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The experiences and challenges of Doctoral Education in Public Universities compared

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Abstract
Purpose: This article's purpose is to explore the challenges and experiences PhD students in selected Ugandan state universities endure during their studies.
Research methodology: The approach of the research focused on three public universities thus; Kabale University, Makerere University, and Gulu University. To explore these challenges, we undertook an extensive literature review of the external supervisors and evaluations of PhD students who attempted to submit their final dissertations.
Results: The main findings of the results indicate that due to institutional, individual, and supervisory inefficiency, many students who enroll in their PhD programs at these universities are unable to graduate within the given timeframe.
Limitations: The limitations of the study conclude that the problems addressed in this research and the suggestions presented provide the basis for improving university training programs and facilitating students, timely completion of the PhD program.
Contribution: In terms of contribution, this research will improve scholarly writing and publication abilities, in addition to increasing the identity of doctoral education in Uganda. Evidently, there is no substantial work exploring the difficulties and challenges faced by PhD students in Uganda.
Novelty: it is crucial to remember that when pursuing their PhDs, scholars are not just learning about the research topic, but are also developing fundamental skills in critical thinking, to construct their own knowledge within their own indigenous context, it is essential that they acquire the capacity to assess assertions, and evaluate arguments in a critical manner.
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1. Introduction

Like their peers in Asia and Europe, policymakers in Uganda have started giving doctoral education a priority. As Sunarti, Hafizah, Rusdinal, Ananda, and Gistituati (2022);Shin, Kehm, and Jones (2018), policy discourses on PhD training have expanded in tandem with Uganda's rise to the top of world institutions. According to Webometrics, which ranks institutions mostly based on their research output, competitive research is impossible without outstanding PhD candidates and post-doctoral researchers. Doctoral training programs are undergoing systemic changes in tandem with policy measures in Uganda to create world-class universities. Makerere University received a special grant from the Government of Uganda (GoU) in 2021 to promote impactful projects and inventions that shape national development goals. Among others, the grant is intended to boost Uganda's indigenous

knowledge creation (IKC), or investigation and innovations that can be applied and enhance Uganda's development priorities.

According to Mugizi (2018), the Government of Uganda's investment reflects the growing primacy devoted to science and technology as a spur for the country's ascent to middle-income status. To enhance competence for a novel doctoral education at Ugandan Universities, the Capability Enhancement Project for Innovative Doctoral Education (CEPIDE) was founded. The overarching goal was to encourage a transition from conventional modalities to cutting-edge methods to doctorate education, thereby strengthening the institutional and personal capacities of doctoral supervisors at Ugandan universities. The goal was to create a cadre of doctorates with the potential to enhance Uganda's innovativeness in the world marketplace. These doctorates would be capable of undertaking decipherable investigations and coaching resourceful scientists with fungible 21st-century expertise. The most recent scholarly discussions of improvements in doctoral education in Uganda, however, do not measure up to those in Asia and Europe, according to global rankings of the best universities.

Johnson, Constance, and Chrysostom (2021) claim that due to strenuous expertise, there is little room for external and internal stakeholders to play a role in the process of transitioning the next generation of scientists. This is because each career path has a unique lineage for gearing up its predecessors, and even faculty members in one area of study are seldom embroiled in doctoral study in another. However, Nerad and Heggelund (2011) state that the traditional PhD training programs in Asia and Europe are under pressure to change. According to Austin (2010) the heightened imperatives for skilled professionals, notably in rapidly developing specialized careers, are the reason for exterior transformation recommendations. Salmi (2009) emphasizes that the government's greater interest in elite universities has had a bearing on doctoral educational reforms. As a reflection of these dynamic changes, Andres *et al*. (2015) note that programs for doctoral studies are transitioning from those that were concentrated on specialized academics or studies to more homogeneous approaches throughout regions of the world.

According to Davies (2008), the Bologna Process of 1999 obligated every nation to embrace three-year doctoral programs and ignited the conversation about revamping doctoral education in Uganda. Thus, according to Etomaru, Bakkabulindi, and Balojja (2023), "The status of Doctoral education and training in Uganda" was authored as the outcome of the research into these transformations.

Our article's objective was to examine the PhD education experiences and impediments at three public universities in Uganda. We aimed primarily to address two broad research questions: To what extent do national structures, policies, and frameworks in Uganda support cutting-edge doctorate education and training? Are there sufficient quality assurance (QA) systems in place for the doctoral program? We tackled these problems at two levels of analysis—systems (national) level analysis of the organizations, laws, processes, and regulations regulating doctoral studies and training in Uganda, and an institutional level analysis of the PhD programs offered. Policy considerations did not impact Uganda's doctoral training until around the mid-1990s, when East African colleges in the scramble to construct world-class universities started to toggle from just being teaching to scientific universities, as per UNESCO (2014).

According to Teichler, Arimoto, and Cummings (2013), the bulk of Ugandans who seemed to have doctorates at the beginning of the twentieth century had earned them in the West. However, in the mid-1990s, Ugandan universities started aggressively training their scientists and experts within their own universities (UNESCO, 2014). The country's PhD training increased considerably because of legislative initiatives. According to UNESCO (2014), the second-largest PhD degree-granting system in East Africa is found in Uganda. These adjustments show that PhD education is going through significant shifts in the region. According to McAlpine and Austin (2018) and Andres *et al*. (2015), doctoral training is currently considered to be a preparatory ground for a wide range of professional careers in the knowledge society, which has prompted graduate education, particularly in the emerging higher education systems, to proliferate astonishingly. Jowi (2021), provided a thorough assessment of the evolving trends in PhD training in Africa, while Nabutto (2014) covered 10

practices' that are becoming more common throughout Ugandan universities. Asiimwe (2019) suggested two areas for doctoral education reform: preparation for a wide range of career choices and changing the format and nature of doctoral education in Uganda, with a concentration on STEM subjects.

Universities are the exclusive societal institution to produce knowledge through scientific research as well as the education and training of high-level knowledge and skills. To educate and train a creative and innovative workforce, learners should cultivate four distinct types of areas of expertise: expert knowledge in a specialized subject or area, the capacity to collaborate in a proactive conundrum, the ability to conduct research and development (R&D), and the versatility to adapt to changes in information and communications technology (Tierney & Lanford, 2016). The doctorate, which reflects the zenith of educational achievement at universities, has a special place in the cognitive eco-system: The PhD is a crucial requirement for determining the caliber of a nation's research ecosystem. Hence, doctorate training has a substantial impact on a university's capacity to develop highly skilled people with the requisite competencies.

In Uganda, as well as the rest of sub-Saharan Africa, primary, secondary, and undergraduate education have garnered the most attention. There is still a lack of enthusiasm for the third cycle of higher education, especially doctorate training, among scholars and policymakers. Nonetheless, there has been a deafening criticism regarding the quantity, quality, validity, and productivity of PhD's in Uganda. Wamala and Ssembatya (2015) offer a comprehensive review of doctoral careers and performance undertaken by the Uganda National Council for Science and Technology UNCST, 2012 they uncover critical flaws in Uganda's PhD productivity and quantity. In addition, Adyanga, Sekiwu, and Ankunda (2022) noted a shortage of doctorates and doctoral education options. This article sheds light on some crucial issues that require attention: What makes it challenging for Ugandan Universities to produce additional PhD's? How can PhD education and training improve to meet the demands of the nation?

The overarching query Okoth (2012) and Adula, Kant, and Birbirsa (2022), posit emerges in rhetoric, what do we want PhD holders to know and be able to accomplish? While more doctorates will address the quantitative constraint, numbers alone are not sustainable; the focus on advancing PhD education should concentrate on the quality of the degrees, their applicability to Uganda's development agenda, and their global viability. Therefore, to what extent are the students prepared for their PhD programs at Makerere, Gulu, and Kabale universities? There is currently an unfair emphasis placed on the PhD degree's scholarly component. As per Trafford and Leshem (2009), the accompanying components of scholarly research: donation of expertise, identity of knowledge gaps, conceptual model, conceptual conclusions, research strategy, hypotheses addressed, suitability of methodology, congruence of reasoning, collaboration, conciseness of presentation, and validity of field research. The importance of novelty in PhD studies is essential, with an emphasis on R&D and mentoring in applicable competence in addition to research excellence and rigour (the scholarly component). The issue of capacity building for institutional and systemic transformation for unique doctorate teaching is pertinent to this setting.

The motivation for this article arose from the severe lack of PhD with the necessary skills and expertise to carry out translatable research and mentor creative researchers in Uganda. In comparison to the global average of 1,083 researchers per million people, Uganda had just about 37 in 2010 and 26 in 2014 (Elfert, 2015; UNESCO, 2015). Throughout academia, government departments, corporations, and research centers, there are approximately 1,000 PhD holders in numerous domains, with Makerere University accounting for 80% of them. According to Kasozi (2019), there is a conspicuous lack of both the quantity and creative quality of PhD's (ability, relevance, and viability) in Uganda. According to Balyejjusa (2015), this scenario is a big hurdle to Uganda's development toward achieving middle-income status and enhancing its potential for innovation in the global economy, both of which are essential to achieve the aspirations for national development set forth in Uganda Vision 2040, (NPA, 2013). Nonetheless, doctorate education—the process by which scholars are created—remains mostly conventional, largely theoretical, and academically focused in Makerere,

Gulu, and Kabale universities. The three chosen universities still subscribe to the basic core tenets of the conventional modes of PhD training, which aspired to preserve erudition and competence in the pursuit of knowledge for knowledge's sake and prepare PhD's for jobs in academia. Such a constrictive mindset is now completely out of place in the vibrant and competitive information age of the twenty-first century, which calls for expertise as well as abilities that are highly transferable. Furthermore, it has also been reported by Puzantian and Darwish (2021), that PhD careers are becoming more versatile. As per Cross and Backhouse (2014), PhD graduates should be prepared to be productive in jobs both inside and outside of academia. It is evident that Ugandan universities need to develop their ability for unconventional PhD. training to fulfill the requirements of capacity, integrity, and applicability.

1.1 Significance of the Study

The Ugandan government will realize the necessity for robust QA procedures at all levels of PhD training through this research, which also highlights the weak QA systems and low quality of education in the nation.

Furthermore, the analysis offered in this study will provide important data for future research examining the expertise and skills demands of doctorate supervisors, as well as doctoral supervisor workloads and incentive issues in order to raise the standard of PhD training offered by Ugandan universities.

1.2 Objectives of the Study

The general purpose of our study was to assess the challenges and experiences of doctoral education in Uganda. Specifically, we examined institutional structures, policies, processes, and practices of doctoral training at the Ugandan Universities of Gulu, Makerere, and Kabale.

1.3 Research Questions

We sought to answer the following broad research questions; Do institutional structures, policies, processes, and practices support innovative doctoral education and training in Ugandan universities? What is the extent to which national structures, policies, and frameworks provide for innovative doctoral education and training in Uganda?

This article is divided into five parts. Part I, discusses the article's introduction, the study objectives, the significance of the study, and the research questions all of which have been factually discussed by the investigators. Part II discusses the hypothesis after just a cursory review of the results of previous findings. Part III elucidates the article's materials and procedures. Part IV offers a logical examination of the key findings. The part as well lends proof of argument in favor of key results by engaging earlier studies and theoretical constructs. Part V provides an epilogue, which contains the study's constraints and suggestions.

1.4 Hypothesis Development

After establishing the context in the introduction, the article will now discuss the study vacuum. According to Muwagga (2011), Makerere University was the only public university in "the center" of Uganda by 1990. The second public university, Mbarara University of Science and Technology (MUST) was founded in western Uganda in 1989. Kyambogo University (KyU) in "the center" adopted MUST in 2001; Gulu University was established in the north in 2002, preceded by Busitema University in the east in 2007, Muni University in the northwest in 2013, Kabale University in the southwest in 2015, Lira University in the northeast in 2015, Soroti University in the northeast in 2015, and Mountains of the Moon University in the southwest in 2022.

Just four of these public universities (Makerere, MUST, Kyambogo, &Gulu) have ever produced PhDs, with Makerere producing the most—roughly 1000—in total(Kasozi, 2015). Following Makerere, MUST (74 of them) began conferring doctorates in January 2004 according to Muriisa and Bergen (2015). Nevertheless, Oyugi (2020) states that Kyambogo University began offering doctoral programs in 2014 but did not begin conferring degrees until December of that year. According to

Lam-Lagoro, Ocitti, and Abooki (2017), Gulu University is working to establish its reputation as a center for doctoral research with the approximately 10 PhDs it has so far bestowed. On Friday, October 26, 2018, at Kabale University's third graduation commencement, the Vice Chancellor revealed that KAB would only be beginning to promote PhD programs in 2019, (*The Observer*, 2018).

Thus, according to international conventions, such as UNESCO (2014) the Sustainable Development Goal No. 4 and the return on investment in education policy discourse influenced by the World Bank, there has been a concentration on primary education, secondary education, and the undergraduate levels. There is still a lack of enthusiasm for the third cycle of university education, especially PhD degrees, and training, in academic and governmental circles. In Uganda, research on doctoral education and instruction is scarce. There is a clear demand for additional highly skilled PhD's in Uganda as few investigations that have been conducted so far highlight basic questions about the number, caliber, and efficiency of doctorates in Uganda. With respect to PhD. instruction systematically, the authors of this article will discuss just a few research studies in the last ten years in the Ugandan setting.

Mamdani (2012) looked at a study (Freeman, 2010) on the SIDA/SAREC support provided to Makerere University between 2000 and 2008. He pondered the two aspects which the study had mentioned. "To start with, how do you construct a study ideology? The second is: "Why can't the [dilemma of research capability] at Makerere University be addressed by money alone? (p. 1). After some consideration, he came to the following conclusion: "A research focus can only be developed with the help of a grasp of one's circumstances. It is not a remedy that may be revealed. It needs to develop. In establishing our own study ideology, we must first construct our own research issues. The development of peer initiatives, such as forming investigation committees and hosting symposia, is essential for individuals (p. 2). After some contemplation, Mamdani determined that "The key obstacle to developing research capacity at Makerere, and in Uganda, is not financial, but human" in response to his second question, "Why is it that money alone would not solve the research capacity issue in the university?" (p. 5). He suggested, "The only sure path to a sustainable future is to develop the human resource for teaching and scholarship at home, i.e., to grow our own timber," as a result (p. 6). In other cases, Mamdani encouraged graduate research that was applicable to the community.

The purpose of the report published by the Uganda National Council of Science and Technology (UNCST) was to aggregate the most current data on the academic experience, relevant expertise, and travel internationally of Ugandans who had earned doctorates. They uncovered, among many other factors, that the bulk of PhD holders in Uganda worked for universities and colleges, demonstrating that doctoral schooling in Uganda generally concentrated too extensively in academia and not enough on the career path; Managing diversity in addressing doctoral degrees and apprenticeships in the humanities and social sciences is crucial, as the bulk of doctorates in Uganda were trained in the agricultural and natural disciplines; Though most doctoral degrees in Uganda have been financed by resources other than the nation, there was a lack of government backing for doctoral training and study, which made it difficult to connect doctoral training and study with the country's scientific and technological strategy. It was discovered that PhDs in Uganda seemed to be spatially inactive, which means that doctoral instruction in Uganda did not properly train students for diversity. The research cast doubt on Uganda's doctoral training and educational system because the doctorates were allegedly scholastically ineffective.

At Makerere University, Wamala, Ocaya, and Oonyu (2012) investigated the patterns of turnover leading to prolonged eligibility and quasi-completion of a PhD. They uncovered using percentages that candidates possessed poor success rates and protracted candidacy. Regression modeling showed that the graduation rate for doctoral hopefuls diminished with advancing years. When contrasted to domestic students, overseas PhD. students had a three times greater completion percentage. When contrasted to contenders in subjects associated with scientific research, applicants participating in thesis-based programs in the humanities had a substantially lower completion percentage. Students who were awarded scholarship money were more than likely to maintain their registration in the

program rather than drop out. Although critical, they uncovered that variables like age, as well as gender, had a lesser impact on Makerere University's doctoral completion percentage. The results of this investigation pose significant concerns about the quality of doctoral training and instructional contexts in the designated public universities in Uganda.

A study by Akuffo et al. (2014) demonstrated how much the faculty at Makerere revolutionized postgraduate study through the setting up of a successful expert panel. They lauded the advantages of the taught PhD in contrast to the PhD earned exclusively via research as a section of their research. For illustration, they recounted how "a very small number sought UK-style PhDs by research at Makerere, but completion was uncertain..." before 2000. Consequently, a small percentage began and perhaps even lesser achieved PhD's at Makerere prior to 2000, (pp. 201-202). When asked about his time as a PhD student at Makerere University, Akuffo et al. (2014) gave insights collected directly from one of the publication's authors (coded JO-O), who asserted that "PhD by research [there]... afforded no legitimate oversight until much late in the journey" (p. 207), JO-O practically stopped because of the complicated nature of the procedure.

Akuffo *et al*. (2014) shared the account of some other scholar (coded PW) pertaining to his encounter as a PhD by coursework and research at the University of Cape Town (UCT), South Africa, in antithesis to a JO-generally horrible experience. Akuffo et al. (2014) noted that PW entered a "dynamic faculty with 15 PhD students, eventually becoming one of the eight PhD students his superintendent oversaw... [where] regular research meetings nurtured student-to-student knowledge acquisition,". According to what they overheard PW say, this provided him with insight into the prospect of completing PhD. training in a constructive university setting. Ultimately, PW earned his Doctorate in three years (Akuffo *et al*., 2014).

A review of the benchmarks for doctoral training supervision at Makerere University was undertaken by Nakanjako et al. (2014). They gathered information using a qualitative research methodology regarding what was working well, what was not, how to achieve greatness, and the top sections that require updating. Regarding what was working well, they observed that both mentors and apprentices indicated that one of the components of the doctoral expertise that had progressed well as the potential for role modeling that had been afforded by the growing number of PhD students. Now they highlighted one benefit of the instructed PhD, notably sharing a group of trainees who promote each other. This is in addition to the numerous faculty members who, as recommended by Austin (2002) alleviate the load on supervisors. They noted that trainees faced difficulties due to a lack of facilities, insufficient supervisors who could really facilitate projects involving fundamental research, and a paucity of offices for both trainees and supervisors. In this, they stressed a shortcoming of the instructed PhD that Bista and Cox (2014) had hinted at, notably the ease with which the student enrolment can proliferate as the size of cohorts (of students) begins to rise over time. They revealed enormous complexities such as poor communication skills, deficient budget management and financial management skills, and difficulty building consensus. This indicates that applicable lifelong learning, one of the cornerstones of unique PhD training, was lacking in Makerere's doctoral training (Collins, 2009). Regarding the difficulties, they divulged that the suggestions for solutions originated from the participants themselves. These suggestions included talent development in information technology, communication, and financial and procurement administration. They did, moreover, observe that their investigation was circumscribed to the information they obtained just during one meeting.

According to Kasozi (2019), doctoral education and training in Uganda are of poor quality. He notes that the NCHE, which began operations in 2002, primarily decided to focus on some other components of higher education, ultimately leaving doctoral education and training up to the vagaries of various institutions. Kasozi chastised the NCHE's decision to create its Standards for Handling Doctoral Programmes (NCHE, 2014), Chapter Four pertains to PhD training, so late—14 years after its inception—and at a time when many universities had indeed begun to deliver PhD training. According to him, "many universities... were providing doctoral programs despite having no workforce or infrastructure" (p. 7). Thereby, Kasozi concluded that it was hardly astonishing that

PhD. graduates in Uganda generated little knowledge (citing UNCST (2012). Kasozi argued in favor of the taught Doctorate on several occasions. For illustration, he claimed that the NCHE had disqualified several PhD recipients from a particular university since "many of the candidates had not gone through... coursework that is required to grind PhD. candidates" (p. 8). Thus, according to Kasozi, who spoke to personnel at one Ugandan university, "most PhD graduates have been trained by the 'thesis only' technique, whereas a few who had gone overseas have been subjected to the 'coursework plus research prerequisites'" (p. 10).

At Makerere University, Lunyolo, Bakkabulindi, and Tusiime (2019) examined Leech, Gullett, Cummings, and Haug (2022) model on the determinants that forecasted satisfactory doctoral student completion (SDSC). Building on Leech's paradigm, they suggested four assumptions (H1–H4) that each favorably projected SDSC: Internal Assets (IA), Curriculum of Study (CS), Micro-Environment (MiE), and Microeconomic (MaE). In implementing SDSC, they used three parameters: originality, preparedness to carry out research, and willingness to publish. All four of their predictive variables, IA, CS, MiE, and MaE—had elements in a comparable pattern. They discovered that three of the Human Resources constructs—Motivation, Thinking Style, and Self-Efficacy—were strong positive indicators of SDSC using the quantitative method. SDSC was significantly and positively forecast by both the Programme of Study's (Standards & Curriculum) constructs. Extremely encouraging predictors of SDSC should include two micro-environmental characteristics (Supervisor as Well as other Instructors). The only variable from the macro environment that was a remarkable positive indicator of SDSC was the ethos of the university on graduate school.

What gaps could be left for our exploration through past research? Just two studies, Akuffo *et al*. (2014) and Mamdani (2012), explicitly set out to explore the curriculum of at least one doctoral program. Other research goals would include constructing a model of a PhD practitioner in Uganda (UG, 2012); identifying variances in Uganda's doctoral production (Wamala & Ssembatya, 2013); an analysis of Uganda's PhD mentorship (Etomaru et al., 2023; Nakanjako et al., 2014). Some were intrigued by how extended PhD training went (Wamala *et al*., 2012); In terms of scope, only two previous research (Kasozi, 2019); UNCST, 2012, and correspondingly Wamala and Ssembatya (2013) seemed to have unambiguous aim of including all public universities in Uganda. Others concentrated only on one institution of higher learning, such as Makerere (Lunyolo et al., 2019; Mamdani, 2012); or Mbarara University of Science and Technology (MUST) (Muriisa & Bergen, 2015).None of the research incorporated any sort of intervention. Our article had to address three public universities in Uganda that do provide PhD. education and training owing to such disparate endeavors.

2. Research Methodology

We examined archival documents on Doctorate instruction and training at Kabale, Gulu, and Makerere Universities. Since records are essential platforms for the instructional process, we examined them for main themes pertinent to PhD education and training in Uganda's public universities. Figuring out whether the documents promote or do not support PhD studies was of primary interest to us. What were the provisions posted concerning PhD education and training in Uganda in documents like legislation, programs, guidelines, and records at the national level? We analyzed at least two pieces of legislation, three programs, four guidelines, and one paper in this case. We were cognizant of the constraints imposed by the records as we explored them at the component level, including challenges like their unreliability, incoherence, and maturity level. As a result, we thought it would be appropriate to get in connect with the institution in charge of higher education in Uganda, the National Council for Higher Education (NCHE). As a result, we carried out a focus group discussion (FGD) with two NCHE officials.

We explored what was stated about doctoral education and training in papers such as programs, proposals, and records at the institutional level. At least three strategic plans, three policies, and three reports were assessed. As we scrutinized these historical materials, we were mindful of their shortcomings, including the fact that they were inaccessible, insufficient, and outdated, among many other obstacles. As a result, we needed serious opinions. Whose thoughts? If it had been practicable,

our "units of analysis," which respective PhD programs, would have spoken next. Since this was unfeasible, we had to find an individual who was closer to a specific PhD program so that they could talk to us on their part. The administrator of every PhD program became the mouthpiece for our prime motivation as a response. As a measure, we conducted in-depth interviews with nine participants, six of whom came from the universities of Gulu, Makerere, and Kabale, and whose credentials demonstrated that they were PhD program administrators. Considering that a university program by regulation of (NCHE, 2020) belongs to a unit, in the eventuality that perhaps a specific PhD program did not have an Administrator, the appropriate Head of Department (HoD) or Chair would step in as the representative of our secondary priority. As a result, we conducted interviews with seven participants, six of whom were from the universities of Gulu, Makerere, and Kabale, and whose titles revealed that they were HoDs or chairs of sections.

If a specified PhD program lacked a Head and the relevant section lacked departments, the unit's dean would represent the interests of the third priority. We had a conversation with a subject who held the position of dean/coordinator for a doctoral program at the University of Gulu. Three participants—all from public universities—were deans of schools or members of the staff. Director of the study for two of the participants, both from public universities.

The philosophy of PhD education and training in each university had regulators independent of a specific department, school, or college. This is where a distinct institution's doctoral program and quality control departments are positioned. These were viewed as essential sources of information for all doctoral programs at a specific university. As a result, six individuals from the universities of Gulu, Makerere, and Kabale were interviewed. Three public universities had three directors of quality management among our volunteers.

We analyzed records at the institutional as well as systemic settings to collect real statistics. We examined for appropriate documents on web pages, in real repositories, and in confidential files. Directly, in person, and via phone, we conducted personal interviews at the organizational level. Also, every investigation squad was composed of at least one key person and one research associate, who were provided with transportation to and from the conversation location by the scholars. To supplement the interviewee squad's written notes, each squad was presented with an external storage device (a voice recorder). Due to COVID-19 lockdown requirements, some conversations were carried out via telephone. Considering the lockdown limitations brought on by the COVID-19 flu epidemic, we undertook a focus group discussion (FGD) with representatives from NCHE via Zoom. Through interviews, we were able to learn about participants' viewpoints, thoughts, impressions, and affective responses to PhD training and education. To facilitate our comprehension of the opinions and personal experiences of the participant, we evaluated models drawn from the five Pillars of Effective PhD research. The interviewing strategy was active and engaging thus making it a reciprocal learning moment for the study team as well as the respondents.

Thematic paradigm analysis was employed for examining the results. According to Gale, Heath, Cameron, Rashid, and Redwood (2013), the matrix representation is where records is organized into units, it is what distinguishes it from other conceptual models. A unit depicted the intersection of a designated row and column. The sections encapsulated symbols, while the sections comprised incidents, such as papers for the evaluation of documentary evidence and respondents for the analysis of the interview guide. The predetermined concepts were the foundations of creative PhD training. To facilitate interpretation by the case (i.e., row) and by code, we meticulously compressed the material into the new framework organization (i.e., column). We chose framework assessment since it is autonomous of any one conceptual, metaphysical, or empirical strategy. However, according to Gale *et al.* (2013), it is a robust instrument that can be customized for use in different types of qualitative analysis of information.

3. Results and Discussions

By examining documents such as strategy formulation, guidelines, and directives on PhD training, reviews and undertaking conversations with critical informants with institutional stakeholders, we

were interested in comprehending the contexts of the implementation of PhD training and education in Uganda. The following section offers results in conformity with the two tenets of Proactive PhD Training.

The facilities were quantified as the workplace, teaching, reading room, research lab, and conference facilities as well as the provision of operating costs for a specific PhD program (e.g., toilet, power & water supplies). Government dedication to creating an enticing context in Ugandan HEIs from examination of documents at the module level was identified. According to Kimoga (2021), the Government of Uganda delegates the NCHE the duty to ensure enticing institutions in colleges of higher learning under the Universities and Other Tertiary Institutions Act (UG, 2001). In fact, Section 5.1 of the Approvers the obligations of the NCHE, among which is to ensure that higher education institutions have staff and physical facilities that are satisfactory and available for the courses they will be offering (NCHE, section 5. l).

Therefore, NCHE pledged to make sure that HEIs in Uganda have Desirable Academic Ecosystems in aspects of facilities and assets in the Approved Growth Strategy for HE 2003-2015 (UG, 2001). In specific, the NCHE listed six dimensions to encourage a rigorous structure of quality standards (QS) for HE under the sixth of its ten strategic priorities: "Quality assurance to produce graduates who... [could] ably operate in the local economy and ably work in the international economy" (pp. 21–22, Section 9.6). The components would include the caliber of the written and tangible materials that enhance classroom instruction. NCHE prescribes that almost all PhD. the curriculum must record, "clearly the... basic infrastructure delineated for the PhD research; reading room and online databases for doctoral students" in order to encourage appealing contexts for PhD. students in HEIs with respect to doctoral training and education in particular NCHE (2014), p. 61, Section 4.4, benchmark standard l).

Nevertheless, we discovered that throughout Kabale, Makerere, and Gulu universities, the administrative infrastructure for PhD degrees was inadequate. Respondents remarked that the infrastructure was insufficient and of poor standards. This is depicted by common remarks we received during our conversations across both universities. As an example, one respondent decried the situation that; "indeed the postgraduate school is domiciled in an extremely tiny area, their funding is modest so they collaborate with faculties to co-manage the students, and the staffing level at the postgraduate is very negligible,"

Some other respondents echoed this sentiment, asking, "How about students if we lack sufficient space for supervisors? The university is seriously deficient in space. The requirement to have better infrastructure at universities offering doctoral programs was highlighted by one of the respondents: "Facilities are certainly unsatisfactory, the rooms that PhD students utilize are lacking." Nevertheless, since PhD students are way more dedicated to their universities, it would be desirable to enhance the facilities in proximity to them.

Even though qualms concerning poor facilities overshadowed our conversations, we encountered some voices that take delight in their PhD students' world-class infrastructure. Nevertheless, some institutions' structures seemed to be adequate and easily available, and the PhD programs' minimal registration culminated in a noticeable shortfall in both time as well as space. One respondent used the following explanation: "Students are not applying for PhD, we publicize, yet few students come... even so, the spaces are existing. Some other respondents indicated that even though there are special amenities for PhDs, they were not completely leveraged since only a few students enroll in PhD scheme.

3.1 Discussion of Findings

A comparable predicament was detailed in one of the official papers of another university advocating to launch a PhD program. According to the statement, the university's teaching venues and conference halls provide plenty of workspaces. In terms of both space (occupancy factor) and time (frequency of use factor), the various lecture rooms of the various departments are presently

underused. Some respondents claimed that if the total number of PhD students stopped rising, their amenities were satisfactory. A participant "We have a PhD allotment sufficient to accommodate the two groups," as an indication. There are currently two groups. Nevertheless, as the numbers proliferate, we will encounter issues with classroom and reading room facilities.

On the contrary note, one anomaly asserted that a PhD student had no reason to fret regarding infrastructural facilities. "A PhD does not need physical surroundings," one respondent said. This leads one to speculate the role of ICT-supported web-based contexts fitting into the strategy of digitizing PhD education. The study revealed that the bulk of PhD programs were not yet entirely digitalized and were consequently delivered in physical locations that provided only sporadic online classes, teaching, and supervisory.

Academic personnel is categorized in relation to workload, student-to-staff ratios, and the proportion of personnel with PhDs Just at the structural level, unambiguous dedication to guaranteeing adequate and appropriate intellectual personnel in Ugandan HEIs were discovered in this study. Throughout the Performance metrics for Undertaking PhD Programmes, NCHE developed basic standards for PhD supervision and doctoral committee members (Section 4.8), specifying the function of superintendents (Subsection 4.8.1), supervisory teams/doctoral sub-committee (Subsection 4.8.2), and patching managerial volume of work (Subsection 4.8.3). When prospective supervisors or lecturers are not knowledgeable, enthusiastic, or capable of instructing the required courses, the NCHE stresses that "under no circumstances shall a university allow... PhD students" NCHE (2020), p. 67, Subsection 4.8.2, benchmark standard a).

Furthermore, the NCHE urges for routine doctoral prudential consultations and satisfactory oversight independence, highlighting that "Every institution shall put in place a mechanism to enable all supervisors to meet regularly... and concur on the path of research" (p. 67, Subsection 4.8.2, benchmark standard c). Whatever decisions concerning the candidate's work must all be confirmed by the student's senior supervisor NCHE (2020), p. 68, Subsection 4.8.2, benchmark standard k). It is accompanying supervisory workload standards that had been specified by NCHE in the same Prerequisites as;

> A supervisor shall be allocated no more than four doctoral students at any given time. Where the supervisor also has Masters's 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 (2014), p. 69, Subsection 4.8.3, benchmark standards a-d).

These obligations as well as standards established at the critical look have not yet been incorporated into actual practice at the administrative level. Every university that provides doctoral education and training decried the glaring shortage of doctoral supervisors and advisors. Either there was a paucity across the entire university or in a few various disciplines or domains of expertise. Respondents primarily ascribed this to Uganda's serious lack of PhD holders, as demonstrated by the following statement: "We believe that we have already documented in our record collection the shortfall of PhDs in universities and colleges at the level of overseeing research... it is a recurrent issue". Another respondent pointed out that the bulk of the researchers is housed at Makerere University, adding, "...as you correctly put, there are only about twenty-six researchers per million inhabitants, well below the global averages of 1, 083.

Due to a lack of PhD holders, Uganda has limited capacity for doctoral oversight. Respondents in the focus group discussion (FGD) stated that universities offering doctoral education routinely employ the same superintendents: When universities approach NCHE to accredit PhD programs, they submit to us a list of members of staff; nevertheless, you eventually realize that a number of these members of

staff or the whole catalog on other lists, implying that these members of staff are shared for PhD programs. We have now determined Uganda's glaring shortage of PhD holders.

Universities have pledged to implement NCHE guidelines and requirements but are unable to do so because of a lack of PhD holders. For comparison, it is mandated in Makerere University's Doctoral Supervision Guidelines (Makerere, 2016) that Ph.D. management teams must be both competent and not overcrowded. This is a sustainable approach to attaining quality training that leads to the production of legitimate, relevant, and advanced knowledge for societal transformation (Akena, 2012).

However, the study discovered that there were fewer senior positions held by staff members with expertise, indicating that there is a shortage of university staff at the critical level to supervise PhD programs. For instance, according to the Makerere Annual Report 2018 (Makerere 2019), only 94 (6%) of the 1,492 academic staff members at Makerere were professors, 157 (11%) were Associate professors, and 209 (14%) were senior lecturers in 2018. (p. 50, Section 5.2). The very same facts are given in the Makerere University Fact Sheet 2018-2019, (Ssempebwa, Teferra, & Eduan, 2019)(Makerere 2019, p. 31). Since Makerere University is greatly dependent on all other public universities to support their PhD programs, these universities also have an inadequate number of senior faculty members to successfully manage the PhD programs.

Accordingly, throughout public consultations at the institutional level, the most common responses we obtained decried the shortage of academic staff numbers for PhD programs and the concomitant constrained supervision competence. A participant gave the following representative remark: We hire part-timers from other universities because we have a serious shortage of personnel. As a result, our products' quality is compromised. You can expect that while we still have smaller class sizes for PhD students, there is a postponement in the results' prompt issuance.

However, only a handful of instances in which respondents indicated that they had enough personnel to oversee the PhD programs. As an illustration, one person stated that "for personnel, we have enough staff, we have over 25 PhDs, and in five years we shall have all staff with PhDs In between faculty and the students, there is a solid rapport. There are no interruptions in examining the thesis or oversight. This scenario, however, only applied in cases where PhD enrolment numbers were incredibly low.

In an alternate portion of their study from 2022, Marzam, Elpina, Rusdinal, Ananda, and Gistituati (2022), focus on four aspects of PhD education in Malaysia and Indonesia, specifically the aspect of education policy that is to be compared with other nations.

3.1.1 The impact of the low quantity, quality, validity, and productivity of PhD's in Uganda

The debate of whether proactive research endeavors entail a quantity (productivity) and quality component remains a subject of conversation in higher education, and this study adds to the discussion. There are no clearly observable indicators for the quality of research or teaching, even though there are quantity indicators for both (such as the number of publications, citations as well as grants) and teaching (such as the number of courses taught, hours in class, and theses supervised). When this happens, according to Choi, Hecht, and Tayler (2013), performance evaluation systems frequently use surrogation, in which a set of indicators have been created that account for a major hidden predictor. Stack (2003), Long, Crawford, White, and Davis (2009), and Harvey, Kelly, Morris, and Rowlinson (2010) point out that the impact of research is usually measured by the number of papers published in a select group of top-tier journals or the number of citations, notwithstanding some contention within the field of academia. In contrast, Hattie and Marsh (1996) assert that PhD student evaluations are typically used to evaluate the efficacy of an instructor. Several scholars have argued that student assessments are typically credible and reliable (Arnold, 2008; Balam & Shannon, 2010; Bedggood & Donovan, 2012; Liu, 2012).

The quantity of research productivity, as opposed to its quality, is referred to as research productivity. Previous study indicates that conducting research has both benefits (such as increasing knowledge currency) and adverse (such as reducing time) effects on instruction, (Lindsay, Breen, & Jenkins, 2002). Therefore, it is not surprising that theoretical justification exists for the various ways that the connection can be interpreted(Hattie & Marsh, 1996). Strategies for assessing performance that provides rewards for study productivity may be able to moderate this relationship. However, Arnold (2008); Siswanto, Hasan, Sowiyah, and Ridwan (2020); Sama, Adegbuyi, and Ani (2021) acknowledge that academics frequently face inverse trade-offs at the outcome level, such as knowledge currency/instructor availability, which are likely to mediate trade-offs at the input level (e.g., time divided between research and instructing.

Our study portrays the quality of instruction as a dependent variable of research success based on three contentions while recognizing alternate causality theories. First, numerous universities work to promote research-led instruction as they assume it will enhance instruction (Schapper & Mayson, 2010). Second, modern performance measurement systems, which are largely founded on research, implicitly incorporate this premise (Parker, 2008). Third, recent studies by Arnold (2008) and Galbraith and Merrill (2012), in which study activity variables were specified as predictors of teaching efficacy, used similar model specifications.

Paradoxically, the present academic evaluation mechanism does not really encourage research quality, which has been shown to have a positive impact on the quality of instruction in Uganda's public universities. These results may suggest that the productivity-focused performance assessment system currently in place at the universities of Gulu, Makerere, and Kabale is somewhat dysfunctional, but it is not at odds with the strategy of the organization. The mission of Kabale institution is to be a sustainable, vibrant, and academically excellent institution in the Great Lakes Region and beyond, instead of simply to earn quality output. For Gulu it is intended to serve as a pillar for sustainable, social, and academic growth. While Makerere University is regarded as a pioneer in the production of knowledge for the growth and change of society. The university's strategy to guarantee that its PhD. program is successfully implemented appears to be in line with the performance monitoring system's ability to promote universally pertinent publications while not really impacting teaching, (Kasozi, 2019).

4. Conclusion

This article has brought to light structural barriers that may hinder Uganda's unique doctoral education and training. It is improbable that PhD degrees earned in Ugandan universities will become more globally competitive and applicable to the demands for nation-building unless such issues are addressed. The most notable limitations include unsatisfactory, restrictive, inadequate, and undercapitalized external financing; inadequate doctoral supervision and coaching and mentoring abilities; a lack of cultural diversity in doctoral programs; incomplete exposure to the related industry; too little global collaboration; unsatisfactory multidisciplinary research mentoring; incomplete transferable skills; and inadequate QA and pipeline limitations. As a result, there is a mismatch between published papers' goals and pledges to improve doctoral education and training and the actual contexts under which such training is offered in universities as well as other establishments.

In accordance with the results, a holistic national planning framework to deal with the creation of the cutting-edge knowledge and skills required to support the national research eco-system and improve the economic incentive to innovate is required. There may not be as of now a broad national plan for research and high-level expertise and expertise advancement. The Ministry of Education and Sports, the National Planning Authority, the Ministry of Science and Technology, the Ministry of Labour and Social Development, the Ministry of Public Service, UNCST, and NCHE, among other relevant ministries and government agencies, should work collaboratively to synchronize the different planning components for research and high-level skills for the development of the nation's economy and society. A key component of the government plan for science and elevated skilling should be PhD education and training.

The study had a methodological problem since doctoral supervisors and students who demanded positivist surveys were left out.

To determine the fundamental variables impacting the quality of doctoral supervision in Uganda, further studies be conducted on the supervision practices in Ugandan universities. The evaluation process should concentrate on tracking doctoral supervisor expertise and ability needs, doctoral supervisor workloads, and doctoral supervisor incentive concerns. As a result, interventions to improve the quality of doctoral supervision in Ugandan universities will be adequately informed.

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