development of knowledge products.

- International students support services were inadequate in Ugandan universities/institutions. Only few doctoral programmes had enrolled international students. Few institutions/universities had functional internationalization offices; other universities were yet in the process of planning to establish such offices. Thus, mechanisms for diversity management were not embedded in doctoral programmes offered in Ugandan universities. As such, many international doctoral students did not have access to student support services, suffered linguistic and other problems.

## 8. Transferrable Skills Training is generally lacking in doctoral education and training

Government's commitment to foster transferable skills training in Uganda's education system is explicit and has been operationalized in the National Development Plan III (2020-2025). However, integration of transferrable skills training and discipline specific research training was a challenge in most doctoral programmes offered. Therefore, haphazard attempts were made at integrating transferable skills training into doctoral education and training curricula. Institutionalized mechanisms to develop, assess, examine and evaluate transferable skills were not noticeable in doctoral programmes offered in Ugandan universities/institutions. Focus was mainly on the development and assessment of discipline specific expertise.

## 9. There is insufficient Quality Assurance at the doctoral level of education

Government of Uganda acknowledges the weak QA systems and low quality of education in the country, and hence, the need for strong QA measures at all levels of education. The NCHE has set benchmarks and minimum standards for running doctoral programmes. However, the minimum standards for the taught PhD in terms of course load/number of credit units (CU) are contradictory. In the benchmarks, the number of credit units set is 90 (CUs) which is too low, while the UHEQF puts the credit units at 540 CUs. Nevertheless, NCHE practically accredits institutions and their programmes to ensure compliance with the benchmarks and minimum standards. Universities/institutions offering doctoral education and training equally express commitment to ensure QA in the doctoral programmes they offer at least in written documents such as policies, guidelines and plans. However, written aspirations and commitments to assure quality had not translated into actual practice. This is demonstrated by the following:

- Both external and internal formal structured programmatic evaluation and assessments had not been carried out. NCHE had not yet carried out comprehensive audits and tracer studies to determine the quality of outputs from doctoral programmes offered in Uganda.
- At the institutional level, structured, institutionalized feedback mechanisms were not embedded in doctoral programmes. Most doctoral programmes had neither undertaken self-assessments and evaluations nor tracer studies, and therefore got feedback haphazardly. Determining the quality of the graduates in terms of their suitability to the relevant industry was more elusive.



- The lack of institutionalized evaluative mechanisms and failure to audit doctoral programmes consistently translated into several challenges affecting the quality of doctoral education provision in Uganda. Challenges of staffing and staff motivation affected the quality of processes such as doctoral supervision and mentorship, doctoral examinations and assessment. Prominent among the challenges affecting the quality of both the internal and external doctoral examination process was finding experts in various fields of specialization. The quality of the doctoral examination process seemed to be compromised largely internally due to lack of expertise in areas of specialization. Despite being central in doctoral examinations and assessment, doctoral committees rarely held meetings due to poor facilitation, and therefore were largely ineffective. Thus, the quality of support services and mentorship schemes for doctoral students at Ugandan institutions/universities was low partly due to insufficient QA.

# CHAPTER SEVEN

## DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

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### 7.0 Introduction

We examined the extent to which national structures, policies and frameworks; and institutional structures, policies, processes and practices support innovative doctoral education and training at Ugandan universities. We used the seven Principles of Innovative Doctoral Training as the analytical lens. These are: Research excellence; Attractive institutional environment; Interdisciplinary research options; Exposure to industry; International Networking; Transferrable skills training and Quality assurance. In the first part of this chapter (Section 7.1), we discuss our findings under the Seven Principles of Innovative Doctoral Training as the major themes. This is followed by our conclusions (Section 7.2), we end the chapter (Section 7.3) with recommendations for innovating doctoral education and training in Uganda.

### 7.1 Discussions

For decades, the traditional role of doctoral education and training has been the provision of academics to teach and undertake research in the realm of the academia (Baptista, A., Frick, L., Holley, K., Remmik, M., Tesch, J. & Akerlind, G, 2015; Louw & Muller, 2014; Matas, 2012). The recent decades have witnessed increasing focus on the important role that the production of high-level knowledge and skills is perceived to play in the knowledge economy. As Castells notes, “without at least some level of a national research system composed of universities, the private sector and public research centres, no country can really participate in the global knowledge economy” (Castells, 2017a, p. 61). The doctorate is a key qualification that defines the quality of a country’s knowledge/research eco-system. Progressively, countries see doctoral education as a means of strengthening the innovative capacity of their economies and as a means of social innovation. For the education system in particular, doctoral education and training has gained importance as an indicator of efficiency and status. As Cassuto & Weisbuch (2021) note, the way doctorates are trained affects every other level of the education pyramid.

Hence, in the current age (21<sup>st</sup> century), doctoral education and training cannot be divorced from sustainable development, service to global citizenship and social responsibility (Samuel, 2016). The need for new innovative efforts to align doctoral education and training and the professional development needs of doctoral candidates cannot be overemphasized. So, how should doctoral education and training transform so it better supports the country’s needs? We offer our insights in the subsequent sections basing on our findings and pertinent literature in view of the Principles of Innovative Doctoral Training.

**7.1.1 Research Excellence.** Striving for excellence in research is fundamental to doctoral education and training, and from this, all other elements flow (EC, 2011). According to the EC, academic standards set via peer review procedures and research environments representing a critical mass are required to attain research excellence in doctoral education and training. The EC lays emphasis on the need for the new academic generation to be trained to become creative, critical and autonomous intellectual risk takers, pushing the boundaries of frontier research.

Attaining research excellence as the hallmark of doctoral education and training is driven by an interest to produce independent, autonomous learners who are able to contribute to the existing body of knowledge of a field or discipline. According to the UK Quality Assurance Agency (UK QAA) (2014), the doctoral report (product) should demonstrate an original contribution to research; it must have a tangible output that was supervised and capable of being examined. The academic standards for the doctoral programme and its curriculum, nurturing originality, creativity, autonomy and critical thinking in doctoral students and attaining a critical mass are key determinants of the likelihood of attaining research excellence in doctoral education and training. All these have implications for doctoral programme design.

We found that all institutional documents that defined a doctoral degree, had done so in a way that reflected or demanded research excellence in terms of rigour and relevance. However, there was misalignment between institutional aspirations to attain research excellence expressed in the documents and the actual practice at the units offering doctoral education and training in Uganda. Majority of the PhD programmes offered were PhDs by research only; some of the programmes were being offered without written curricula, or their curricula were not yet approved by NCHE. In some instances, personal, informal initiatives were being taken to either update or decide on what to offer in some of the PhD programmes. The curricula for some of the PhD programmes were too loaded as per NCHE guidelines, while some PhD programmes had less load as opposed to what NCHE guidelines demand (NCHE, 2014a). This scenario alludes to gaps in doctoral programme design in Ugandan universities/institutions.

We argue here that doctoral programme design is the hallmark for attaining research excellence in doctoral education and training. We found that the most common doctoral programmes offered were PhDs by research only. Yet, the conventional, traditional PhD by research only model has come under sever scrutiny and criticism due to its inherent features. Samuel (2016) describes the traditional PhD by research only model as “characterised by the selection of a focused slice of a discipline. The student embarks on such a study under the close supervision of a residential expert who is a leader in the field. The study progresses through the candidate reading largely within the specialist field and drawing from the master supervisor’s expertise ” (p.407). He goes on to note that this form of PhD is no longer the norm as increasingly more than one supervisor could be assigned to bring relevance to the chosen focus of the study. In some instances, as is the case with what we found in Ugandan institutions/universities, doctoral students are required to undertake cross-cutting courses to widen their knowledge base. However, the mono-disciplinary focus of the traditional PhD has come under criticism for limiting opportunities for cross-fertilization, and therefore lowering the relevance of the PhD outside specific disciplinary boundaries.

The fundamental philosophy that guided the conventional, traditional PhD sought to enshrine scholarship and excellence in the pursuit of knowledge for the sake of knowledge. The major aim was to prepare doctorates for careers within specific disciplines in the academia. Such a narrow philosophy has become entirely inappropriate in the dynamic 21<sup>st</sup> century competitive knowledge economy which demands transferable high-level knowledge and skills. In addition, careers for doctorates have become more fluid (Ortega & Kent, 2018; Denecke et al., 2017). We contend, in line with what scholars like Cross and Backhouse (2014) express, that doctoral education and training ought to

prepare candidates to be productive in research careers both within and beyond the academia. Enriching the curricula for PhD programmes by research only with cross-cutting courses is an essential but not a sufficient condition to attain excellence in research.

To bridge the inherent gaps in the conventional, traditional PhD by research only, wide diversification of types of doctoral education programmes have developed. Among these are: the taught PhD or PhD by research and course work, the PhD by publication, the integrated PhD, and a wide array of Professional and Practice-based doctorates (Louw & Muller, 2014, Samuel, 2016). The taught PhD or PhD by course work and dissertation has been shown to provide for the inadequacies of the conventional traditional PhD by research in nurturing research excellence (Phillips & Pugh, 2010). For instance, in regard to the weaknesses of the traditional PhD, Hughes (2019, p.395) observes that “embedding clearly defined research development and planning is not straightforward and, with the possible exception of taught doctorates..., the responsibility for managing and assessing research development is largely left to the individual student and supervisor”. It is therefore evident that taught PhD programmes nurture adequate research development skills compared to the traditional PhD by research only.

Diversifying doctoral programme design has generated both supporters and opponents. There are critics who interpret broadening the scope of doctoral programmes as diluting of the traditional hallmarks of doctoral education enshrined in the conventional, traditional PhD. We argue here that the new forms of doctoral education and training are more responsive to the current labour market needs of both the academia and the world outside the academia. For example, Professional doctorates are increasingly becoming popular among social work professionals such as nurses, professional health workers, educationalists and social workers (Samuel, 2016). This is because professional doctorates tend to offer better opportunities for balancing between theoretical, methodological and contextual factors via trans-disciplinarity which offers opportunities for cross-fertilization. Consequently, inherent in Professional doctorates is solving the issue of graduate employability outside of the academia and easing knowledge transfer between the industrial/professional world and the academia (IAU-ACUP, 2012).

International comparative accounts of expanding doctoral education reflect more willingness to divergent forms of doctoral programmes, although some national or institutional or disciplinary contexts still maintain their routine programmes (IAU-ACUP, 2012). For instance, ASSAf (2010) reports about some newer South African universities of technology selecting not to embrace the diversity of doctoral forms, but to adopt the traditional PhD for reasons of emulating success stories of prestigious national HEIs. Thus, doctoral curriculum reform issues have generated scholarly debates in the recent decades. Gonzalez-Ocampo et al. (2015) highlight several gaps especially in the need for further research to explore specific conceptions about the doctoral curriculum and its manifestations in different contexts. Some of their suggestions include “a research agenda for developing the curriculum of doctoral education” (p. 23); “the diversity of training programs developed for researchers around the world” (p. 31, number 1); “more research on how... changes... are being dealt with at the level of the formal, the informal and the hidden curriculum” (p. 31, number 2).

Nevertheless, there is need to acknowledge that not all disciplines/fields require the same reforms in the design of doctoral programmes. In agreement with Samuel (2016), we argue here that disregarding the differentiated nature of forms of doctoral education from disciplinary perspectives runs the risk of imposing normative models which may not be suitable for all disciplines or fields. In Ugandan institutions/universities, we found a lack of doctoral programme diversity. The traditional PhD programmes were the dominant. Given the mono-disciplinary focus of the traditional PhD, opportunities for nurturing research excellence by giving doctoral students exposure to study in more open research environments were missed. Relevance to the current needs of the academia and societal needs should be the key considerations in doctoral programme design. In addition, in agreement with Neumann (2005), expansion in typologies of doctoral education and training needs to address

equity concerns as a social justice agenda which challenges the elitist notions of the conventional PhD by widening access. Expansion, relevance and social justice ought to be key considerations in doctoral programme design. Thus, the need to examine the possibilities presented by broadening the scope of doctoral programmes offered in Uganda more openly.

**7.1.2 Attractiveness of the Institutional Environment.** The quality of the doctoral training environment is crucial for nurturing independent researchers. As a principle for innovating doctoral training, the EC states that “doctoral candidates should find good working condition to empower them to become independent researchers (or practitioners) taking responsibility at an early stage for the scope, direction and progress of their project. These should include career development opportunities...” (EC, 2011). We explored attractiveness of the institutional environment in Ugandan universities considering the infrastructure; academic staffing; instructional facilities; financial health; facilities for people with disabilities (PWDs); and organisational issues.

In general, we found that the quality of the postgraduate training environment in Ugandan universities/institutions was low. With the exception of some STEM-based units mainly at Makerere University, absence of an Attractive Institutional Environment for doctoral education and training was overt. The available infrastructure in terms of space facilities like lecture rooms and offices was largely inadequate; where infrastructure was good and available, there was gross underutilization in terms of space and time utilization as the PhD programmes had not attracted enough students. Some participants held the view that a PhD does not need a built environment. This raises questions about the place of ICT supported online environments for offering PhD programmes. At the time of data collection, PhD programmes were offered in built environments with very minimal, intermittent online teaching and learning and supervision.

In regard to staffing, commitments and standards set at the systems level to ensure appropriate staffing for doctoral programmes had not translated into actual practice. All universities/institutions offering doctoral education and training decried the acute shortage of doctoral supervisors and mentors. The shortage was either institution wide, or for some specific disciplines or fields of specialization. This can be attributed to the acute shortage of PhD holders in Uganda. The shortage of PhD holders in Uganda translates into constrained doctoral supervision capacity. The same supervisors are shared among the institutions/universities offering doctoral education and training. The critical mass of academic staff is concentrated in Makerere University, but there are fewer experienced academic staff in the top ranks as our findings indicate; meaning the critical mass of academic staff is scanty. Given that all the other institutions/universities rely heavily on Makerere University to staff their PhD programmes, they equally lack the critical mass of academic staff at higher ranks to appropriately run the PhD programmes.

The critical mass of academic staff at Makerere University is largely due to funding for staff development from development partners and concentrated in STEM disciplines, particularly Health and Agricultural Sciences. For example, Ssembatya, Buyinza, Alina and Wamai (2020) cite the Vice Chancellor of Makerere University as saying:

Makerere is one of the universities on the African continent with high quality academic staff. At the moment we have about 825 of the country's 1,300 PhDs here at Makerere. More than 60% of our staff now have PhDs. By the end of the [sida] program, 80% of our staff will have PhDs.... We produce 3% of all publications in Africa. We are ranked highly by the Times Higher Education Index in the aspects of quality research and training. This would have been impossible without the sida support (p. 3).

In the same report, they quote the Vice Chancellor of Makerere University as noting that, “at the moment... only two of our ten colleges [College of Health Sciences & College of Agriculture & Environmental Sciences] account for 75% of all the research output [from Mak]. We therefore want to... enhance research in the eight remaining colleges” (p. 4). Ssembatya et al. further report the Vice Chancellor of Makerere University as having decried the overconcentration of the critical mass of academic staff in Makerere University, calling for the spread of this critical mass:

We need to have a critical mass of... PhDs because it is these people that are going to create jobs. It is these people... to manage the economy.... We have not yet created the critical mass. In Uganda, we have slightly over 1,000 PhDs and 800 of these are all on one hill, Makerere. So, you cannot talk of moving the economy forward, if almost everybody who is supposed to be thinking for the economy is on one hill. You need to have a critical mass (p. 33).

This is further demonstrated by Ssembatya (2020) who succinctly states that, “most of the funding in research is concentrated in Makerere’s College of Health Sciences” (p. 159). In the *Annual Report 2018 (Mak CHS, 2018)*, Makerere University College of Health Science gives Appendix III (pp. 125-129) titled the *List of 100 [actually 103] Top most Makerere University Publishers*. In the list, there are 58 staff from CHS inclusive of the top most six, 24 staff from the College of Agriculture and Environmental Sciences the College of Veterinary Medicine, Animal Resources and Biosecurity (COV-AB) had five of its staff on the list. Other colleges featured the following numbers of staff; College of Engineering, Art and Design had four; College of natural Sciences had three; College of Education and External Studies had three; College of Humanities and Social sciences had three; College of Computing and Information Sciences had two and College of business and Management Sciences had one, while the School of law had none.

In order to create an Enhanced Post graduate Environment to support a vibrant research eco-system in which doctoral education and training is uniquely placed, funding from domestic sources is of particular importance. We contend that overreliance on funding from donors and development partners diminishes opportunities for enhancing the postgraduate environment in Ugandan universities. Funding from extramural sources tends to be inadequate, restrictive, undiversified and therefore, not sustainable. This calls for domestic funding schemes, particularly from the Government of Uganda. We note here that the Government of Uganda has injected substantial funding for research in Makerere University under the Makerere University Research and Innovations Fund (MaK-RIF). However, this funding is generic for supporting translatable research and innovations, but not specific to leveraging doctoral education and training. Moreover, this funding has not been extended to other public universities in Uganda. This is clearly demonstrated by Ssembatya et al. (2020) who quoted the Vice Chancellor of Makerere University as saying:

I am pleased that the Government of Uganda has responded to sida’s... phasing out of its funding to Makerere University. The Government is giving us UGX30 billion (equivalent to USD 8 million) annually, dedicated to research. The university, however, needs more than USD26million (an average of USD20,000 per academic staff) to sustain a vibrant research environment (p. 4).

Therefore, the need for funding from domestic sources to support a vibrant research eco-system for innovative doctoral education and training is urgent.



In the Proposed Strategic Plan for Higher Education 2003-2015, it was envisaged that the higher education sector in Uganda would have a policy for institutions to establish a research fund; evolve a policy for publishing research results; develop a policy for implementing research recommendations (NCHE, 2003, pp. 22-23, Section 9.7). Thus, naturally, doctoral education and training which is at the heart of research and innovations would benefit from such a functional research development programme. However, such national initiatives have not come to fruition, as such, doctoral programmes offered in Ugandan universities are entirely based on two major sources financing: Funding from development partners or donors and student tuition fees. The government of Uganda has not integrated doctoral education and training into national development planning, and hence there is no direct government funding.

From the perspective of equity concerns as an organizational issue for creating attractive institutional environment, we found facilities for PWDs were not well developed. Many institutions/universities offering doctoral education and training were not prepared to enrol PWDs on doctoral programmes, and they were also non-compliant in regard to the benchmarks and minimum standards set by the NCHE. There is need for innovative institutional arrangements to create EPE at Ugandan institutions/universities under conditions of increasing doctoral enrolments and diversification of purposes and forms of doctoral education and training.

We argue that a sustainable way for universities/institutions in Uganda to create an enhanced environment for doctoral education and training is to undertake institutional restructuring. Three broad types of innovative institutional arrangements for enhancing the doctoral training environment according to the UK QAA (QAA, 2014) are: The Graduate School; Centres for Doctoral Training; and Doctoral Training Partnerships. We contend that in order to enhance the doctoral education and training environment, institutions/universities in Uganda need to establish vibrant Graduate Schools. The graduate school has been shown to be an effective supportive structure especially where supervisory capacity is constrained as is the case in Ugandan universities/institutions. Tracing its origins to the US HE system (Nerad 2009), the Graduate School is increasingly becoming a typical feature of post graduate education globally. Graduate Schools provide a 'one-stop' hub of administrative and technical support for doctoral candidates, spanning their registration, allocation of supervisors, defense strategies and examination processes (Samuel, 2016). The US model of a single graduate school has been shown to be superior to several decentralized research schools (ASSAf, 2010). Currently, in Uganda, few institutions/universities have operational graduate schools that are centralized at the institutional level.

Another innovative structure for enriching the doctoral training environment would be establishment of Centres for Doctoral Training as additional support structures to give across-campus support for doctoral students. Currently, in Uganda, such centres have not been institutionalized. Centres for doctoral training have been shown to be effective in responding to doctoral students felt needs in regard to generic development of skills such as doctoral proposal writing, referencing techniques, the genre of academic writing and the communication and dissemination of doctoral research (Samuel, 2016). Doctoral students need additional support beyond academic disciplinary inputs offered by their supervisors. It has become a common trend for doctoral students to seek support elsewhere on pertinent issues such as presenting doctoral research, developing transferable skills, achieving research impact and developing pedagogical competencies to teach in HEIs. There is therefore need for universities in Uganda to offer such services in a formal institutionalized manner.

Exploring the option of creating doctoral training partnerships or strengthening the few existing ones would also leverage the doctoral training environment. Though mainly linked to more time bounded research projects, doctoral training partnerships could go a long way to alleviate the acute shortage of the critical mass of academic staff to teach and supervise doctoral students in some



of the institutions/universities in Uganda. Drawing on teams from both real and virtual time and space internationally, domestically and within institutions, doctoral training partnerships can promote multi-disciplinary and trans-disciplinary doctoral programmes. This calls for institution of attractive reward and recognition packages, for example, attractive positions such as research chairs.

**7.1.3 Interdisciplinary Research Options.** The third Principle of Innovative Doctoral Training lays emphasis on embedding doctoral education and training in an open research environment and culture to ensure any appropriate opportunities for cross-fertilization (EC, 2011). In Uganda, at systems level, commitment to ensure that PhD programmes are embedded in open research environments and culture in order to appropriately align doctoral programmes to national development goals through cross-disciplinary interactions is explicit. Similarly, the institutions/universities expressed aspirations and commitments to nurture inter-disciplinarity, multi-disciplinarity and trans-disciplinarity in doctoral education and training. Most of the institutions/universities were progressively embedding doctoral programmes in an open research environment and culture to ensure appropriate opportunities for cross-fertilization. The strategies commonly used for cross-fertilization were development of multidisciplinary research themes, cross-cutting courses, use of multi-disciplinary supervisors, guest lecturers, cross-disciplinary workshops and publishing in multi-disciplinary journals. However, such practices were not widely spread and not institutionalized.

Our findings show that although there was a will, there was little to show that multi-disciplinarity; inter-disciplinarity; and trans-disciplinarity had been embedded in doctoral education and training. The traditional discipline-based academic culture militated against cross-fertilization in doctoral education and training. Trans-disciplinarity was seen to be hard to effect and therefore not institutionalised due to concerns about resource limitations, cultural mismatch between academia and the industry and lack of trust and organizational secrecy. Doctoral programmes were therefore largely academic-discipline based and opportunities for cross-fertilization -were missed. For instance, UNCST (2012) observed that slightly less than three-in-every ten doctoral holders had (co)authored journal article(s) and/or a book yet this would be possible if there was such a linkage.

Mono-disciplinary research training de-emphasizes end-user engagement and inter-disciplinary collaborations. Failure to transcend disciplinary boundaries limits opportunities to harness the input of potential users into research questions, tailor research to be relevant to end users and disseminate knowledge through organic channels that enhance non-academic uptake and use of research (Phipps, Cummings, Pepler, Craig & Cardinal, 2016). Interdisciplinary research has clear benefits to students and to society through its ability to help solve 'wicked' problems (Uganda National Academy of Sciences [UNAS], 2019). Hence, fostering trans-disciplinary 'productive interactions' is vital for innovating doctoral education and training. This entails direct or personal interactions; indirect interactions through texts or artefacts; and financial interactions through money or 'in kind' contributions (Spaapen & van Drooge, 2011). There is need to engage with employers to ensure that professional development of researchers is fit for both academic and non-academic employers (Posylkina, Seletkov, Feldstein and Shinkarenko, 2016). Thus, it is important to understand the wider context of cross-disciplinary research.

We found that cross-disciplinarity was understood differently and little had been done to mainstream cross-disciplinary research in doctoral education and training. In some instances, ensuring that supervisors of doctoral candidates are from different disciplines was seen as sufficient, while in other instances the fact that doctoral students were employed was seen as an aspect of cross-disciplinarity. This is an indicator that cross-disciplinary research options is not only misunderstood but also implemented haphazardly. Thus, cross-disciplinarity was not institutionalized, and not formally integrated in doctoral programmes. Opportunities for cross-fertilization to make doctorates more relevant outside specific academic disciplines were missed.

**7.1.4 Exposure to Industry and other Relevant Employment Sectors.** An innovative doctoral programme should expose students to the relevant industry. The term “industry” is used here in the widest sense to include all fields of future workplaces and public engagement, from industry to business, government, NGOs, charities and cultural institutions. This entails placements during research training; shared funding; involvement of non-academics from relevant industry in informing/delivering teaching and supervision; promoting financial contribution from the relevant industry to doctoral programmes; fostering networks of alumni/alumnae that can support the candidates (for example mentoring schemes) and the programme, and a wide array of people/technology/knowledge transfer activities (EC, 2011).

We found that aspiration and commitment to ensure exposure to industry in all levels of HE in Uganda was explicit at the systems level. Government of Uganda recognizes that there is poor Exposure to Industry in HEIs as reflected by a mismatch between university admissions and national skills gaps (GoU, 2020). In order to address this mismatch, in the *Uganda Vision 2040 (GoU, 2013)* it is stipulated that, “the curricula and learning content will be progressively reviewed and developed in order to align what students are taught and what industry globally requires” (p. 58, para. 146). In the Proposed Strategic Plan for Higher Education 2003-2015, NCHE envisaged HEIs to devise ways to strengthen Exposure to Industry through public-private partnerships (PPPs) in research (NCHE, 2003).

NCHE calls HEIs to embrace Exposure to Industry when designing and/or reviewing their curricula. In particular, in the Uganda Higher Education Qualifications Framework (UHEQF) under Programme Requirements (NCHE, 2016, pp. 19-27, Section 4.1), NCHE stipulates that, “all institutions shall consult all relevant internal and external stakeholders when designing and reviewing programmes” (p. 19, Section 4.1, programme requirement a). Even in the Quality Assurance Framework for Uganda Universities (NCHE, 2014b), NCHE demands for Exposure to Industry during doctoral education and training by guiding that for one to get a PhD from an institution in Uganda, one ought to have had “internship and/or requirement for practicals” among other requirements (Table 2.3). At the time of data collection, we found that the NCHE was in the process of fostering linkages with the National Planning Authority and the private sector through signing MoUs.

However, aspirations and commitments expressed at systems level have not translated into actual practice at the institutional level. All the institutions/universities offering doctoral education and training made commitments to pursue various avenues to expose students to the relevant industry, at least in the strategic plans and programme documents, generically. In actual practice, the commitments made have not come to fruition. Institutionalized mechanisms to link doctoral programmes to the relevant industry were not well developed in Ugandan universities, particularly in the non-STEM disciplines. In the STEM disciplines, mainly the applied fields, linkages to the relevant industry were largely by default, but not by design and institutionalization.

It was evident that industry in Uganda is detached from doctoral education and training. The link between industry and doctoral programmes was undefined. Co-funding of doctoral programs with industry was not a common practice in Ugandan institutions/universities; mechanisms to co-teach and co-supervise with partners from the relevant industry were not institutionalized. Personal, informal connections between individual supervisors were being used in very few instances to attach students to industry partners for supervision. Most doctoral programmes offered were PhD by research only which tends to be highly individual and lonely, thus, networks of doctoral Alumni/ Alumnae were non-existent. Equally, knowledge sharing with the relevant industry was not apparent, more so in the non-STEM fields; seminars and workshops in which industry partners are occasionally invited were the commonest avenues for knowledge sharing with the relevant industry. Therefore, opportunities for cross-fertilization to enhance the relevance of doctorates in the world out-side academia risk being missed.

Discipline specific doctoral research training tends to be isolated from the relevant industry; focus is on producing academic achievement than on addressing relevant local issues. Consequently, the relevance of the doctorate outside the academia is lowered. Transcendence of sectoral, disciplinary, geographic, cultural and cognitive frontiers; and the integration of knowledge beyond these frontiers have been shown to be instrumental in making knowledge generated through research relevant within and without the academia (Lapaige, 2010). Thus, doctoral research training ought to transcend disciplinary boundaries. Cassuto and Weishbuch (2021) stress the need for PhD programmes that unlock students both practically and intellectually. They highlight the need to connect doctoral training to the vast array of career options open to graduates by looking outside the walls of the university. As Denecke, et al. (2017) and Ortega and Kent (2018) note, careers for doctorates have become more fluid. Doctoral education ought to prepare candidates to be productive in careers both within and beyond the academia in order to be more competitive in the job market.

Increasingly, universities are developing doctoral programmes that offer disciplinary expertise and at the same time recognize the diverse career outcomes that students will face. For instance, in the US, IGERT has been successful in transforming doctoral education by catalysing cultural change in graduate education by awarding funding to doctoral programmes that are: engaging novel research themes, cross-disciplinary, team-based, building professional and personal skills into the curriculum, preparing students for academic and non-academic careers through linkages with the outside world and encouraging international components (National Science Foundation, 2005). Balaban & Wright (2014) report that professional skills development throughout the doctorate to prepare students for widening career paths is receiving a lot of attention in the US. However, fitting within the traditional university structure and sustaining funding have continued to remain major challenges affecting doctoral education reforms in the US. Some institutions now use Alumni/Alumnae data to redesign their doctoral curricula (Cassuto & Weisbuch, 2021). Yet, in Uganda, we found that doctoral Alumni/Alumnae networks were non-existent, and tracer studies at the doctoral level had not been done.

Research that is informed by the needs and challenges of the industry has been shown to be a powerful engine for facilitating innovations (Posylkina et al, 2016). This calls for targeted strategies for developing cooperation between universities and industry for doctoral trainees to be productive and relevant to any economy and community (Gale, 2014, p.26). Competencies and skills doctoral education and training inculcates or enhances in the students should be contributed to by both the industry and the academic institutions. The need for inter-sectoral dialogue between government, industry and businesses and the social, cultural and political systems is evident in this regard. For instance, in the European context, Gale (2014) note that “the preferred strategy in the European Research Area (ERA) was the infinitely variable geometry of the ‘knowledge triangle’ (or, in a slightly different discourse, the ‘triple helix’) of government, industry and university...” (p. 6). Innovative responses in doctoral programmes have evolved in the UK, Europe, the United States and Australia that support integrated learning in collaborative industry settings (ASSAf, 2010). In Uganda, new forms of doctoral education are needed to accentuate the worthwhileness of a doctoral degree. The fundamental question to ask should be about the contribution that doctorates will make to societal development. This points to the need to re-think the forms and models of doctoral education currently being used. Innovating doctoral education provision in Uganda therefore necessitates cultural change in doctoral programme design.

**7.1.5 International Networking.** Innovative doctoral training necessitates providing doctoral students opportunities for international networking through collaborative research, co-tutelle, dual and joint degrees. Mobility should be encouraged, be it through conferences, short research visits and secondments or longer stays abroad (EC, 2011). Government of Uganda recognizes the existence of limited International Networking in HEIs in Uganda (GoU, 2020). The Government commits to ensure International Networking in HEIs in Uganda, though with a pronounced bias in favour

of STEM disciplines. For example, in the *Uganda Vision 2040 (GoU, 2013)*, the following national commitments have been made: “World leading universities in hi-tech shall be facilitated to establish a bridge between academia and industry” (p. 61, para. 157). It is also stated that: Government will attract top rated universities in specialized fields from advanced countries... to set up campuses in Uganda in those fields especially engineering, human medicine, geosciences, management, space exploration, nano and bio technology, ICT... (p. 69, para. 184). Nonetheless, such national aspirations and commitments have not translated into actual practice widely.

We found that international students support services were inadequate in Ugandan universities/institutions. Only few doctoral programmes had enrolled international students. Few institutions/universities had functional internationalization offices; other universities were yet in the process of planning to establish such offices. Thus, mechanisms for diversity management were not embedded in doctoral programmes offered in Ugandan universities. As such, many international doctoral students did not have access to student support services, suffered linguistic and other problems. This finding is in line with Kaase-Bwanga (2019) who noted that, “foreign students’ social life outside the Makerere University precincts was challenging, largely due to the language barrier” (p. 374). She further noted that:

students were academically stressed, the female students more so than the male students. Their stress was related to ineffective communication between them and their lecturers and the inability of supervisors to give students timely feedback especially with regard to their research projects. (p. 374)

The most prominent aspect of international networking embedded in doctoral programmes in Uganda was international partnership programmes through which institutions/universities accessed funding for running the programmes. However, such partnerships were more prominent in Makerere University, more so, in STEM disciplines. As such capacity for doctoral education and training was better developed at Makerere University STEM fields compared to other universities/institutions. For instance, Makerere University owes the presence of critical mass of academic staff with PhDs and the implementation of cross-cutting doctoral courses to funding through international partnership programmes. Ssembatya et al. (2020) quoted the Vice Chancellor of Makerere University as saying:

Sida has trained over 260 PhDs... for this university. I think by the time the program ends..., we will have trained 450 PhDs under sida. That is the biggest-ever academic staff development program anywhere on the African continent. Sida is... credited with the fact that Makerere is one of the universities on the African continent with high quality academic staff. At the moment we have about 825 of the country’s 1,300 PhDs here at Makerere. More than 60% of our staff now have PhDs. By the end of the program, 80% of our staff will have PhDs.... We produce 3% of all publications in Africa. We are ranked highly by the Times Higher Education Index in the aspects of quality research and training. This would have been impossible without the sida support (p. 3).

This is further corroborated by Ssembatya (2020) who reported that:

collaborations with foreign partners and funders have... helped networking researchers who would otherwise be isolated. It is estimated that more than 50% of the PhDs obtained between the year 2000 and the year 2010 were acquired outside Uganda, with support from development partners. The Swedish Government alone has supported the training of about 300 PhDs in the period 2000-2015. (p. 158)

We note here that Makerere University's reliance on funding for doctoral training through international partnership programmes is excessive. It is not sustainable in case the donors pull out. For example, in early 2018 when sida announced pull out by 2020, the Minister of Education and Sports pleaded with sida not to abandon Makerere University (Ahimbisibwe, 2018). The Vice Chancellor of Makerere University made a similar plea saying: "Makerere... can be supported further to at least create capacity for... other universities, both public and private.... I have on several occasions told the Swedish Ambassador that Makerere still needs his government's support because we are the only institution with the capacity to train for other universities" (Ssembatya et al., 2020, p. 3).

Moreover, donors set their agenda for doctoral research which may not certainly align well with national priorities set in the national development agenda. This is evident in the lamentation made by Ssembatya (2020) that, "a dilemma associated with obtaining funding from development partners is with the alignment of the research focus, which tends to be biased toward interests supported by the funder.... Competitive calls for research funding, which emanate from funding agencies in the Western countries, are typically thematic with themes aligned to the intentions of the funder..." (pp.158-159). In spite of such dilemma inherent in donor funding, we found that all aspects of international networking in doctoral programmes such as involvement in joint research projects; funding of academic trips for students and/or staff abroad; inviting visiting international scholars to facilitate on parts of the programme; sending students for placements abroad; enrolling and training full-time doctoral candidates from other countries; and organizing short courses for doctoral students from other countries all depended entirely on funding arrangements under international partnership programmes.

Consequently, in universities/institutions where international partnership programmes were not prominent, doctoral students were self-financed, and therefore, did not get opportunities for international exposure. International networking activities were not institutionalized, personal initiatives were taken by students or their supervisors. Doctoral students were exposed to international networks rarely, mainly through personal connections cultivated by their teachers and/or supervisors. Opportunities for international networking were very narrow or non-existent in many doctoral programs offered in Ugandan universities. This scenario calls for deliberations on international cooperation models that can foster training of internationally competitive, locally relevant doctorates in Ugandan universities/institutions.

Countries with advanced and systematic internationalisation strategies have been shown to be in a better position to develop vibrant doctoral programmes (British Council & DAAD, 2018). We argue here that insufficient international knowledge sharing limits full development of the knowledge creation capacity of doctoral students, sharing of good practices for doctoral programme development and further development of knowledge products. We contend that domestically supported joint degrees or double degree doctoral programmes or sandwich doctoral programmes as instruments of internationalisation would be a worthy option to consider. We equally underscore the place of ICT infrastructure as an instrument for internationalisation in order to address staffing challenges. Increased use of ICT would attract expertise as supervisors, mentors, and to teach. ICT infrastructure would also ease access to productive networks such as African Research Networks (ARN) that may lessen the risk of brain drain (ASSAf, 2010).



Currently, in Ugandan universities/institutions, international networks to foster productive interactions in doctoral programmes are low and predominantly North-South. There is unequal, unfair, politically and culturally biased power relations in the international knowledge system entrenched by the North-South divide (Yang & Xie, 2015). This puts Ugandan institutions at a disadvantaged position. Yet there is inadequate action on international networking even at regional levels, just as is the case in other African countries (British Council & DAAD, 2018). There is therefore need to nurture intra-regional cooperation in doctoral programmes in Uganda to ensure greater relevance locally.

**7.1.6 Transferable Skills Training.** Innovating doctoral education and training necessitates the blending of research training and skills development into the overall student experience. Transferable skills training enables subject and research related skills to be applied and developed effectively (EC, 2011). The Government of Uganda acknowledges the critical skills gap and strongly commits to enhancing transferable skills training in Uganda's education system.

In *Uganda Vision 2040 (GoU, 2013)* it is guaranteed that, "Uganda will... address the critical skills gap, technology deficiency, lack of creativity and innovativeness, low productivity and negative attitudes towards work" (p. 68, para. 183); "all government-supported tertiary education will be devoted to skills development" (p. 92, para. 261); and "the entire education system will be changed to emphasize practical skills, aptitude and moral values" (p. 92, para. 262). The Government's commitment to foster transferable skills training in Uganda's education system has been operationalized in the *National Development Plan III (2020-2025) (GoU, 2020)* and the *Uganda Higher Education Qualifications Framework (UHEQF) (NCHE, 2016)*. However, at the institutional level, we found that transferrable skills training was generally lacking in doctoral education and training. Integration of transferrable skills training and discipline specific research training was a challenge in most doctoral programmes offered. Therefore, haphazard attempts were made at integrating transferable skills training into doctoral education and training curricula. There was no assessment tool for measuring and evaluating transferable skills. This finding is congruent with Bunting et al. (2014) who highlighted the lack of consistent evaluative mechanisms to assess the quality and relevance of PhDs in Africa.

In sub-section 2.2.6 of the UHEQF (NCHE, 2016), for the Doctorate (level nine), it is stipulated that "a doctorate is conferred on students who are able to: (a) Show a systematic comprehension, independent and an in-depth understanding of a discipline with a mastery of skills and research processes related to the field of study; (b) Contribute to the original research that broadens the boundary of knowledge through an in-depth thesis/dissertation and defense; (c) Use intellectual independence to think critically, evaluate existing knowledge and ideas, undertake systematic investigations and reflect on theory and practice to generate original knowledge (d) Communicate with peers, scholarly communities and society at large concerning the field of expertise; (e) Demonstrate ability to use technologies and make appropriate innovations; (f) Take leadership in the area of expertise in evaluating and making decisions in situations with limited information while considering social responsibilities and related ethics.

Thus, the UHEQF gives doctoral attributes integrating transferable skills some such as communication skills, innovativeness, creativity, critical thinking, ethics, leadership skills and ability to use ICT and discipline specific expert knowledge. However, in practice, mechanisms to develop, assess, examine and evaluate such transferable skills were not noticeable in doctoral programmes offered in Ugandan universities/institutions. Focus was mainly on the development and assessment of discipline specific expertise and contributions to knowledge. This scenario raises questions about the extent to which the UHEQF has been translated into learning outcomes frameworks and operationalized in the assessment and examination of doctoral learning outcomes and evaluation of doctoral programmes.

Learning outcomes are statements of knowledge, skills, attitudes, competencies and habits of mind that students are expected to demonstrate at the end of a course or programme (Denecke et al., 2017). For decades, learning outcomes frameworks and assessment focused on the undergraduate level of education. However, at present, forces from within and outside the academia have triggered increasing focus on learning outcomes in doctoral education (Ortega & Kent, 2018). Among such factors are: an everchanging job market; quality assurance requirements; growing dissatisfaction with traditional measures used to assess the quality of research doctorates; pressures on universities to demonstrate the value of a doctoral degree in the wake of decreasing public investments in graduate education; internationalisation (Denecke et al., 2017). These developments have created a need to make learning outcomes of doctoral education more explicit in terms of qualitative learning outcomes and competencies; and to realign doctoral education with career needs of students.

We argue here that doctoral level learning outcomes frameworks should be used to align doctoral education to the demands of the knowledge economy by embedding transferable skills training, but not necessarily to standardize the doctorate. Universities in Africa currently face a number of challenges in delivering doctoral education including lack of appropriate structures and systems for developing learning outcomes and for ensuring that they are used effectively to guide curricula or to improve doctoral training programmes (Cross & Backhouse, 2014; Kigotho, 2018; Mohamedbhai, 2018). Barriers to adoption of degree qualification frameworks for defining learning outcomes for the PhD have been identified as lack ownership by academic staff due to disciplinary diversity and lack of involvement of academic staff in developing such frameworks and lack of clarity about institutional uses of doctoral degree frameworks. Academic staff tend to see such frameworks as externally imposed rubrics to be checked (Denecke et al., 2017). Consequently, integration of learning outcomes frameworks and assessment into existing processes of doctoral education tend to be elusive.

Learning outcomes of doctoral programmes need to be made more explicit so that doctoral training can be aligned with broader career options of candidates; programme milestones become student centred and intentional; and the value of PhD programmes can be established to the public (Ortega & Kent, 2018). This has implications for the process of supervising doctoral candidates and assessment and examination of doctoral candidates. Dual focus on development of research competence and transferable skills is increasingly taking centre stage in doctoral education (Fillery-Travis et al., 2017). The current approaches to doctoral supervision at Ugandan universities tend to focus on lopsided nurturing of academic research skills and therefore not responsive to this dual demand. In order to be responsive to the needs of the knowledge economy, there is need for a shift in focus to bridging the academia-policy-practice gap. Doctoral supervisors ought to be guided by relevant learning outcomes frameworks as points of reference. But how often do doctoral supervisors in Ugandan universities make reference to learning outcomes frameworks to guide their supervisory decisions and practices?

Tension between the process and product in doctoral supervision is apparent (Kandiko & Kinchin, 2012; Wellington, 2013). Previous notions of pure research focus in doctoral study is shifting to a wider approach of social practice (Keefer, 2015). This raises the question of what desirable learning outcomes do doctoral supervisors endeavour to nurture during the supervision process regardless of the supervision model adopted. The absence of learning outcomes frameworks as a point of reference may compound the challenge of doctoral liminality as both the candidates and supervisors remain unclear about what to focus. We contend that the doctoral supervision process ought to be guided by appropriate learning outcomes frameworks in order nurture candidates to be responsive to the changing nature of the doctorate.

Functional use of learning outcomes frameworks as points of reference may play a valuable role in focusing doctoral supervisors in playing their role as modelling agency, helping candidates to develop in the disciplinary community as well as fit in the world outside the academia (Lee,



2008; 2018). Current practice of supervision at Ugandan universities/institutions limits modelling to becoming expert in the area of specialization in the academia. Doctoral candidates are bound to remain ill-prepared to practice in other settings. The implication is for Ugandan universities/institutions to explore more effective models of doctoral supervision. The “what” of doctoral supervision deserves more attention: what should guide the focus of supervision? This calls for a clear articulation and use of learning outcomes frameworks to guide the supervision process, and the development of a critical mass of doctoral supervisors.

Equally, learning outcomes frameworks ought to play a key role in both formative and summative assessments to evaluate whether or not a doctoral candidate is acquiring, and has acquired the desirable competences. However, in Ugandan universities/institutions, the current assessment and examinations procedures and practices are insufficient. Wellington (2013) raises the important question of how the judgment of “doctorateness” plays out in the process of doctoral assessment and examinations. The examination of doctoral degrees currently centre on scholarly measures of written exams, oral examinations and the dissertation/thesis. Focus is on development of academic research skills in the process, and the originality of the thesis as the product, although, originality appears to be an elusive measure (Baptista et al., 2015; Wellington, 2013). Reference to the implication, impact or outcomes of a doctorate other than originality of thesis and publications is elusive in current examination regulations and instructions to examiners. Yet, issues of transferable skills are taking centre stage as desirable doctoral learning outcomes in the competitive knowledge-based economy. In Uganda, the current doctoral examination and assessment processes and practices do not provide for comprehensive evaluation of doctoral learning outcomes.

The current global impact agenda necessitates the demonstration of both scientific excellence and societal relevance in academic research (Donovan, 2011; Oancea, 2013). Education and training of a new generation of doctorates responsive to the demands of the knowledge economy brings a fore the resounding question Ortega and Kent (2018) asked: what do we want PhD holders to know and to be able to do? Development of broad-based learning outcomes frameworks with expected knowledge and skills descriptors for both the world of academia and outside the academia becomes paramount. This calls for the creation of synergies between the academia and the world outside of the academia, and the integration of transferable skills training in doctoral education. Development and implementation of learning outcomes and competency frameworks that articulate a wider variety of skills and capacities such as working in project teams, and translating work to non-academic audiences become paramount. This calls for thoughtful structuring of doctoral programmes, supervision of doctoral candidates and doctoral assessment and examinations. Thus, there is need for institutional evaluation, review of doctoral programmes and doctoral qualifications frameworks in Uganda.

**7.1.7 Quality Assurance.** The goal of Quality Assurance (QA) in doctoral education and training should be to enhance the quality of the research environment as well as promoting transparent and accountable procedures for topics such as admission, supervision, awarding the doctorate degree and career development (EC, 2011). The EC asserts that QA at the doctoral level is not just about QA of the PhD itself, but rather the process or life cycle, from recruitment to graduation. As such, accountability procedures established on the research base of doctoral education should be developed separately from QA in the first and second cycles of higher education.

Thus, quality assurance in doctoral education and training combines three levels of focus: programmatic, personal and institutional evaluation (UK QAA, 2014). Doctoral candidates have the right to enjoy transparent structures with clear rights and responsibilities as well as the assurance that they will be part of inclusive and inspiring research environments. In addition, as research has become an increasingly important element in economic development; governments and society at large are concerned that investments in doctoral education are appropriately managed, that education is ‘fit for purpose’ and quality is ensured (Byrne, Jørgensen & Loukkola, 2013, p.8).

The Government of Uganda acknowledges the weak QA systems and low quality of education in the country, and hence, the need for strong QA measures at all levels of education (Government of Uganda, 2020, p. 160, para. 316). In the Proposed Strategic Plan for HE 2003-2015 (NCHE, 2003), NCHE made commitments to enhance the quality of graduates from Uganda's HEIs by making academic programmes more relevant. The sixth of the 10 strategic objectives in the plan is "quality assurance to produce graduates who... ably operate in the local economy and ably work in the global market" (pp. 21-22, Section 9.6). Thus, at systems level, aspirations and commitments have been expressed to assure quality in HEIs in Uganda.

For doctoral education and training in particular, in the UHEQF (NCHE, 2016), the NCHE has set benchmarks and minimum standards for running doctoral programmes. NCHE practically accredits institutions and their programmes to ensure compliance with the benchmarks and minimum standards. Universities/institutions offering doctoral education and training equally express commitment to ensure QA in the doctoral programmes they offer at least in written documents such as policies, guidelines and plans. However, we found that written aspirations and commitments to assure quality had not translated into actual practice.

Congruent with the HERANA report (Bunting et al., 2014) which highlighted the lack of evaluative mechanisms to assess the quality and socio-economic relevance of PhD outputs in Africa, we found that there were no comprehensive institutionalized mechanisms for QA at the doctoral level in Uganda. Both external and internal formal structured programmatic evaluation and assessments had not been carried out. NCHE had not yet carried out comprehensive audits and tracer studies to determine the quality of outputs from doctoral programmes offered in Uganda. At the institutional level, structured, institutionalized feedback mechanisms were not embedded in doctoral programmes. Most doctoral programmes had neither undertaken self-assessments and evaluations nor tracer studies, and therefore got feedback haphazardly. The quality of the doctorates was gauged mainly in terms of publications in peer reviewed outlets. Determining the quality of the graduates in terms of their suitability to the relevant industry was more elusive.

The lack of comprehensive institutionalized evaluative mechanisms and failure to audit doctoral programmes consistently translated into several challenges affecting the quality of doctoral education provision in Uganda. Challenges of staffing and staff motivation affected the quality of processes such as doctoral supervision and mentorship, doctoral examinations and assessment. Prominent among the challenges affecting the quality of both the internal and external doctoral examination process was finding experts in various fields of specialization, and external examiners were not readily available. Therefore, the quality of the doctoral examination process seemed to be compromised largely internally due to lack of expertise in areas of specialization. This brings to the fore the shortage of the critical mass of experienced doctorates with requisite knowledge and skills in the various fields of specialization in Uganda. Yet, formal examinations including an oral *viva voce* are the hall marks of a quality doctorate. The examination process is seen as a simultaneous evaluation of the theoretical contribution of the study, the student in terms of the attributes and competences at the end of the process and the supervision in regard to the nature of the guidance and support offered by an institution (UK QAA, 2014). Despite being central in doctoral examinations and assessment, we found that doctoral committees rarely held meetings due to poor facilitation, and therefore were largely ineffective. Thus, the quality of support services and mentorship schemes for doctoral students at Ugandan institutions/universities was low partly due to insufficient QA.

The notion of graduate/doctoral attributes of doctoral candidates is taking centre stage as a key ingredient of the hallmark of doctoral education and training. This agenda has translated into the development of quality assurance frameworks and national degree qualification frameworks. For instance, the Careers Research and Advisory Centre [CRAC] (2010) has developed the Researcher Development Framework (RDF). The four broad domains related to doctoral attributes in the RDF have

some universal degree of appeal. These are: knowledge and intellectual abilities; personal effectiveness; research governance and organisation; engagement, influence and impact. Metcalfe (2015) report on how the sub-set of over 60 attributes related to the four broad domains in the RDF has been tested in studies in various contexts with stake holder groups such as aspiring doctoral candidates/doctoral candidates at different stages of their educational programmes, supervisors, institutional managers, employers and the wider academic community. The test results show different groups highlighting different combinations of the core attributes of the RDF they deemed essential as targets for doctoral education in their contexts (CRAC, 2010).

We argue here that the RDF could serve as a useful tool for dialoguing about programmatic, institutional and national policy choices for innovating doctoral education and training in Uganda. However, this is not to say that the RDF framework should be used as a judgemental yardstick; within different institutional settings, with different resources, certain priorities of graduate attributes may be elevated above others. Notwithstanding, the RDF could be a useful tool to open up dialogue about what constitutes QA expectations of doctoral programmes and the attributes of doctoral graduates. In addition, Ugandan universities/institutions could draw practical learning for QA in doctoral education from the Salzburg 1 (2005) Principles and Recommendations for Innovative Doctoral Education; European achievements depicted in the Salzburg 11 (2010) recommendations, and the Seven Principles for Innovative Doctoral Training (EC, 2011). Contextualized, innovative application, but not necessarily replication, of these principles and recommendations could contribute to responsiveness of doctoral education and training at Ugandan universities/institutions to the national development agenda and the global knowledge-economy.

We end this chapter by maintaining that doctoral education and training has undergone and is still undergoing fundamental interrogations challenging the traditional philosophy and the traditional models of PhD by research only centred on a master-apprenticeship relationship. The future of doctoral education and training lies in transformations and innovations to address issues concerning the quality and relevance of doctorates in the academic and non-academic worlds, and the international competitiveness of doctorates. This will require new forms of doctoral programmes, new forms of doctoral supervision, and new forms of doctoral assessment, examinations and evaluation. Thus, the need to pay attention to how doctoral programmes support candidates to attain their unique expectations in developing their doctoral identities and at the same time attain relevance in regard to theoretical, philosophical, methodological and contextual demands.

Focus in transformations and reforms in doctoral education and training ought to go beyond the production of the end point of a doctoral degree in mechanistic calculations of access, throughput and output rates, but rather, the development of doctoral programmes that cultivate the development of early career researchers (ECRs) who are able to make contributions at multiple levels in both the academia and outside the academia. Doctoral programmes will have to be more directly responsive to the changing profile of students and the widening career options; and challenges of adopting, evaluating and assessing new forms of multi-media production of doctoral products. This demands well-prepared doctoral supervisors and calls for national initiatives to build capacity for doctoral supervision.

## 7.2 Conclusions

Our findings have highlighted systemic constraints that may affect innovative doctoral education and training in Uganda. Unless addressed, it is unlikely that doctorates trained in Ugandan universities/institutions will be more relevant to national development needs and internationally competitive. The most prominent constraints are inadequate, restrictive, unsustainable and undiversified external funding; inadequate doctoral supervision and mentorship capacity; lack of doctoral programme diversity; lack of exposure to the relevant industry; inadequate international networking; inadequate in-

terdisciplinary research training; inadequate transferable skills training; insufficient QA and pipeline constraints. Consequently, there is misalignment between aspirations and commitments to develop doctoral education and training expressed in written documents and the actual conditions of doctoral education provision in the universities/institutions.

### *Funding constraints*

Funding from development partners and donors is inadequate, restrictive, unsustainable and undiversified. Overreliance on funding from donors and development partners impacts negatively on provision of a vibrant research eco-system. This translates into poor quality post graduate environment in Ugandan universities/institutions. Thus, Ugandan universities/institutions, in their current state, except for few STEM based units, have inadequate staff and infrastructural capacity necessary to develop innovative doctoral education and training. Lack of exposure to rich research environments constrains the nurturing of research excellence and the innovative capacity of the doctorates; leads to low through put rates; and lowers the quality and relevance of doctoral research outputs. Many institutions/universities offering doctoral education were not prepared to enrol PWDs on doctoral programmes due to inadequate infrastructure, thus raising access and equity concerns.

### *Lack of diversification of doctoral programmes*

Doctoral education and training in Uganda has remained largely traditional. The dominant doctoral programmes offered are PhDs by research only. The conventional traditional PhD by research only model limits opportunities for cross-fertilization, and therefore lowers the relevance of the PhD outside specific disciplinary boundaries. This scenario alludes to gaps in doctoral programme design in Ugandan universities/institutions. Due to the mono-disciplinary focus of the traditional PhD, opportunities for nurturing research excellence by giving doctoral students exposure to study in more open research environments are missed.

### *Inadequate doctoral supervision and mentorship capacity*

Shortage of the critical mass of academic staff with PhDs in Uganda translates into acute shortage of doctoral supervisors and mentors. Universities/institutions have no option but to retain inadequately prepared supervisors who lack adequate capacity for supervision and mentorship. There is lack of institutional support for doctoral supervision, for example, there are no institutionalized mechanisms to build the capacity of inexperienced supervisors such as recent PhD graduates. This affects the quality of doctoral supervision and mentorship. Constrained doctoral supervision capacity leads to low completion rates, low through-put rates of PhDs and lowers the quality of the doctorates and doctoral research outputs.

### *Lack of exposure to the relevant industry*

Lack of institutionalized mechanisms to link doctoral programmes to the relevant industry, particularly in the non-STEM disciplines, lowers opportunities for cross-fertilization through boundary spanning. Opportunities for transferable skills training, mentoring, career planning and development, and graduate's placement into the labour market are missed. Non-existent doctoral Alumni/Alumnae networks curtails the opportunity to use Alumni/Alumnae data to redesign doctoral curricula to address skills gaps. At the same time, knowledge sharing between the relevant industry and the academia is limited. Thus, the relevance of the doctorates and doctoral research outputs in the world out-side the academia remains uncertain. Mechanisms to support integrated learning and research training in collaborative academia-industry settings are needed to accentuate the worthwhileness of the doctorates and doctoral research outputs outside the academia.

### *Inadequate international networking*

All aspects of international networking in doctoral programmes depended entirely on funding arrangements under international partnership programmes. This translates into very low ratio of international academics and very low international student ratio. Lack of international knowledge sharing limits full development of the knowledge creation capacity of doctoral students, sharing of good practices for doctoral programme development and further development of knowledge products. This makes the doctorates trained in Ugandan universities/institutions less competitive internally. Excessive reliance on funding through North-South international partnership programmes is not sustainable. Unequal, unfair, politically and culturally biased power relations in the international knowledge eco-system entrenched by the North-South divide puts Ugandan universities/institutions at a disadvantaged position.

### *Inadequate cross-disciplinary research training*

The traditional discipline-based academic culture militated against cross-fertilization in doctoral education and training through cross-disciplinary research. Cross-disciplinarity was not institutionalized, and not formally integrated in doctoral programmes. Structural constraints such as resource limitations, cultural mismatch between academia and the industry, lack of trust and organizational secrecy limited cross-disciplinary research. Opportunities for cross-fertilization to make doctorates more relevant outside specific academic disciplines were missed.

### *Insufficient transferable skills training*

The traditional mono-disciplinary PhD programmes entrench lopsided nurturing of academic research skills. Mechanisms to develop, assess, examine and evaluate transferable skills were not clearly embedded in doctoral programmes. The current assessment and examinations procedures and practices are insufficient, they do not provide for comprehensive evaluation of doctoral learning outcomes. Consequently, doctoral candidates are bound to remain ill-prepared to fit in other settings.

### *Insufficient QA for the doctoral level of education*

Written aspirations and commitments for QA at the doctoral level had not translated into actual practice. There were no institutionalized mechanisms to assess the quality and socio-economic relevance of PhD outputs in Uganda. Structured, institutionalized feedback mechanisms were not embedded in doctoral programmes. Most doctoral programmes had neither undertaken self-assessments and evaluations nor tracer studies, and therefore got feedback haphazardly. The lack of institutionalized evaluative mechanisms and failure to audit doctoral programmes consistently translated into several challenges affecting the quality of doctoral education provision in Uganda. Thus, the quality of the doctoral research environment and doctoral supervision and mentorship in Ugandan institutions/universities was low due to insufficient QA.

## **7.3 Recommendations**

After careful considerations of the findings of our study of the state of doctoral education and training in Uganda, we make the following recommendations for innovating doctoral education and training in Uganda.

### **1. Integrate doctoral education and training into national development planning**

Government of Uganda should integrate doctoral education and training in national development planning within the context of the policy objective of increasing the percentage of the GDP spending on research and development (R&D). To achieve this the Government of Uganda should:

- Create an interconnected national planning strategy for dealing with production of high-level knowledge and skills needed to power the national research eco-system and improve the innovative capacity of the economy. Currently, there is no coherent national strategy for research and high-level knowledge and skills training. The National Planning Authority should bring together the various elements of planning for research and high-level skills for national economic and social development of the relevant ministries and government agencies such as the Ministry of Education and Sports, the National Planning Authority, Ministry of Science and Technology, the Ministry of Labour and Social Development, Ministry of Public Service, UNCST, and NCHE among others. Doctoral education and training should be an integral part of the national strategy for research and high-level skills training.
- Set national targets for producing doctorates in order to address the acute shortage of the critical mass of researchers in the country. For instance, after a national audit of critical skills gaps, a ten-year plan for increasing the numbers of doctorates in Uganda by a certain percentage should be developed. The proportion of increase in doctorates should target fields that directly impact national economic development and social innovation.
- Invest significantly in doctoral education and training. Make doctoral education and training investment decisions based on high-quality doctoral programmes in areas of national need. Funding should be less institution focused, and more programme-focused.

## 2. Apply strong quality assurance measures to doctoral programmes

Accountability procedures established on the research base of doctoral education should be developed separately from QA in the first and second cycles of higher education. To ensure that investments in doctoral education and training are appropriately managed and that doctoral education and training is fit for purpose, the following actions should be undertaken:

- Government of Uganda, through the NCHE, should introduce a sufficient and well-structured legal framework necessary for programmatic, personal and institutional evaluation. The framework should adequately regulate the structure of doctoral programmes and curricula, support systems, staffing and the award of the doctoral degree.
- NCHE should undertake comprehensive audits and tracer studies to determine the quality of doctorates and doctoral research outputs. Comprehensive audits and tracer studies at the doctoral level have not been done.
- NCHE should demand doctoral programmes to undertake formative and summative evaluations for ongoing programme improvement. Institutionalized internal programmatic evaluation and assessments have not been carried out. Universities/institutions should create templates for the review of doctoral programmes that synthesise international standards. In addition, they should reach out to international review teams for benchmarking and programme review.
- Universities/institutions should take responsibility to operationalize the UHEQF into learning outcomes frameworks. Comprehensive learning outcomes frameworks and assessment should be embedded in doctoral programmes, and enabling structures to attain them should be established.
- Currently, comprehensive evaluative frameworks and mechanisms to assess the quality of doctorates and the socio-economic relevance of doctoral research outputs are non-existent. The Researcher Development Framework developed by the UK QAA could be contextualized to open up dialogue about what constitutes QA expectations of doctoral programmes and the attributes of doctoral graduates relevant for the knowledge economy.



### 3. Create enhanced post graduate environment (EPE) in HEIs in Uganda

Diverse and inclusive environments of high quality with structures that support doctoral students to attain research excellence and a wide range of opportunities that facilitate personal and professional development, career development and mobility should be created. The following strategies could be adopted to achieve this:

- Differentiate the university system. Not all universities should offer doctoral degrees. This requires a Master Plan for Higher Education. For example, differentiating universities and other degree awarding institutions by function and degrees. Currently, as our findings indicate, its only Makerere University that has capacity to conduct sufficient and diversified research and train doctorates. Thus, Makerere University should be given a special status for post-graduate training. Through institutional restructuring, centres for excellence in doctoral training based on different fields of study should be established at Makerere University. To avoid duplication and resource wastage, other universities/institutions could offer differentiated doctoral programmes based on sufficiency of the critical mass and infrastructural capacity.
- The role and funding of Graduate Schools should be underscored. Graduate Schools provide effective supportive structures especially where supervisory capacity is constrained as is the case in Ugandan universities/institutions. Where they are not already existing, graduate schools should be established to coordinate and develop overall guidelines for the doctoral education process. Where they already exist, the capacity of graduate schools should be enhanced to offer capacity building training for supervisors, administer evaluation surveys for continuous improvement of doctoral programmes among other functions.
- Establishment of Centres for Doctoral Training as additional support structures to give across-campus support for doctoral students. Centres for doctoral training are effective in responding to doctoral students felt needs in regard to generic development of skills. It has become a common trend for doctoral students to seek support elsewhere on pertinent issues such as presenting doctoral research, developing transferable skills, for example, multi-media production skills for achieving research impact, and developing pedagogical competencies to teach in HEIs. Such services should be offered to doctoral students in a formal institutionalized manner.
- Creation of doctoral training partnerships or strengthening the few existing ones. Doctoral training partnerships could go a long way to alleviate the acute shortage of the critical mass of academic staff to teach and supervise doctoral students in institutions/universities in Uganda. This calls for institution of attractive reward and recognition packages, for example, attractive positions such as research chairs.
- Universities/institutions should create learning communities or community of scholars to provide a stimulating research environment for doctoral students. Through such communities, renown international and national scholars should be invited to give seminars to students, the communities could link students to research centres, Alumni/Alumnae networks and other support services.
- Dedicated posts for mentoring doctoral students should be institutionalized. For instance, institution of the post of graduate assistantship for mentoring doctoral candidates to increase future doctoral supervisory capacity.

### 4. Diversify doctoral programmes

The conventional, traditional PhD by research only has become inapt to the current labour market needs of the knowledge economy; solving the issue of graduate employability outside of the academia; and easing knowledge transfer between the industrial/professional world and the academia.

Therefore:

- Universities/institutions should shift from offering the traditional PhD by research only to the taught PhD or PhD by course work and dissertation. To ensure structural diversity, cohort-based and course-based taught PhDs are more favourably structured.
- Other models of the doctorate such as the PhD by publication, the integrated PhD, and a wide array of Professional and Practice-based doctorates should be offered. The new forms of doctoral programmes are more responsive to the demands of the knowledge economy.

## 5. Expose doctoral candidates to the relevant industry and other employment sectors

Exposure to the relevant industry is essential in enhancing doctoral students' attractiveness to industry and developing more favourable attitudes to university-industry collaboration, and for more positive orientations towards careers in industry. This can be achieved through the following strategies:

- The government of Uganda should catalyse cultural change in doctoral programme design by awarding funding to doctoral programmes that are cross-disciplinary and preparing students for both academic and non-academic careers through linkages with the relevant industry.
- MoUs should be signed to strengthen and elaborate the relationship between universities/institutions and the relevant industry so that larger numbers of doctoral students are trained and supported through learning in practice.
- Universities/institutions should develop doctoral programmes that support integrated learning in collaborative industry settings by involving non-academics from relevant industry in informing/delivering teaching and supervision. For instance, placing graduate student interns in a variety of work places outside the university.
- Universities/institutions should use Alumni/Alumnae networks for mentoring and career planning. They should conduct tracer studies to collect Alumni/Alumnae data to redesign their doctoral curricula to make doctoral programmes more relevant.

## 6. Provide international exposure for doctoral students

Relevant international cooperation models that can foster training of internationally competitive and locally relevant doctorates should be institutionalized. Strategies that can be adopted to achieve this include:

- The government of Uganda, through the NCHE, should create a national prestigious fellowship programme which includes a maximum of two years of study at a foreign HEIs to ensure international exposure, as is the case in Brazil, China and Thailand.
- Domestically supported joint degrees or double degree doctoral programmes or sandwich doctoral programmes as instruments of internationalisation should be instituted.
- Universities/institutions should design blended doctoral programmes. ICT infrastructure should be developed as an instrument for internationalisation. Increased use of ICT would attract international expertise as supervisors, mentors, and to teach. ICT infrastructure would also ease access to productive international networks such as African Research Networks that may lessen the risk of brain drain.
- Universities/ institutions should nurture intra-regional cooperation in doctoral programmes to ensure greater relevance locally. Currently excessive reliance on North-South international partnership programmes for soliciting funding puts Ugandan universities/institutions at a disadvantage.

## 7. Embed transferable skills training in doctoral programmes

To address the critical skills gap in doctoral graduates, transferable skills training should be embedded in doctoral programmes in addition to discipline specific research training. The following strategies can be used to achieve this:

- Government of Uganda, through the NCHE, should develop a national strategy to train a critical mass of doctoral supervisors. This can be done through capacity building training courses for innovative doctoral training for all supervisors certified by NCHE. To qualify to supervise at the doctoral level, one should have a certificate of competence issued by the NCHE.
- The UHEQF should be reviewed and used to align doctoral education to the demands of the knowledge economy by highlighting transferable skills. Knowledge and skills descriptors for the doctoral level should be made more explicit and comprehensive.
- Universities/institutions should operationalize the UHEQF into learning outcomes frameworks to guide processes such as doctoral programme design, doctoral supervision, assessments and examinations, and evaluation of doctoral programmes.
- Supervisors should ensure dual focus on the development of discipline specific research competence and transferable skills in the doctoral supervision process. Students' progress reports ought to be guided by relevant learning outcomes frameworks as points of reference.
- Comprehensive assessment tools for measuring and evaluating transferable skills in addition to discipline specific knowledge and skills should be developed and used in doctoral assessments and examinations, and evaluation of doctoral programmes. Currently, there are no comprehensive tools to evaluate the competencies of doctorates and the relevance of what they contribute to society.

## 9. Affirmative action to address access and equity concerns.

Currently, as our findings indicate, doctoral education and training in Uganda is male dominated and biased in favour of STEM fields. Urgent affirmative action is needed to support females and non-STEM fields through targeted funding schemes. PWDs need urgent affirmative action to make the institutional environments inclusive. Currently, facilities for PWDs are either not functional, or not appropriately developed in Ugandan universities/institutions.

### 7.4 Limitations

Our study has several limitations. Being an interpretive study, we cannot claim that our participants (Table 3.1) were fully representative of all the stakeholders. Two categories of key stakeholders were not part of our participants, namely, doctoral supervisors and doctoral students. We left these out for time and methodological challenges. Our project had a time/temporal challenge. We had to do the work within one financial year 2019/2020, yet we started the project late in the year, before we were interrupted by COVID-19 in mid-March 2020. The interpretive/qualitative approach to our study implied a considerable amount of time. Secondly, our project had a methodological challenge. We initially proposed and had approved a study that was interpretive and thus could not accommodate doctoral supervisors and students who because of their large numbers called for the positivist survey approach. Regardless, we still tried to involve doctoral supervisors for whom we designed and distributed a survey questionnaire. However, because of COVID-19 lockdown restrictions, it was very hard for us to follow up and get an adequate number of filled questionnaires from the supervisors. Therefore, more studies and interventions are necessary to complete our efforts.

Currently, not much is known about the dynamics of doctoral education and training in Uganda. Studies on the internal and external efficiency of doctoral education and training in Uganda are required. We recommend further efforts in the following areas:

- Destination studies/tracer studies need to be institutionalized, routinely administered at programme level to determine where doctoral graduates are located. This will help to determine skills requirements in the labour market to address the national skills gaps through informed programme design.
- Collection of national trend data and establishment of a national data base on intra system flows at the doctoral level is necessary to address pipeline issues. Comprehensive national studies on access, enrolment, completion and throughput rates; and transition rates from Masters level are necessary to create accurate and accessible data to determine the internal efficiency of doctoral education and training in Uganda. This will help to guide investment decisions at the doctoral level of education.
- More studies are needed about doctoral supervision practices in Ugandan universities to uncover underlying conditions affecting the quality of doctoral supervision in Uganda. Specifically needs assessment to map knowledge and skills requirements on the part of doctoral supervisors; doctoral supervision loads; and issues of motivation of doctoral supervisors. This will help to guide interventions to improve the quality of doctoral supervision in Ugandan institutions/universities.
- At the level of doctoral students, studies to generate understanding of doctoral students experiences and their satisfaction are necessary. Equally, studies on employability and career pathways of ECRs in Uganda are needed.

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# APPENDICES

## APPENDIX 1

*Some of the Major Documents We Considered at Systems/National Level (Latest First in a Given Category)*

Category	Document	Author (year)
Laws (Latest first)	Universities and Other Tertiary Institutions Act (UOTIA) and pertinent statutory instruments	Republic of Uganda (RoU)/Government of Uganda (GoU)/Uganda Government (UG) (1995)
	Constitution of the Republic of Uganda	RoU/GoU/UG (2001)
Plans (Latest first)	Third National Development Plan (NDP III)	RoU/GoU/UG (2020)
	Uganda Vision 2040	RoU/GoU/UG (2013)
	Proposed Strategic Plan for Higher Education 2003-2015 (PSPHE, 2003-2015)	National Council for Higher Education (NCHE) (2003)
Policies (Latest first)	National Science, Technology & Innovation Policy	Ministry of Finance, Planning and Economic Development (MFPED) (nd.)
	Uganda Higher Education Qualifications Framework (UHEQF)	NCHE (2016)
	Benchmarks for Conducting Postgraduate Programmes in Uganda	NCHE (2014a)
	Quality Assurance Framework for Universities and the Licensing Process for Higher Education Institutions (QAFU...)	NCHE (2014b)
Reports (Latest first)	Education for National Integration and Development	Education Policy Review Commission (EPRC) (1989)

## APPENDIX 2

*Some of the Major Documents We Considered at Institutional Level (Latest First in a Given Category)*

Category	Document	Author (year)
Plans (Latest first)	Makerere University (Mak) Strategic Plan 2020-2030	Mak (2020)
	Mbarara University of Science and Technology (MUST) Strategic Plan 2017/18-2019/20	MUST (2017)
	Nkumba University (NU) Strategic Plan 2013/14-2023/24	NU (2012)
	Uganda Martyrs University (UMU) Strategic Plan 2010-2020	UMU (2012)
	Gulu University (GU) Strategic Plan 2009/10-2018/19	GU (2009)
Policies (Latest first)	Gulu University Institute of Research and Graduate Studies (GU IRGS) Handbook	GU IRGS (nd.)
	Uganda Management Institute (UMI) Prospectus 2018/2019	UMI (2018)
	Uganda Martyrs University (UMU) PhD Program in Business Administration	UMU (2018)
	Mbarara University of Science & Technology (MUST) Postgraduate Handbook 2017-	MUST (2017)
	Kyambogo University (KyU) Faculty of Education (FoE) Guidelines for Writing Theses and Dissertations	KyU FoE (2016)
	Makerere University (Mak) Doctoral Supervision Guidelines	Mak Directorate of Research & Graduate Training (Mak DRGT) (2016)
	Makerere University (Mak) Policy on Cross-cutting Doctoral Courses	Mak (2015)
	Nkumba University (NU) Prospectus, 2015/16-2021/22	NU (2015)
	Nkumba University (NU) Guidelines for PhD Programmes	NU (2013)
	Makerere University (Mak) Appointments and Promotions Policy	Mak (2009a)

Category	Document	Author (year)
	Makerere University Human Resource (Mak HR) Manual	Mak (2009b)
	Makerere University Quality Assurance (Mak QA) Policy	Mak (2007a)
	Makerere University Staff Development (Mak SD) Policy	Mak (2007b)
	Makerere University (Mak) Policy on Staff Who Register for Further Studies.... (the so-called 'Mujaju Policy')	Mak (1999)
Reports (Latest first)	Makerere University (Mak) sida/SAREC Report 2000-2020	Ssembatya, Buyinza, Alina & Wamai (2020)
	Sustaining Research Excellence and Productivity with Funding from Development Partners: The Case of Makerere University	Ssembatya (2020)
	Makerere University (Mak) Annual Report 2018	Mak (2019a)
	Makerere University (Mak) Fact Book 2017-2018	Mak (2019b)
	Makerere University College of Health Sciences (Mak CHS) Annual Report 2018	Mak CHS (2018)
	Makerere University (Mak) Strategic Plan Review Report February 2017	Mak (2017)

## APPENDIX 3

### *Chronology of the Regional Distribution of Private Universities in Uganda 1988-2019*

University	Foundation Body	Chartered?	Year of Establishment	Region
**Islamic University in Uganda (IUIU)	Islam	Own Statute of 1990	1988	East (but with two branches in Central & one in the North West)
*Ndejje (NDU)	Anglican	Chartered August 06, 2009	1992	Central
**Uganda Martyrs (UMU)	Catholic	Chartered April 02, 2005	1993	Central (but with branches in the East, North & West)
*Bugema (BMU)	SDA	Chartered, June 29, 2009	1994	Central
**Nkumba (NU)	Private	Chartered 2007	1994	Central
**Uganda Christian (UCU)	Anglican	Chartered 2004	1997	Central but with branches in East, North West & South West
**#Busoga (BU)	Anglican	Licence revoked November 27, 2017 but is in the process of becoming public	1999	East
Kampala (KU)	Private	Chartered March 23, 2016	2000	Central
Aga Khan (AKU)	Islamic NGO	Provisional Licence	2001	Central
**Kampala International (KIU)	Private	Chartered 2009	2001	Central but with a branch in the West
**Bishop Stuart (BSU)	Anglican	Chartered October 28, 2014	2002	West
Kabale (KAB)	Private Community	Became public in 2005	2002	South West
Kumi (KUMU)	Anglican	Provisional Licence	2004	North East
African Bible (ABU)	Pentecostal	Chartered November 18, 2019	2005	Central
##Mountains of the Moon (MMU)	Private Community	Chartered May 31, 2018 and is in the process of becoming public	2005	West

University	Foundation Body	Chartered?	Year of Establishment	Region
Uganda Pentecostal (UPU)	Pentecostal	Provisional Licence	2005	West
Muteesa I Royal (MRU)	Buganda Kingdom	Provisional Licence	2007	Central
St Lawrence (SLAU)	Private	Provisional Licence	2007	Central
All Saints, Lango (ASUL)	Anglican	Provisional Licence	2008	North
Cavendish (CUU)	Private	Provisional Licence	2008	Central
Clarke International (CIU) (formerly International Health Sciences.... [IHSU])	Private	Provisional Licence	2008	Central
International University of East Africa (IUEA)	Private	Provisional Licence	2010	Central
Victoria (VU)	Private	Provisional Licence	2010	Central
African Rural (ARU)	Community	Provisional Licence	2011	West
King Caesar (KCU) (formerly St Augustine International [SAIU])	Private	Provisional Licence	2011	Central
Livingstone International (LIU)	Private	Provisional Licence	2011	East
Nexus International (NIU?) (formerly Virtual University of Uganda [VUU])	Private	Provisional Licence	2011	Central
Islamic Call University College (ICUC)	Islam	Provisional Licence	2012	Central
African Renewal (AfRU)	Private	Provisional Licence	2013	Central

University	Foundation Body	Chartered?	Year of Establishment	Region
Uganda Technology & Management University (UTAMU)	Private	Provisional Licence	2013	Central
Ibanda (IU)	Private	Provisional Licence	2014	West
Great Lakes Regional (GLRU)	Private	Provisional Licence	2015	West
ISBAT	Private	Chartered November 18, 2019	2015	Central
University of Kisubi (UniK)	Catholic	Provisional Licence	2015	Central
Team (TU)	Private	Provisional Licence	2015	Central
Valley University of Science & Technology (VUST)	Private	Provisional Licence	2015	West
Ankole Western (AWU)	Anglican	Provisional Licence	2016	West
Avance International (AIU)	Private	Provisional Licence	2016	Central
Metropolitan International (MIU)	Private	Provisional Licence	2016	South West
University of the Sacred Heart Gulu (USHG)	Catholic	Provisional Licence	2016	North
University of St Joseph, Mbarara (USJM)	Catholic	Provisional Licence	2017	West
Nile (NiU)	Private Community	Provisional Licence	2018	North West
Fins Medical (FMU)	Private	Provisional Licence	2018	West
Limkokwing University of Creative Technology (LUCT)	Campus of the mother University in Malaysia	Provisional Licence	2019	Central

Notes: From National Council for Higher Education (Mukhayе & Otage, 2019; NCHE, 2018, 2019, 2020a, b)

#President issued order for takeover by Government in 2018; ##President issued order for takeover by Government in 2016 and repeated it 2018; \*means a university is offering doctoral studies but has not graduated any PhD student; \*\*means a university has ever graduated a PhD student



## APPENDIX 4

### *Chronology of the Adoption of the Taught Doctorate in Makerere University 2002 to date*

Unit	Name of the Program	Year of Launch	Source document
Department of Higher Education in School of Education (Mak DHE); now DHE is the East African School of Higher Education Studies & Development (EASHESD)	Doctor of Philosophy degree programme (Educational Management & Administration)	2002	Mak DRGT (2012); Mak DHE (2001); Mak EASHESD (2012)
Institute of Economics (Mak IE); later Faculty of Economics and Management (FEMA)	Doctor of Philosophy program in Economics	2003	Mak IE (2002); Mak FEMA (2005)
East African School of Library & Information Science (Mak EASLIS)	Proposed Doctor of Philosophy in Information Science (PhD) by coursework and research	2004	Mak EASLIS (2004)
Faculty of Computing & Information Technology – now School of Computing & Informatics Technology (Mak SCIT)	PhD programs in Computer Science; Software Engineering; Information Systems; and Information Technology	2004	Baryamureeba & Williams (2006); Mak SCIT (2017)
Faculty of Agriculture now College of Agriculture & Environmental Sciences (Mak CAES)	PhD program in Plant Breeding & Biotechnology	2009	Mak (2009)
Department of Agricultural Extension (Mak DoAE) of the School of Agricultural Sciences (SAS) in Mak CAES	Program for the Doctor of Philosophy in Agriculture and Rural Innovation (PhD-ARI)	2012	Mak (2012); Mak DoAE (2010)
School of Medicine now College of Health Sciences (Mak CHS)	Doctor of Philosophy program in Health Sciences	2012	Mak DRGT (2012)
Makerere Institute of Social Research (MISR)	Interdisciplinary MPhil/PhD program in Social Studies	2012	Mak Office of the Academic Register (Mak OAR) (2012); Mamdani (2017); MISR (2020a, b)
Department of Mathematics (Mak DoM) of the School of Physical Sciences (SPS) in the Makerere College of natural Sciences (Mak CoNaS)	Doctor of Philosophy Mathematics (PhD Math)	2016	Mak DoM (2016)

Unit	Name of the Program	Year of Launch	Source document
Department of Economics (DoE) of the Faculty of Commerce (FoC) in the Makerere University Business School (MUBS)	PhD programme in Energy Economics & Governance	2017	MUBS DoE (2017)
College of Health Sciences (Mak CHS)	Doctor of Philosophy program in Bioinformatics	2019	Mak (2019)
College of Agriculture and Environmental Sciences (Mak CAES)	Regional PhD in Agricultural and Applied Economics	2020	Resolutions of the 150 <sup>th</sup> meeting of Mak University Council held on Thursday, December 17, 2020

## APPENDIX 5



### **Capability Enhancement Project for Innovative Doctoral Education at Ugandan Universities (CEPIDE)**

#### **Instrument for Focus Group Discussions with National Council for Higher Education (NCHE)**

We are conducting a study of the state of doctoral education and training in Uganda. Our intention is eventually to suggest areas where doctoral education and training in Uganda can be improved and to contribute to desired interventions. NCHE has been chosen to participate in this study as the over-arching body in charge of higher education in Uganda. We are interested in examining the conditions of doctoral education provision in Uganda when judged against seven principles of Innovative Doctoral Training (European Commission, 2011). The discussions will be based on constructs derived from the seven principles of Innovative Doctoral Training which we use as the analytical lens in the study. Your responses will be used only for this study and will be kept with utmost confidentiality.

#### **1. RESEARCH EXCELLENCE**

The first principle of Innovative Doctoral Training stipulates that an innovative doctoral programme should strive for excellence in research. The research excellence should be reflected in the academic standards that the programme sets/demands, the critical mass of academic staff and the extent to which the programme trains doctoral students to be creative, critical and autonomous intellectual risk takers, pushing the boundaries of frontier research.

**Question: How does NCHE ensure research excellence in doctoral programmes in Uganda in terms of the programmes and curricula; academic staff; and instilling creativity, critical thinking, autonomy & academic risk taking among students?**

#### **2. ATTRACTIVE INSTITUTIONAL ENVIRONMENT**

The second principle of Innovative Doctoral Training stipulates, "doctoral candidates should find good working conditions to empower them to become independent researchers (or practitioners) taking responsibility at an early stage for the scope, direction and progress of their project. These should include career development opportunities...."

**Question: In what ways does NCHE ensure that each doctoral programme in Uganda has an attractive institutional environment with respect to infrastructure; academic staffing; instructional facilities; financial health; facilities for people with disabilities (PWDs); and organisational issues?**

### **3. INTERDISCIPLINARY RESEARCH OPTIONS**

Principle number 3 for Innovative Doctoral Training stipulates that, “doctoral training must be embedded in an open research environment and culture to ensure that any appropriate opportunities for cross-fertilization between disciplines can foster the necessary breadth and interdisciplinary approach.”

**Question: How does NCHE ensure that each doctoral programme in Uganda has links to other disciplines and the non-academia?**

### **4. EXPOSURE TO INDUSTRY AND OTHER RELEVANT EMPLOYMENT SECTORS**

Principle number 4 for Innovative Doctoral Training uses the term “industry” in the widest sense, including all fields of future workplaces and public engagement, from industry to business, government, NGOs, charities and cultural institutions. This, the principle says, can include placements during research training; shared funding; involvement of non-academics from relevant industry in informing/delivering teaching and supervision; promoting financial contribution to the relevant industry to doctoral programmes; fostering networks of alumni/alumnae that can support the candidate (for example mentoring schemes) and the programme, and a wide array of people/technology/knowledge transfer activities.

**Question: How does NCHE ensure that institutions offering doctoral programmes in Uganda mainstream exposure to ‘industry’ in doctoral training?**

### **5. INTERNATIONAL NETWORKING**

“Doctoral training should provide opportunities for international networking, i.e., through collaborative research, co-tutelle, dual and joint degrees. Mobility should be encouraged, be it through conferences, short research visits and secondments or longer stays abroad. opportunities....” (Principle number 5 for Innovative Doctoral Training).

**Question: In what ways does NCHE ensure that doctoral programmes in Uganda instill in students the ability to network with people in other institutions and cultures internationally?**

### **6. TRANSFERABLE SKILLS TRAINING**

Principle number 6 for Innovative Doctoral Training defines transferable skills as, “skills learnt in one

context (for example research) that are useful in another (for example future employment whether that is in research, business....)". According to the principle, transferable skills "enable subject- and research- related skills to be applied and developed effectively." Transferable skills may be acquired through training or through work experience. It is essential to ensure that researchers have skills demanded by the knowledge-based economy (KBE). Examples of such skills are communication, team work, entrepreneurship, project management, interpersonal relations (IPR) and ethics.

**Question: In what ways does NCHE ensure that each doctoral programme in Uganda instills transferable skills/soft skills in students?**

## **7. QUALITY ASSURANCE**

"The goal of quality assurance [QA] in doctoral education should be to enhance the quality of the research environment as well as promoting transparent and accountable procedures for topics such as admission, supervision, awarding the doctorate degree and career development...." (Principle number 7 for Innovative Doctoral Training)

**Question: How does NCHE ensure quality in the input, process, output and feedback aspects of all doctoral programmes in Uganda?**

*Thank you for offering your precious time to share with us in the discussions*

## APPENDIX 6



### Capability Enhancement Project for Innovative Doctoral Education at Ugandan Universities (CEPIDE)

#### Instrument for Interviews with Coordinators of Doctoral Programmes

We are conducting a study of the state of doctoral education and training in Uganda. Our intention is eventually to suggest areas where doctoral education and training in Uganda can be improved and to contribute to desired interventions. You been chosen to participate in this study as the Coordinator of a doctoral programme. Your participation in this study is strictly voluntary, and you may choose not to participate without fear of penalty or any negative consequences. Your individual responses to the items in this interview guide shall contribute greatly to the success of this study. No individually identifiable information will be disclosed or published, and all results will be presented as aggregate, summary data. Your responses will be used only for this study and will be kept with utmost confidentiality.

Principal	Questions	Probing items	Remarks
<b>1. Research Excellence</b>	What mechanisms do you have in place to maintain research excellence in the doctoral programme you are coordinating?	-Curriculum -Academic staff; -Creativity, -Critical thinking, -Autonomy & academic risk taking	
<b>2. Attractive Institutional Environment</b>	Comment on the institutional environment in which the doctoral programme is being offered.	-Infrastructure; -Academic staffing; -Instructional facilities; -Financial health; -Facilities for people with disabilities (PWDs)& -Organizational issues	



Principal	Questions	Probing items	Remarks
<b>3. Interdisciplinary Research Options</b>	What mechanisms do you have in place to link the doctoral programme to other disciplines within academia and to non-academia?	-Cross-fertilization between disciplines -Inter-disciplinarity -Multi-disciplinarity -Trans-disciplinarity	
<b>4. Exposure to Industry &amp; other Employment Sectors</b>	What mechanisms are in place to expose students on your doctoral programme to 'industry'?	-Industry placements -Co-funding with industry -Co-teaching with industry partners -Co-supervision with industry partners -Alumni/Alumnae networks -Knowledge sharing with industry	
<b>5. International Networking</b>	In what ways is your doctoral programme instilling in students the ability to network with other institutions and cultures internationally?	-Joint doctoral programs -International students -International conferences -International partnerships -Diversity management	
<b>6. Transferable Skills Training</b>	In what ways does your doctoral programme instill in students skills for self-management and skills on how to relate with others?	-Communication, -Teamwork -Entrepreneurship -Project management -Interpersonal relations & ethics -Problem-solving -ICT skills	
<b>7. Quality Assurance</b>	What mechanisms do you have in place to ensure and assure quality in the input, process, output and feedback aspects of the doctoral programme being offered in your unit / department?	-QA of the inputs: the program and its curriculum, academic staff, financing -QA of processes: selection, admissions, doctoral pedagogy, assessment and examinations, supervision, mentorship -QA of outputs: the doctorate/ graduands, research outputs Feedback: evaluation/ assessment/ continuous improvement	

*Thank you for offering your precious time to share with us in the discussions*

## APPENDIX 7

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### **Capability Enhancement Project for Innovative Doctoral Education at Ugandan Universities (CEPIDE)**

#### **Consent Form**

Capability Enhancement Project for Innovative Doctoral Education at Ugandan Universities (CEPIDE) is a project under Makerere University's Research and Innovation Fund (RIF). CEPIDE team is conducting a baseline study of the state of doctoral education in Uganda.

We would like to request your consent to participate in a semi-structured interview on doctoral programmes offered in your Institution/School/Department. The interview will be conducted face-to-face at a time and location that is convenient for you. The interview may last approximately 60 minutes and will be recorded with an audio recording device.

You have been purposively chosen as a participant in this study because of your role within the University/Institution as the Coordinator of a doctoral programme / Head of department /Dean of the unit/Director of Quality Assurance/Director of the Directorate of Graduate Training or Dean of Graduate School or Research Institute/Centre. You will be asked to share your experiences and perspectives on doctoral education and training in your unit/institution. The results of this study may help universities in Uganda to develop more innovative approaches to doctoral education and training to address challenges of deficiency in numbers of doctorates, doctoral training modalities and the productive capacity of doctorates in Uganda.

Participation in this study is voluntary. You have the right to withdraw at any time in which case any information you have provided will be removed from the study unless you authorize otherwise. You may at any time refuse to answer any questions and may terminate the interview at any time without consequence, penalty and judgment. You may request that any information you have provided be eliminated from the report.

By signing below, you are indicating that you are willing to participate in the study, you have received a copy of this informed consent form, and you are fully aware of the conditions of participating in the study of the state of doctoral education and training in Uganda.

***Declaration of Consent***

I have read the information and understood the nature of the study explained to me. I agree to participate in the interview, and I give consent to be audio-recorded during the interview.

Signature.....

Name.....

Title of Participant.....

Date.....

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