

**ORGANISATIONAL SUPPORT AND RESEARCH PRODUCTIVITY AMONG  
LECTURERS AT KYAMBOGO UNIVERSITY**

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**DECLARATION**

I, KANAABI MOSES, declare that this work is original and has never been submitted to any other institution for any academic award.

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## APPROVAL

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## **DEDICATION**

I dedicate this work to my dear children; Nandawula Erone Kathleen, Kimuli Moses Kanaabi Jr, Ssekyole Emmanuel, Magandaazi Joshua, and Nagginda Jammie Ann., You are the very reason why I have to keep moving forward. Also, to my wife Janefrances Kanaabi, thank you for supporting me through this long lonely journey. May the good Lord richly reward you.

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## DEFINITION OF OPERATIONAL TERMS

- Lecturers:** University Academic Staff who hold Ph.Ds. (Doctorate of Philosophy Degrees)
- Reciprocity:** A condition where the recipient of benefits is morally obliged to recompense the source of those benefits.
- Research Productivity:** Extent to which Lecturers engage in academic investigations and publish their findings in form of journal articles, books and, book chapters and also present their research findings in academic conferences, in addition to supervising post graduate students to completion.
- Lecturer research productivity:** Number of journal articles published, books and book chapters authored, conference papers presented, number of Masters and Ph.D. students supervised to completion by lecturers in the last five years (2015-2019).
- Organisational support:** The policies, management practices, systems and structures, funding, Physical and electronic infrastructure that a University makes available to a Lecturer to support his/her research productivity.

**Perceived organisational support:** Employees' beliefs/ opinions in the extent to which an

organisation values their contributions, cares about their wellbeing, and is willing to support their performance to meet organisational goals.

**Research Infrastructure:** Functional laboratories with the needed research equipment,

field research equipment, well- lit and ventilated office space with appropriate office furniture, furnished with computers and printers, and reliable power connectivity for conducting research.

Functional remotely accessed e-libraries, availability of recent soft copies of books and publications and University subscription to online publication outlets.

Presence of software for data collection, and analysis, internet connectivity needed for conducting research.

**Research management:** Practices, processes, mechanisms, and structures that the University institutes to support the lecturers' research function.

## ABSTRACT

In today's hyper-competitive higher education market, research productivity has become a dominant criterion for establishing the relative standing of individual academics and ranking of universities. However, in Ugandan universities, attention is paid more to the teaching function. The research function is generally left to individual lecturers to conduct as a requirement for promotion. This study therefore sought to evaluate the effect of the university organisational support on lecturers' research productivity at Kyambogo University. The analysis focused on research policy, research management, research funding and research infrastructure as the organizational support availed to lecturers in promoting research productivity. Research Productivity was indicated as article publication, Book authorship, conference presentation and graduate students' supervision. The study used a mixed-method cross-sectional correlational survey design. A sample of 127 Ph.D. holding lecturers and 9 key informants participated in the study. Data was collected using questionnaires, documentary analysis and interviews. It was analysed using Structural Equation Modelling for quantitative data while qualitative data was analysed through thematic content analysis. Overall, the results revealed generally low organisational support (mean = 2.83 Std D. = 0.258), low research productivity (mean = 2.83, Std D. = 0.693), indicating a significant relationship between organisational support and research productivity ( $\beta = 0.523$   $p = 0.000$ ). Specifically, the study established a significant positive effect of research policy ( $\beta = 0.219$ ,  $p = 0.023$ ) and research infrastructure ( $\beta = 0.280$ ,  $p = 0.016$ ) on research productivity. However, no significant effect of research management ( $\beta = 0.027$ ,  $p = 0.803$ ) and research funding ( $\beta = 0.113$ ,  $p = 0.253$ ) on research productivity. The study thus concluded that organisational support is a major predictor of research productivity in universities and recommended university managers to improve the support given to lecturers to conduct the university research function. In particular, the study recommended the formulation and implementation of favouring and supportive research policies, and increased funding to improve the university research infrastructure as the most critical support factor for research productivity.

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background to the study

Lecturers' research productivity is a critical factor for the success of any university. Productive lecturers not only enable their universities to achieve their goals but also enhance their competitiveness. Universities' global competitiveness largely depends on their academics' research output than teaching awards. As such, university academics research productivity is thus increasingly becoming a crucial indicator of their career prestige as well as the overall university standing, funds generation, industry relationship, and desirability to both global and indigenous student populations (Yang, 2017). To this end, universities should not only fully exploit the talents of their lecturers but also avail them with the necessary support to promote their productivity in the bid to offer the best quality services.

Research productivity is influenced by both personal and organizational factors. Though individual aspects such as age, gender, family responsibilities, intelligence, interest, ambition, focus, academic rank, and years of service may play a critical role in determining individual lecturer's level of productivity in general, they are not easy to manage and adjust. On the other hand, organizational factors such as the availability of electronic technology, physical infrastructure, policies, funding and governance arrangements are more amenable to interventions. Research has also shown that organizational aspects like management forms can be adjusted with less difficulty than individual factors like interests, attitudes and personality traits (Jung, 2012; Teodorescu, 2000). This study therefore evaluated the effect of organizational support on research productivity among lecturers at Kyambogo University.

This chapter presents the background of the study. It also highlights the statement of the problem, purpose, objectives, research questions and hypotheses, the scope, justification, and significance of the study, and the conceptual model that guided the study. The background entails the historical perspective which gives the past overview of the problem under study, the theoretical perspective gives the theories that underpin the study, the conceptual perspective describes the key study variables, and the contextual perspective shows the problem at hand that prompted the study.

### **1.1.1 Historical perspective**

World over, productivity in higher education has had a multi-dimensional character in form of knowledge production, dissemination, and application through research and publication, teaching, and outreach activities. However, research productivity has specifically received more attention from several scholars (Dundar & Lewis, 1998; McGill & Settle, 2012; Henry et al., 2020; Jameel & Ahmad, 2020), acknowledging it as not only a crucial role but also a primary function for university standing. This therefore calls for increased organisational support to facilitate lecturers in conducting this dominant university function.

The notion of research establishment at universities began in 19th-century Germany. This was during the European Industrial Revolution that led to the explosion of new ideas through empirical research conducted in laboratories and results later validated to develop new technologies (Geiger, 2004; Altbach, 2013; Cloete et al., 2015). The pre-eminence of research over teaching was further brought forward from around 1825 by the Humboldt's Reformed University of Berlin (Altbach, 2013). Before that, universities were dedicated to the teaching function, to prepare professionals in several disciplines. From the late 19<sup>th</sup> century to the early 20<sup>th</sup> century, universities in Europe and North America struggled to transform into innovation

centres through increased research to generate knowledge for societal advancement (Watson, 2010; Altbach, 2011; Altbach, 2013).

The growth and evolution of universities' research productivity have mainly been shaped by external factors. After the second world war, there was a sharp increase in research productivity among the industrialised countries, mainly the United States of America and the Soviet Union, due to government policies influenced by the cold war arms race and space technology rivalries (Altbach, 2013; Auranen, 2014; Cloete et al., 2015). By the 1950s many European countries had started setting up profession-based research entities to allocate funding and partner with universities to conduct both basic and applied research (Auranen, 2014). This called for university academic staff to get involved in research to promote the socio-economic development of their societies. From the 1960s to the 1990s, emphasis on scientific research spread from North America and European countries to Asia, where it has remained a source of high-tech innovations and economic prosperity focusing more on promoting research-based technological inventions and bringing them to the market (Auranen, 2014). As innovation increasingly became the mantra for development in the 21<sup>st</sup> century, the generation of applied knowledge through research has steadily emerged as the source of economic growth and affluence in North America, Europe and Asian countries (Altbach, 2011). Thus, to keep pace with the new reality, nations have scrambled to establish institutions that would promote the generation and dissemination of knowledge through research and publications, of which universities have played a central role.

Globally, universities remain knowledge production and transfer centres as well as workshops for novel technological advancements through enhanced students' and academic staff creativity (Ghabban et al, 2019). Research productivity has therefore continued to receive

increased attention and investment not only in recognition of its widely accepted contribution to economic development, but also to the countries' global competitiveness and dominance, hence the need for increased organizational support, as a critical factor in enhancing research productivity among university academic staff.

In Africa, universities were largely a creation of colonial establishment in the early 20<sup>th</sup> century. They were mainly aimed at teaching to produce low-level but broadly educated civil servants like clerical officers and interpreters (Kasozi, 2017). Universities founded on the above perspective included Makerere in Uganda, Ibadan in Nigeria, Legon in Ghana, Fourah Bay in Sierraleone, and Gordon College-Khartoum in Sudan (Sicherman, 2008; Temele, 2016). Most of these new or elevated university colleges served as regional training institutions affiliated with and awarding degrees of the University of London (Zezeza, 2006). In these universities, little attention was given to the function of generating new knowledge through research, for fear of opposition to colonial governments by the educated African elites (Atuahene, 2012; Lulat, 2003; Zezeza, 2006; Mamdami, 2011; Atuahene, 2012). This restrictive policy left many African countries to gain independence without the required human capital for national development. Thus, after independence, the initial African governments emphasised the training of the manpower needed to replace the departing colonial officers as their main higher educational need (Kasozi, 2017). This explains why post-independence universities mainly concentrated on the teaching function with little attention given to research for development (Sawyer, 2004; Mamdami, 2011; Atuahene, 2012).

Although attempts by some American academics in the late 1960s to conduct research in prominent Sub-Saharan Universities like Makerere gave a shot of emphasis on research,

especially in the sciences faculties, the Humboldtian design of a university founded on a dual mandate of scholarship and teaching was never realised (Anderson, 2010; Henningsen, 2013; Kasozi, 2017). The situation was worsened by the economic and political upheavals that hit the continent from the 1960s through the 1990s whose consequence was the inability of African universities to keep pace with global developments in managing research in higher education. African universities went through unprecedented declines in research productivity, reducing their contribution to international referred journals to less than 2% (Jung et al., 2019). A review of the Thomson

Scientific Citation Indexes (CI), shows that Africa's contribution to the global scholarly literature decreased from 1.0 percent in 1987 to 0.7 percent in 2004 (Tijssen, 2007; World Bank indicators, 2013). Even the more recent figures on Africa's research performance still remain depressingly low at just 1 percent of the world's research output (Muriisa, 2014; Teferra and Teichler, 2015; Kasozi, 2017; Jung et al., 2019).

Currently, there seems to be consensual acknowledgement that Africa's under development largely depends on its inability to fit into today's knowledge economy. Many African leaders also contend that Africa's intangible benefit from globalization is largely based on its inability to contribute to the global pool of knowledge (Jung et al, 2019). With little to show for its knowledge productivity in this knowledge era, there is need for sustained organizational support through meaningful policies, effective management to implement the formulated policies, and adequate resource allocations by both African governments and individual universities to the research function.

In Uganda, the long history of civil unrest and political mismanagement of the country from 1966 to the 1990s are highly blamed for the country's lagged state of research productivity (Musisi & Muwanga, 2003; Kyaligonza, 2015). From 1966 to the 1990s, Uganda was plunged



into dictatorial rule, civil wars, political instability and insecurity, characterized by mismanagement and total collapse of the economy (Ssempebwa et al., 2004; Sicherman, 2008). This period had a reverse impact on the advancement of the country's higher education, with high levels of academic staff attrition, lack of international scholarships and access to up-to-date scholarly materials and outlets, nearly leading to a complete collapse of the university's research infrastructure (Kyaligonza, 2015; Musisi & Muwanga, 2003). The resultant state of hopelessness among the remaining lecturers greatly reduced their research productivity (Makerere University Report, 2012; Kyaligonza, 2015; Jackson, 2017).

As the country was recovering from the post-independence turmoil, it faced the lending conditions of the United Nations money lending institutions which undermined the funding of higher education and research, in favor of basic (primary and secondary) education for its then perceived higher rate of returns on investment (Mamdami, 2011; Atuahene, 2012; Bloom et al, 2013; Muriisa, 2014). African countries including Uganda were forced to re-allocate resources towards the primary and secondary education levels. The result was low funding to universities of which the research function was the most adversely affected.

The contention that universities are basically, producers of skilled manpower as opposed to producing knowledge and training future researchers and academics was further reinforced by the neoliberal policies of the 1980s that focused on market requirements to guide the economic and social affairs (Kyaligonza, 2015; Kasozi, 2017). The policy emphasis was to make higher education market-driven through commercialization, privatization and massification of universities to generate their own revenues by introducing privately sponsored academic programmes. This explains the then popular introduction of market-

driven courses in Ugandan universities at the expense of research as a key prerequisite for respectable staff performance (Kasozi, 2017).

Besides, the government of Uganda did not emphasize the contribution of research to national development. For instance, Uganda Vision 2040 failed to categorically state the role research would play in transforming Ugandan society from one dominated by peasants to one that is modern and prosperous (Kasozi, 2017). As such, the rush to build new public universities has majorly been shaped more by the quest to improve students' access to higher education than a mix of knowledge creation and dissemination. Such global and national economic policy shifts also reduced the universities' ability and readiness to provide the necessary organizational support for research productivity among their academic staff. As such, it necessitated the need to analyse the presence of organisational support factors in universities availed to lecturers in the bid to promote research productivity.

Kyambogo University is the result of the integration of three educational establishments: the Uganda National Institute for Special Education, the Uganda Polytechnic, and the Institute of Teacher Education. The three were teaching institutions that basically emphasized research as a teaching component (Kyaligonza, 2015; Kasozi, 2017). The majority of the academic personnel that the university acquired was primarily prepared to teach and instruct, not to conduct scholarly research. It's also important to note that the university didn't begin with the required infrastructure for research, research management systems, or policies. Such historical factors are believed to have an adverse bearing on the university research output. Although the university embarked on capacity building programmes for its academic staff through Ph D programme sponsorships aimed at meeting the National Council for Higher Education requirements among others, these have not translated into increased research productivity. It's also important to

remember that the university didn't begin with the required infrastructure for research, research management systems, or policies.

At the moment, the university is commended for turning out a large number of teachers and engineers onto the labour market, but not producing or sharing applicable knowledge that can change society. Low levels of research and innovation have been found at Kyambogo University by several university rankings. For example, the university's low research output is seen in the AD scientific Index rankings (2022), with only 24 active researchers out of the top 500 scientists in Uganda. Kyambogo did not post any researchers among Uganda's top 40, where it fared poorly, ranking behind Kampala International, Gulu and Busitema Universities. Kyambogo is not listed in the top 200 of several regional (African) university rankings that are based on research, and in other rankings, the university has no data available (Shanghai, 2018; QS World University Rankings, 2021; SCIMAGO, 2022; THE, 2021; Webmetrics, 2022). This investigation was thus necessary to determine the degree to which the university supports its academics in promoting its research function in light of the appalling condition of affairs.

### **1.1.2 Theoretical perspective**

This research was hinged onto the Organizational support theory (Eisenberger et al, 1986) and the Social-Technical Systems Theory (Mitchell, 1972). The Organizational Support Theory postulates that employee's performance is closely related to how much support they believe they are receiving from their organisation (Eisenberger et al., 1986; Eder and Eisenberger, 2008; Boateng, 2014; Boateng et al., 2019). According to the theory, employees form general opinions about how much employers values their contributions, are concerned about their well-being and their willingness to support employees to increase performance (Shore & Shore, 1995; Lew,

2009). Such a perception determines employees' felt obligation and in turn increases their effort to contribute towards the organisational objectives, with the expectation that their commitment to the organization and improved performance would further be recognized, supported and rewarded.

From this perspective, the theory posits that employees need to be valued, catered for and supported through fair and just policies, valued rewards, supportive management structures and practices to increase their job performance, job satisfaction, organizational commitment and intention to stay with the organization (Eisenberger et.al, 1986, 1990, 2001, 2002; Rhoads and Eisenberger, 2002; Colakoglu, Culha & Atay, 2010; Liu & Ding, 2012; Boateng, 2014; Shen et al, 2014; Kurtessis, Eisenberger et al., 2015; Mabasa and Ngirande, 2015; Boateng et al., 2019; Putri and Sofyandi, 2019). This theory thus guided the analysis of the first three objectives of the study, namely the effect of the research policy, research management and research funding on lecturers' felt obligation to conduct research and publish findings.

However, the theory does not succinctly bring out the concept of providing employees with the required tools for the job to enhance their productivity, in deviation from the widely held view that employee competences must be matched with the tools, resources and the technology needed to accomplish tasks regardless of other forms of workplace motivation (Mele, Pels & Polese, 2010; Behdani, 2012; Hester, 2014; Oosthuizen & Pretorius, 2016). This necessitated the use of the Social-technical Systems theory as another guiding theory to explain the role of organizational physical and electronic infrastructure in supporting research productivity.

The Socio-Technical Systems Theory is derived from the assumption that organisations are made of the social and technical sub-systems as their two main components (Mele et al.,

2010; Hester, 2014). The social component refers to the employees, for instance lecturers in a university. On the other hand, the technical component includes the technology, equipment and other resources that must be availed to the employees to enhance their productivity. The main contribution of the sociotechnical systems theory is its emphasis on the interconnectiveness of both the social and the technical sub-systems to improve system performance (Behdani, 2012; Pence et al, 2014). In modern organizational management, productivity is more of a result of a positive interaction between people as the social sub-system and technology as the technical elements available in their workplaces. Such interaction promotes organizational performance, mainly through a cause-effect relationship. In this interaction, the social-technical systems (employees and equipment) are the substantive factors while performance and job satisfaction are the outcomes (Eric, 1981; Mtsweni et al, 2020). This theory therefore helped to explain the fourth study objective, namely the effect of infrastructure support on lecturers' research productivity.

### **1.1.3 Conceptual perspective**

Iqbal and Mahmood (2011), define research productivity in regard to how much faculty members engage in complex research work, publish in refereed journals, write books and book chapters, present papers at academic conferences and come up with inventive artistic works. According to Okiki (2011), research productivity is the degree to which lecturers conduct research, publish their findings in professionally referred journals, conference proceedings, write books, book chapters, make them available online, or disseminate them to the general public. For Latif & Subramaniam (2016), research productivity refers to the production of articles published or accepted by peer-reviewed journals indexed in major publication outlets.

However, for purposes of this study, research productivity is defined as the extent to which lecturers engage in academic investigations, publish their findings in form of journal articles, books, book chapters, conference presentations, in addition to supervising graduate students at Masters and Doctoral levels to completion. Research Productivity was therefore indicated by publication counts of journal articles published, books, book chapters, conference presentations and graduate students (masters and Ph. D) supervised by each lecturer to completion in the last five years from 2016 to 2020.

Despite the increased emphasis on evaluating research productivity in higher education institutions, there is no consensus among academics and administrators as to what research productivity actually is, how to quantify it, or how to interpret it (Kumar, 2010; altbach, 2015; Nygaard, 2017; Yang, 2017; Sayfa, 2017; Pojani et al., 2018; Jung et al., 2019; Putri & Sofyandi, 2019). Various criteria have been applied to categorise research outputs, and a variety of indicators suggested to quantify individual research output. The most frequently employed one is the publication count which is a summation of counts of conference papers, books, book chapters, journal publications, review of manuscripts and other types of outputs.

In addition to assessing research productivity by quantitative counts, the quality of research output has also been assessed by the reputation of the journals in which studies are published and by the frequency with which an article is cited in literature (Dev et al., 2015b). As a qualitative metric, citation analysis reveals more information about the impact of research. Consequently, some scholars have used the number of citations received by the published works to measure individual author's research performance (Carpenter et al, 2014; Dev et al, 2015a; Agarwal et al, 2016; Pojani et al, 2018). Other scholars have applied a combination of metrics to ascertain individual and institutional research productivity.

For instance, (Henry et al, 2020) used publication counts, Ph. D graduates, intellectual property registered and research grants won to measure research productivity. Doh et al, (2018), used publication counts and the number of patents applied for and registered, while McGill and Settle (2012), applied publication and authorship counts, conference presentations and research funding attained to ascertain research productivity. An h-index comprising publication and citation counts has also frequently been applied to measure faculty research output (Hirsch, 2005;

Abramo et al., 2014; Quimbo and Sulabo, 2014; Pojani et al, 2018; kwanya, 2020). The Impact Factor (IF) of a journal that indicates the annual average number of citations to recent articles published in that journal (Harris, 1990; Turner and Mairesse, 2005) is also commonly used to measure journal quality.

Measures like the quantity and number of research funds an academic member receives have been mentioned by other studies (Altbach, 2015; Nafukho et al, 2019; Mtsweni et al, 2020), Other scholars have referred to educational outcomes of an academic member such as supervising graduate students to completion (Altbach, 2015; Mtsweni et al, 2020), while membership to research academies (White et al, 2012) and amount of research funding (Iqbal & Mahmood, 2011; McGill & Settle, 2012), are also commonly analysed as a supportive environment for scholarship while evaluating faculty research productivity.

Although the measures outlined above have greatly improved the understanding of research productivity, none of them has been universally adopted as the gold standard. The three most commonly used indicators are publication counts (quantity), citation counts (quality/impact), and journal quality of publication (quality/visibility) (Allen, 2017). A journal's visibility is indicated by the quantity of citations it receives, and the effect on the research community is

indicated by the number of citations each publication receives. Hence, articles in journals with a high citation count are thought to be more visible (Allen et al, 2017).

However, over reliance on web-metrics to measure individual research productivity has been found to have several limitations. Web-metrics tend to concentrate on highly cited publications with high impact factors and disregard low cited articles but used extensively by readers. For instance, if articles are mostly used by readers like students and practitioners who do not usually publish, their impact factor remains low implying low productivity. Some web-metrics like Altmetrics focus more on digital conversations and social media outlets like tweets, shares and blogs that are not citations to generate data. They also do not exclude self citations by researchers and duplicate records of the same articles (Burne, 2020). Rankings developed by outside agencies also tend to apply subjective weighting methodologies that are not standardised, normalized and suited to the different academic and research disciplines contexts (Burne, 2020). For instance, citation tracking databases can not index every type of research productivity output since databases use different methods for collecting, reporting and indexing from various fields of study. Lastly, some citation tracking databases do not cover research of local, national and regional importance especially on local African issues which may be pertinent to researchers (Byl, Ozsü, Kenyon et al, 2016).

Research literature reveals that these three measures are interrelated to yield a positive correlation between publication counts and citation counts especially in first tier journals (Sayfa, 2017; Seibert et al, 2017; Pojani et al., 2018). Such correlations provide the validity of reducing the threedimensional measurement of research productivity into a single dimensional measurement in form of publication counts, self-reported number of journal articles, books and book chapters published in a given period before the survey (Teodorescu, 2000). It is



from this contention that the study used simple counts of journal articles, books and book-chapter publications, conference presentations and graduate students' supervision as the measure of research productivity.

As aforementioned in the theoretical perspective, employee's performance is closely related the organizational support received from their organisations. Eisenberger et al, (1986) defined Organisational Support as employee perceptions on how much the organization values their contributions and cares about their well-being. According to Putri and Sofyandi (2019), organizational support is members' opinions of how much support organizations give to their employees and how ready they are to help in an emergency. Ratna (2018) focuses particularly on a university's organizational support, regarding it as the degree to which universities tend to lecturers' social-emotional needs, well-being, relationships, and sense of mutual support in addition to offering support and assistance when needed. Such a focus is in line with that of Putri and Sofyandi (2019), which states that organizational support in a university refers to the training, care for lecturers' needs and allocation of sufficient time for task completion.

In line with Sondari, Rejito and Layyinaturobaniyah (2017), in this study Organisational Support refers to the policies, management practices, funding and the infrastructure availed by the university to support lecturers' research productivity. These were examined in a variety of ways, such as research policy, which referred to the existence of a supportive university research policy that prioritizes and supports lecturers' research as a central university function. Research management which referred to the extent to which a university institutes supportive practices, processes, mechanisms and structures for lecturers' research activities in line with the research policy. These included the establishment of a university research and innovations unit, developing a research policy implementation mechanism, instituting efficient research

ethical review and publication processes. It also included instituting a clear tracking system and monitoring process of research progress from conception to publication, appropriate teaching load allocations to leave lecturers with enough time for research activities, recruitment and allocation of research assistants, and securing collaborations and partnerships to support and facilitate research networks.

Organisational Support also included research funding for data collection, research publication, book authorship, conference paper presentations, and financial incentives for research publications, book authorship, and graduate student supervision through to completion. It also included the research infrastructure which referred to availing lecturers with the required physical and electronic infrastructure to support their research activities. Infrastructure included functional laboratories with the needed research equipment, field research equipment, well-lit and ventilated office space with appropriate office furniture, computer sets and reliable power connectivity for conducting research. It also included the availability of software for data collection and analysis, internet connectivity, functional remotely accessible e-libraries, access to recent soft copies of books and publications from major online publication outlets. The study sought to explore the presence of the above aspects of organisational support and how their functional availability influenced research productivity among lecturers.

#### **1.1.4 Contextual perspective**

Although Uganda has many public universities' and most of their goals are research focused, evidence shows that they have generally retained a stronger hand in the teaching function than research, always delighted to award terminal certificates, diplomas and degrees (Cloete et al, 2011; Kasozi, 2017). More to this, Ugandan Universities, Kyambogo inclusive are paying more

attention to creating more under-graduate courses, establishing remote study centres and extending teaching infrastructure to accommodate and tap into the revenue from a large number of private tuition paying students (Kasozi, 2017). In Uganda, universities are not required to display research outputs at the end of semesters. Instead, they are mainly held accountable for the employability of their graduates as the only quality measure of the education provided to students (Rosovsky, 2015; Kasozi, 2017).

Several studies conducted on university academic staff research productivity (NCHE, 2012;

Musiige, 2014; Kyaligonza, 2015; Kasozi, 2017; Hiire et al, 2020), indicate that many university lecturers with those of Kyambogo being no exception, spend most of their time in consultancy services, conducting extra-load teaching in their universities and moonlighting in other universities, with the aim of supplementing their salary income. Overworked by teaching loads, many academics remain often too tired to concentrate on research (Kyaligonza, 2015). Even when academic staff are believed to have the ability to carry out research, they prefer to work on income generating projects externally funded by donors rather than working in their faculty and departmental research groups under minimal or no support at all (Musiige, 2014). Many universities lack functional research policies, agenda or strategic plans to manage research. (Kasozi, 2017). Even universities like Kyambogo that have developed research policy documents have found serious challenges in implementing them.

Research and innovation were identified by Kyambogo University as one of the main focuses of her strategic plan (2015/16–2019/20). A research and innovations policy (2014) was also created as an aid in advancing university-wide research endeavors. Nonetheless, budgetary allotments for research funding at the same university have been stagnating between 1% and 2% of institutional budgets, with actual allocations consistently falling well short of projections (KYU

Budget book FY 2017/18 – 2020/2021). According to Kyaligonza et al. (2015), university research funding in Kyambogo is primarily the responsibility of individual faculty members and those who are fortunate enough to receive funding from foreign agencies, particularly in the science-based faculties.

Several world university rankings continue to reveal unpleasant standings among Ugandan universities in general and Kyambogo University in particular. For instance, the SCImago Journal Rank institutions ranking (2022), mainly based on research and innovation did not have any Ugandan university among Africa's top twenty. Makerere University which produces close to 80% of Uganda's university research output was ranked the 23<sup>rd</sup> in Africa and kyambogo did not appear on the list. In the Best Global Universities ranking (2022) in Africa, based on research performance, no Ugandan university made it to the top ten list. The Times Higher Education (THE, 2021) based on teaching, research, knowledge transfer and international outlook did not have kyambogo on the African University rankings. The Shanghai Jiabao Tong academic rankings (2018) only ranked Makerere between 901 to 1000<sup>th</sup> position in the world. Other Ugandan universities Kyambogo inclusive did not appear anywhere on the list. In the Quacquarell Symonds (QS) world university rankings (2021), no Ugandan university made it to Africa's top 20 chart, and Kyambogo had no data available in the rankings.

In the Webmetrics rankings (2022), Kyambogo did not appear on the list. In the university rankings-AD Scientific Index (2022), Kyambogo University had no researchers ranked in any discipline among the top 100,000 worldwide. For the years (2017-2021), the same rankings show kyambogo ranked 252<sup>nd</sup> in Africa and 7<sup>th</sup> in Uganda on the citation index, 361<sup>st</sup> in Africa and 10<sup>th</sup> in Uganda on the i10 index, and at 350<sup>th</sup> in Africa and 9<sup>th</sup> in Uganda on the H index despite being the second biggest university in Uganda in terms of staff size and students'

enrollment. This implies low research productivity in Kyambogo university since research and innovation is the basic criterion used in the aforementioned university rankings.

In almost all Ugandan universities Kyambogo inclusive, teaching has remained the main function with more emphasis on graduation ceremonies than on launching research outputs (Kasozi, 2017). In the Ministerial Policy Statement KYU Vote 139 (2021/2022), the overall target number of research publications from the seven university academic units for the academic year 2021/2022 was 83 publications and the projected output for 2022/2023 and 2023/2024 stood at 93 and 103 publications respectively (KYU strategic Plan; 2020/21-2024/25). This implies that the annual publication target for 2021/22 was 0.25 publications per academic staff while the projection for 2022/23 and 2023/24 was 0.28 and 0.31 publications respectively. Such targets and projections from a population of 332 academic staff is an indicator of low research productivity at Kyambogo university.

Empirical studies have further indicated that the average lifetime publication rate of a Ugandan Ph. D holder stands at 10 publications and 0.6 patents for an average period of 20 years that usually spans from 45 to 65 years of age hence about 0.5 annual publications per academic (Wamala & Ssembatya, 2015; Kasozi, 2019). On the other hand, the annual rate of publication per academic in Nigeria has been found to stand at 1.5 publications (Ifijeh, Ogbomo and Ifijeh, 2018), while that of Australian accounting academics was established at 3 publications and 48 citations per year (Poiani, 2018). The annual rate of publication per academic in the University of Capetown in South Africa stands at an average of 4 publications per year as compared to less than 0.25 for academics at Kyambogo University (KYU vote 139, 2021/22). This suggests that practically, lecturers' research productivity is not yet a priority, hence the need to examine the level of organisational support lecturers receive for research productivity from their university.

## 1.2 Statement of the problem

University global rankings, competitiveness, and survival heavily depend on their lecturer's ability to regularly conduct research, publish findings and apply the generated knowledge in community outreach projects for society transformation (Kyaligonza, 2015; Kyaligonza et al, 2016). However, in Ugandan universities, both management and academic staff pay more attention to the more immediate financially rewarding function of teaching, from which management generates more revenues from the tuition paid by privately sponsored students. Lecturers also make immediate financial gains through extra time teaching load allowances earned from the many study programmes they conduct, leaving research as a mere training component (Mamdani, 2011; Musiige, 2014). As such, at Kyambogo University, lecturers' research output remains low. Kyambogo is not visible on most continental university rankings based on research as the main ranking criterion (AD Scientific Index, 2022; SCImago, 2022; THE, 2021; QS rankings, 2021; Best Global rankings 2022; Webmetrics, 2022). The Average annual publication targets for KYU academics remain at less than 0.5 per academic (KYU strategic Plan, 2021/2022-2024/2025).

A survey of twenty Ph.D. holding lecturers in the faculty of Education from individual profiles, JSTOR and Research Gate publication outlets in 2019 showed only six of them with publications publically posted, an indication that the majority without are likely not to be actively involved in research and publication. Even those with posted publications had a few journal article publications ranging from four to eight articles in a time frame extending to nine years for some lecturers. Only one had published a book and a few book chapters. All this indicates low research output from the university. The continued neglect of research in the university is likely

to result into poor visibility in the scholarly world, inability to attract big funding and international students to the university. While Kyambogo University has come up with initiatives like formulation of research and innovations policy, competitive research grants, and funding staff for Ph.D training to enhance the research function, the research exercise has not yet been institutionalized with adequate organisational support systems (Kyaligonza, 2015; Kasozi, 2017). This therefore prompted this study to evaluate the effect of organizational support on research productivity so as to generate new practical interventions for boosting the university research function.

### **1.3 Purpose of the study**

The purpose of the study was to evaluate the effect of organizational support on lecturers' research productivity at Kyambogo University.

### **1.4 Research objectives**

The study was guided by the following objectives.

- i. To establish the level of organisational support for research productivity availed to lecturers at Kyambogo University
- ii. To examine the level of research productivity among lecturers at Kyambogo university.
- iii. To establish the effect of the research policy on lecturers' research productivity at Kyambogo university.
- iii. To investigate the effect of research management on lecturers' research productivity at Kyambogo University.
- iv. To examine the effect of funding on lecturers' research productivity at Kyambogo

University.

- v. To assess the effect of the research infrastructure on lecturers' research productivity at Kyambogo University.

#### **1.4.1 Research hypotheses**

- i. There is a statistically positive significant effect of research policy on lecturers' research productivity at Kyambogo University.
- ii. There is a statistically positive significant effect of research management on lecturers' research productivity at Kyambogo University.
- iii. There is a statistically positive significant effect of funding on lecturers' research productivity at Kyambogo University.
- iv. There is a statistically positive significant effect of research infrastructure on lecturers' research productivity at Kyambogo University.

#### **1.4.2 Research questions**

The qualitative inquiry of the study was guided by the following research questions

- i. What is the level of organisational support provided to lecturers in Kyambogo University for their research activities?
- ii. What is the level of research productivity among lecturers in Kyambogo University?



### **1.5 Scope of the study**

The content scope of this study covered the analysis of organizational support on lecturers' research productivity. Focusing on research productivity was considered vital because it is the main criterion used for university world rankings, thus considered important to ascertain research performance given the organizational support availed. The geographical scope was limited to Kyambogo university, one of Uganda's nine public universities (NCHE, 2019), founded with the goal of advancing knowledge and skill development in order to transform society and become a hub of academic and professional excellence. The time scope covered a period from 2016 to 2020. This time scope was found appropriate since it was during this time that most of the academic departments and faculties had fully established Post-Graduate programmes at Masters and Ph. D levels that required Ph. D holding lecturers to supervise post-graduate students to completion and to conduct research in their fields of specialization. This assertion is in line with other studies that have found that scholars employed at post- graduate awarding institutions are more productive than those employed at other institutions (Hesli & Lee, 2011; Hancock and Breuning, 2015; SariLase & Hartijasti, 2018; Heng et al., 2020; Henry et al., 2020).

### **1.6 Significance of the study**

The study brings to light the effect of organizational support on lecturers' research productivity at Kyambogo university. Accordingly, the study findings will be useful to university administrators and managers in understanding the value of providing organizational support to their lecturers in enhancing research activities. The study will also benefit higher education regulators and supervisors in devising more appropriate and better policies for streamlining research activities and lobby for increased research funding to public universities. It is also hoped that research funding agencies like the donor community, local and international research

collaborating organisations would use this study findings as a basis for decision making on university research partnerships and funding priorities like improving on the research infrastructure for increased productivity. This study also contributes to the already existing body of literature on the effect of organizational support in enhancing research productivity in universities. Besides, this study provides a basis for further research, by guiding other academics to conduct more research on organizational support and research productivity in universities and other research institutions.

### **1.7 Justification of the Study**

Research productivity is a critical predictor of any university's success. This is because, the university competitiveness largely depends on their academics' research output than teaching awards obtained. As such, universities are becoming increasingly concerned about the research productivity of their lecturers as a crucial indicator of their standing. Besides, governments, International organisations and private corporations are getting increasingly interested in research and innovation for development (R&D) than ever before. In Uganda for instance, government, has put in place institutions to promote research for development through the

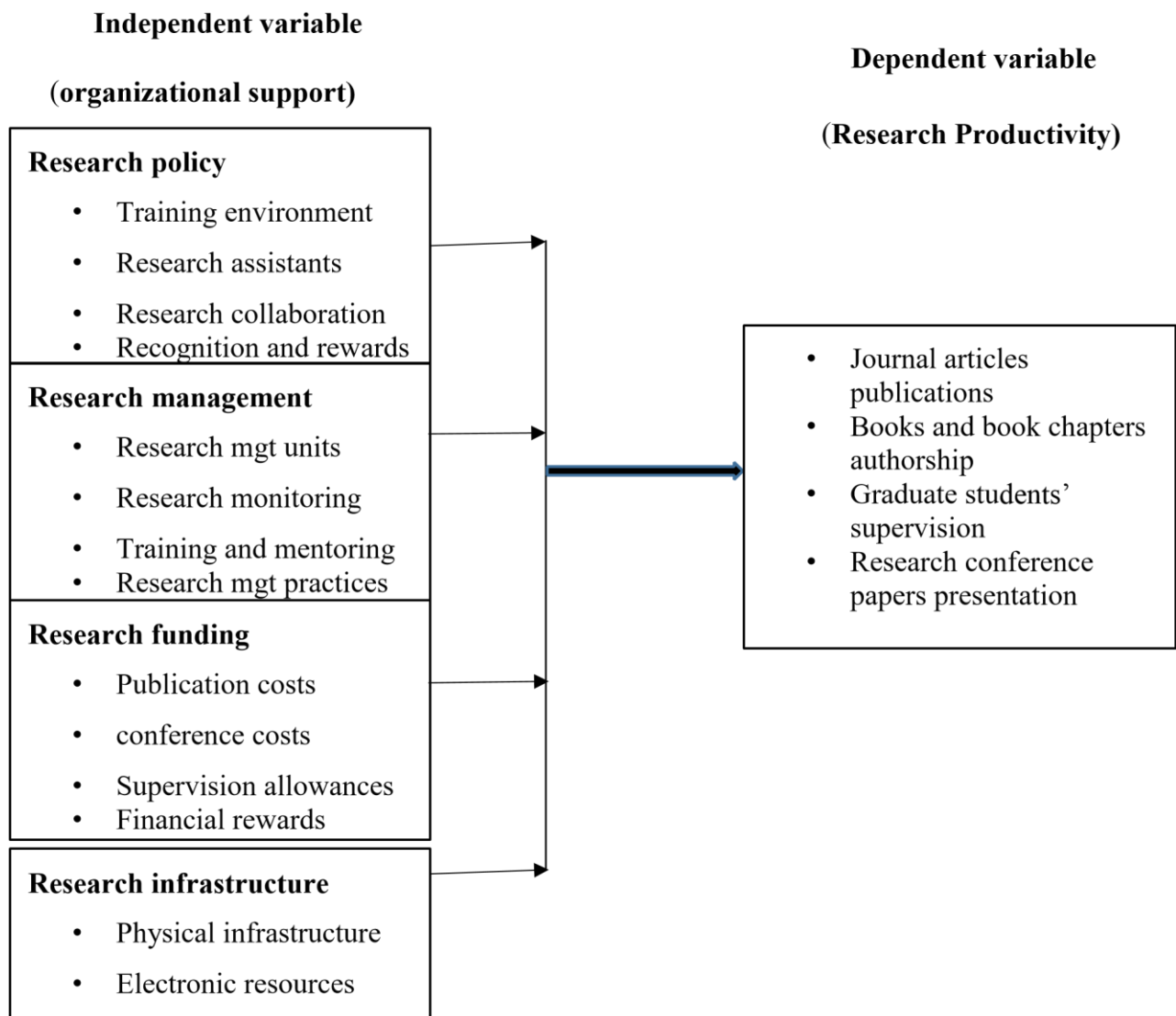
National Council for

Science and Technology, Agricultural research organisations and centres, Universities for Science and Technology among others. All these organisations are required to collaborate with universities to conduct research and generate, disseminate and apply knowledge and skills in order to meet national development goals like Skilling Uganda and vision- 2040. This study is therefore consistent with regional, continental, and national development frameworks and goals.

## 1.8 Conceptual Framework

The conceptual framework to guide the study was developed to indicate a cause and effect relationship in which the item at the arrow's tail influences the item at the arrow's head. It is thus hypothesised that organisational support influences research productivity. In this study therefore, organisational support is the independent variable while research productivity is the dependent variable.

**Figure1. 1: Conceptual Framework**



**Source: Adopted and modified from the work of Ajelomohie et al (2018); Shakir and Ahmad (2015).**

The conceptual framework above presupposes that when lecturers are provided with Organisational support in form of a favouring research policy, supportive research management practices and processes, research funding and a functional research infrastructure, they will be motivated to conduct research and publish findings in journal outlets, write, author and publish books and book chapters, present their research findings in conferences, supervise and guide graduate students at Masters and Ph.D. level to timely completion.

### **1.9 Chapter summary**

The chapter provided the study's theoretical, conceptual, historical, and contextual background information. Additionally, it included a statement of the research problem, the study's purpose and objectives, research questions, study hypotheses, and conceptual framework.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Introduction

This chapter presents a review of related literature on the subject of the study with an aim of revealing the contributions, weaknesses and gaps. With reference to the conceptual framework, the review was conceptualised under the study objectives and particularly focused on organizational research policies, management, funding and infrastructure in influencing research productivity. However, as a fundamental part of this study, the chapter first provides a theoretical review and conceptual review in order to come up with a clear conceptualization of the study problem.

#### 2.2 Theoretical review

Scholars have approached the issue of how research productivity is influenced from a variety of theories. For example, Alrahlah (2016), used Maslow's theory of motivation, McClland's theory of needs and Vroom's expectancy theory to study motivational factors on research output among Dental faculty members in the kingdom of Saudi Arabia. Callaghan, (2017) used Herzberg's Two

Factor Theory to study the innate predictors of research productivity in a South African university. Kwiek (2017) used the Utility Maximising theory to study generational changes and how they affected research productivity among polish academics. Okendo (2018) used the Expectancy theory to analyse constraints that affect research productivity in Tanzanian universities, Mantikayan and Abdulgani (2018), applied the Time-Scarcity Theory,

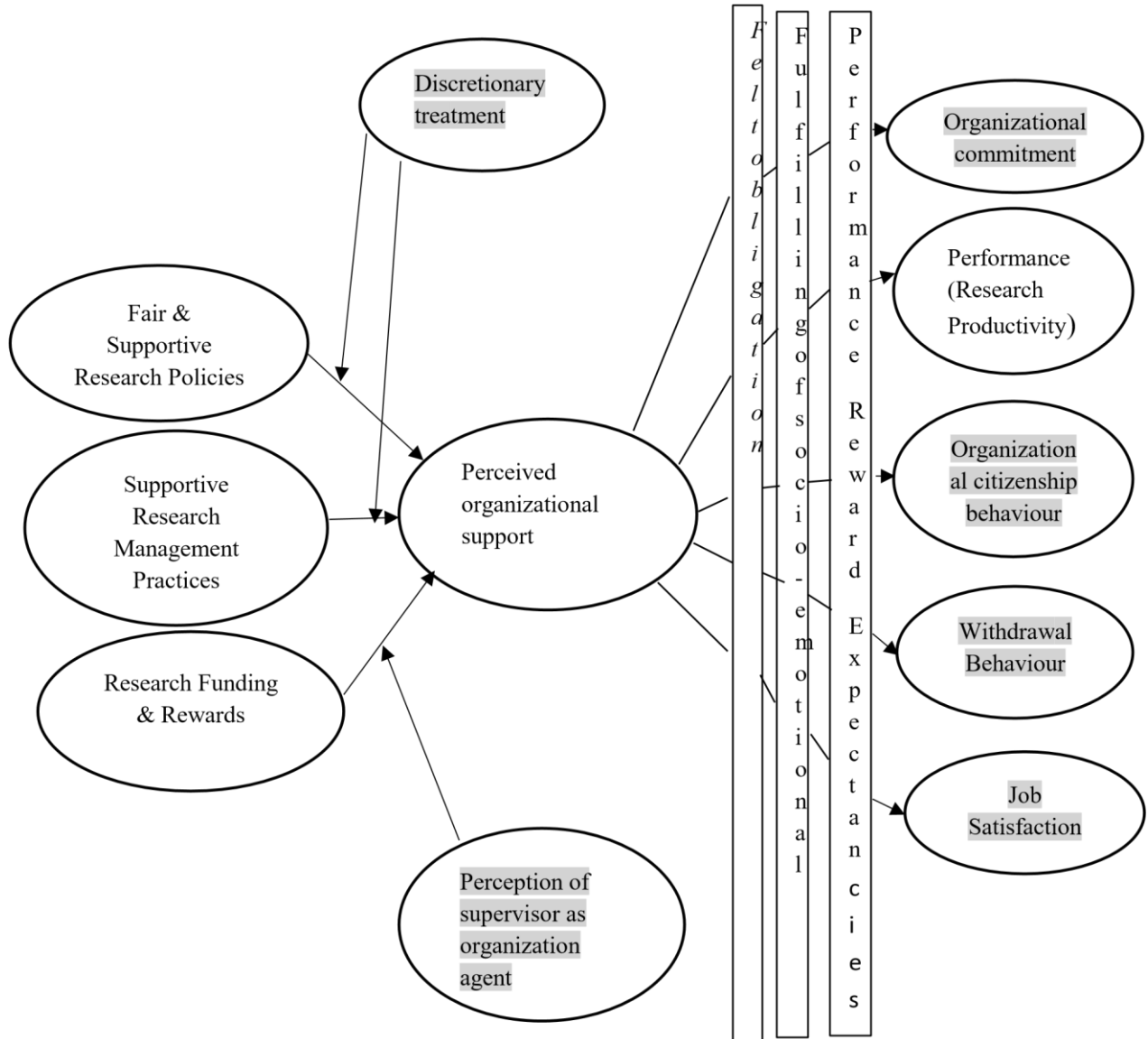
Complementary Role Theory, Motivation Theory, and Selection Theory to study factors affecting faculty research productivity in Malaysia. However, in this study, the Organisational

Support Theory by Eisenberger et al., (1986) and the Social-Technical Systems Theory by Emery and Trist (1960) were considered as the guide for explaining the effect of organisational support on research productivity.

### **2.2.1 Organisational support theory**

The theory argues that employees' performance is directly correlated with their perceptions of the level of support received from their employer (Eder and Eisenberger, 2008; Eisenberger et al., 1997; Boateng et al., 2019). The theory proponents hold that employees develop perceptions on how their organization cares about their working conditions and well-being, is ready to support them meet their socio-emotional needs and reward their increased efforts towards the achievement of its goals (Eisenberger et al., 1986; Eisenberger et al., 2002; Shore and Shore, 1995). Based on the principle of Social Exchange and the norm of reciprocity (Blau, 1964; Gouldner, 1960), higher perception of organizational support obligates employees to treat their organization favourably through increased organizational commitment, job performance, job satisfaction, organizational citizenship behavior, reduced withdrawal behavior like absenteeism and job turnover, as illustrated in figure 2.1 below.

**Figure2. 1: Theoretical model representing the relationships suggested by the organisational support theory**



Source; Adapted and modified from Rhoades and Eisenberger (2002) as cited by Baran et al., (2012).

Figure 2.1 illustrates the relationship between the antecedents and outcomes of the perceived organizational support. In their conceptualisation, Rhoades and Eisenberger (2002) revealed that perceived organizational support has three major groups of antecedents. First is the organizational justice/ fairness which is dispensed through fair and supportive organizational policies and practices. The second antecedent refers to favourable organizational rewards and job conditions such as payments, financial rewards, promotions and favourable deployments.

Another antecedent is the supervisory support which is through supportive managerial practices.

The model further illustrates the main outcomes of perceived organizational support which include organizational commitment, job performance, organisational citizenship behavior, withdrawal behavior and job satisfaction. For purposes of this study, job performance was the selected outcome in form of lecturers' research productivity as the dependent variable. The theory therefore presupposes that lecturers who have a positive perception of support from their university, develop a sense of indebtedness and a feeling of obligation to repay the university by working harder to help their university reach its goals (Aselage and Eisenberger, 2003; Boateng et al., 2019; Colakoglu, Gunduz, 2014). Therefore, the stronger the perceived organisational support, the higher the lecturers' felt responsibility to perform and reach university goals.

As one of the most valued frameworks for understanding employee-employer exchange relationships, the organizational support theory appropriately fits this study as it focuses on how organisations trade inducements like funding, pay raises and promotions in return for employees' involvement in organizational activities (Rhoades and Eisenberger, 2002). This study is therefore grounded on the supposition that lecturers' research productivity depends on the support received from their university and the theory explains why a favouring Research policy, research management practices, research funding and rewards availed to lecturers by their university is



likely to increase their felt obligation to reciprocate the good deed. This is by conducting research and publishing their works in time, with the expectation that their increased research productivity will be supported and rewarded.

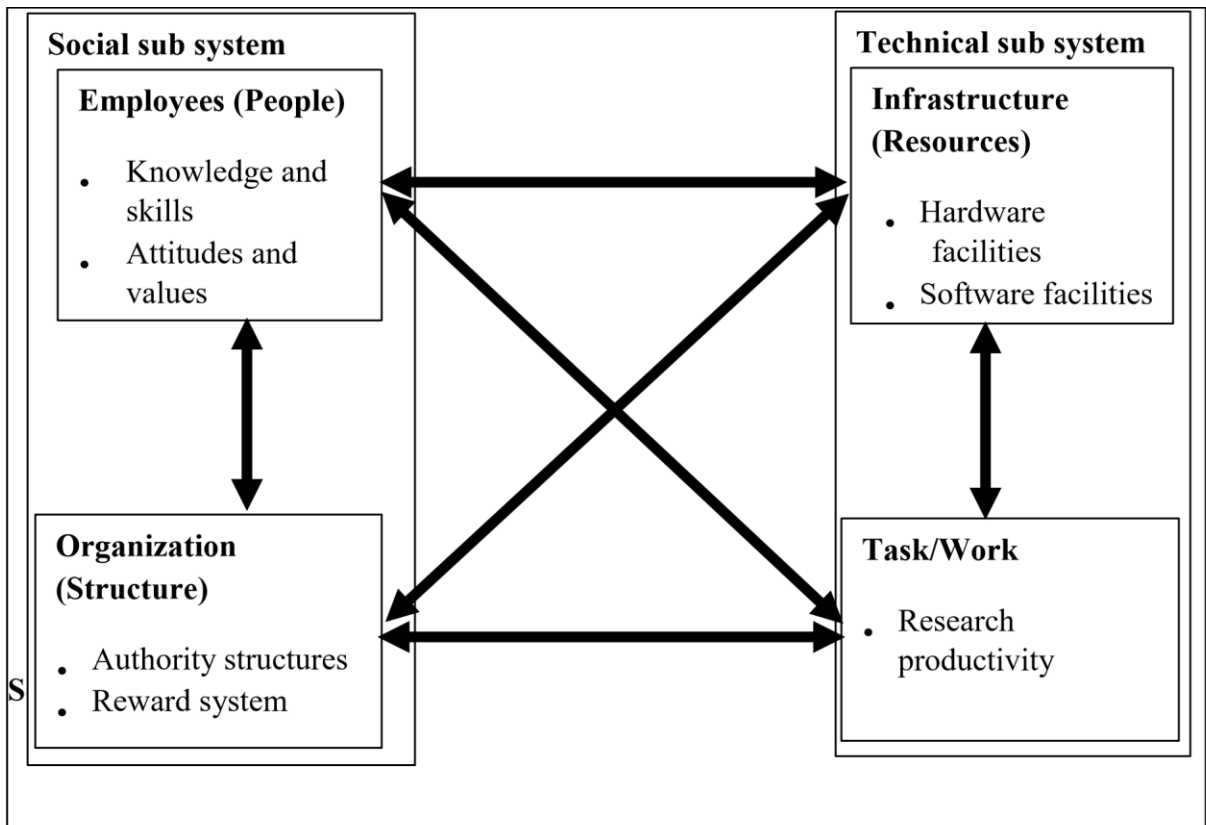
### **2.2.2 Social-technical systems theory**

The Social technical systems theory holds that in order to fully comprehend the entire organisation's functioning and outcomes, one should focus on understanding the interactions and relationships between parts (Mele et al., 2010). Mele et al., (2010) define a system as a collection of interrelated parts working in conjunction with each other to accomplish organizational goals. For example, a University like Kyambogo is a complex system of interacting elements or parts in form of Directorates, Faculties and Departments playing various roles but interacting with each other and with the external environment to achieve its objectives and deliver its vision. The social technical systems theory is therefore a theoretical perspective that focuses on understanding the connections and associations between parts in order to comprehend the entire organisation's running and outcomes (Mele et al, 2010).

Emery and Trist (1960) discussed organisations as socio-technical systems, stressing the social (people and structures) and technical (technology and machines) components as the two primary elements of an organisation viewed as a system. According to Bostrom et al., (2009), the foundation of the socio-technical systems theory is based on the belief that the desired organisational output is achieved through the interactional relationship. This is between the social component which comprises the employees, their knowledge and skills and the organizational structure in form authority and reward system. The technical component refers to the tools, technology, materials and other resources used to execute tasks (Bostrom et al., 2009;

Mele et al., 2010; Oosthuizen and Pretorius, 2016). Figure 2.2 illustrates the interactional relationship between the social and technical components of the socio-technical system.

**Figure2. 2: Theoretical model illustrating the relationship between research infrastructure support and research productivity**



**Source: Adapted and modified from Bostron and Heinen's Socio-Technical Systems**

The above theoretical model presupposes that organisations are composed of many categories of the social and technical sub-systems that must keep in constant interaction for the organization to achieve its formal objectives. The social sub-system comprises the people like lecturers in a university with their knowledge and skills, attitudes and values and needs. It also comprises organizational structures like authority structures and reward systems in place to support employees utilize their knowledge and skills to attain organizational needs. On the other hand, the technical sub-system comprises the physical and electronic infrastructure in form of

hardware and software resources. These must remain in constant interaction with the social sub-system for tasks (work) to be accomplished (Oosthuizen & Pretorius, 2016).

Put succinctly, the theory implies that a university is considered a complex socio-technical system that consists of many categories of both the social and technical sub-systems. All its employees like lecturers, administrative and support staff under their faculties, schools, departments and directorates guided by their authority structures and management systems in place share the properties of social sub-systems. On the other hand, appropriate technical components in form of physical and electronic facilities (tools and the technology) must be instituted and assembled to interact with the knowledge and skills of the employees., In addition, there must be appropriate organizational structures to accomplish given tasks and ensure that the university objective of knowledge creation, dissemination and application is achieved through research, teaching and community service.

Similarly, the theory implies that proper allocation of non-human resources (technical components) to the lecturers (social component) enables them to improve on research productivity (Tasks/ work) which is a cardinal function of every University. The theory provides a clear context for comprehending the employee-organisational resource exchange and interactional relationship as it analyses how organisations trade physical and electronic resources in return for high level of employee task accomplishment and performance. This theory therefore underpins the objective of the study that assesses the effect of research infrastructure on lecturers' research productivity. In this, it is assumed that the provision of appropriate research infrastructure by universities is likely to increase lecturers' ability to conduct research and publish the findings.

## **2.3 Conceptual review**

### **2.3.1 Research productivity**

Research productivity has taken on a crucial role in higher education institutions raising from being a core function to becoming a dominant function for university prestige (Gordon, 2014). As such, the demand for higher performance standards has shifted focus towards research in faculty performance evaluations, particularly in prestigious publications, since research productivity is more visible than teaching and community service outcomes (Coggburn and Neely, 2015; Allen et al., 2018). Therefore, the main motive for the establishment of any university worldwide is the quest for knowledge (Ogunalade and Onasanya, 2018). In this, research productivity constitutes a vital indicator of success and is frequently regarded as an index for prestige since more publications lead to higher academic programmes rankings, and entire university international standing.

In regard to this concern, investigating research productivity among lectures has attracted immense global attention among scholars and researchers. In the next section, I review the findings of some of the earlier studies that have been conducted in this line. In a correlational study to examine the effect of individual factors and self-concept on scholarly productivity among academic librarians in selected public universities in South-west Nigeria, Okonedo et al., (2015) reported a high research productivity of 911 publications among 142 librarians from eleven public universities in South-west Nigeria for a period from 2009 to 2014. However, this study was conducted among only librarians as opposed to lecturers, hence a population gap that this study filled.

Tsafe et al., (2016) also analysed research productivity of 165 academic librarians in sixteen universities in North-West Nigerian Universities., They found that the 123 librarians produced 373 publications within a period of twelve years (from 2000 to 2012). This indicates low research productivity. However, their study was conducted among only university librarians. It was also conducted in Federal, State and Private Universities. This leaves both a population and contextual gaps. The two studies also leave a contradiction which brings into picture the geographical gap between the two regions where the studies were conducted.

In a bid to explore the predictors of research productivity in Israel, Alhija and Majdob (2017) examined the teacher educators' research productivity in teacher training colleges from 2015 to 2016. Data were collected from 161 teacher educators drawn from four teacher education colleges found in Israel. Results indicated low research productivity where 44% of the participants had zero research output over the period under study. Results further revealed that a relatively large proportion of those active in research were mostly involved in writing books and book chapters in form of handbooks and teaching materials rather than research. This study was however conducted in teacher education colleges that had been historically established as teaching institutions with an emphasis on teaching rather than on research. This leaves a population gap that the current study intends to fill by collecting data from university lecturers whose professional mandate gives equal importance to teaching, research and research-based community service.

Okiki (2013) investigated the association between socio-demographic traits and academics' research productivity at twelve Nigerian federal universities. The study revealed a high research productivity of the academics in publishing of journal articles, technical reports, conference papers, working and occasional papers and in book chapters" publication. However, their

productivity remained low in the publishing of textbooks, monographs, patents and certified inventions. The study also revealed a high productivity in the universities located in the south-west and in the north-central regions while productivity in the universities found in other regions remained low. This leaves a mixed picture in the level of research productivity and a geographical gap which requires further studies into the associated factors to the phenomena.

Evaluations aimed at understanding faculty research have attracted considerable attention across academic disciplines. Kwanya (2020) examined the volume and visibility of articles indexed by Google Scholar in a Bibliometric analysis of publication trends of eighty-nine (89) lecturers of information science professors in Kenya. The study revealed a low quantity, quality and visibility of research publications. It further revealed that nearly a quarter of the sampled academics had not yet published while nearly a half of those with publications had not been cited. Though his findings were in tandem with those from earlier studies by Migosi et al., (2011), and Sabazwari, Kauser and Khawaja (2009), the study relied on only bibliometric record analysis, studied all academics regardless of their rank and qualifications and focused on only the information science academic Unit. This leaves a methodological, discipline and population gaps. Hence the need to conduct a mixed methods study focusing on Ph. D. holding academics across the university faculties.

Similarly, Nafukho et al., (2019) conducted a study to examine the scholarly output of 612 academics at two leading public universities in Kenya. Results revealed that the low research productivity from academics with h- index ranging from 0 to 27 for a five-year period, with many academics' publications never cited at all. Their revelations were in line with the Kenya Commission for University education report (2017), which stated that Kenyan universities were

producing low impact research, with very limited applied value even at the local level. The study however used secondary data from only the Google scholar data base and relied on only the h-index as the indicator of research output hence a methodological and knowledge gap.

Starovoytova (2017), conducted a mixed-method micro-level evaluation of the total and average annual research productivity among fifteen (15) academics at the Moi University school of Engineering in Kenya. Results revealed large differences in individual research productivity with the most productive members having 41 publications in four years, hence an annual average of 10.3 publications, while the least productive members had an annual average of 0.9 publications. Though the overall annual average number of publications of 2.1 per faculty member was moderately high, results indicated that majority of the publications were generated by a relatively small proportion of scientists. The study however obtained data from only one academic unit of the university resulting into a very small sample size, hence the need for a university wide study to address the population gap left by the above study.

Despite this acclaimed importance of research productivity, the research output remains relatively low in many developing countries' education institutions (Ahija and Madjob, 2017). In a correlational study to analyse the effect of digital literacy and competence on the research effectiveness of academics in seven state polytechnic universities in the Philippines, Yazon et al., (2019) reported very low research productivity where only two of the seven colleges surveyed were moderately productive while the rest were less productive and unproductive in regard to the quantity of accepted and published research output. They concluded that most university units still lacked adequate empowerment in regard to human capacity and other resources needed for research. However, their study was conducted at Polytechnic Universities and in the Philippines.

Hence a geographical gap from Uganda and discipline gap from a multi-discipline university that this study filled.

In a related study to assess the scholarly output and its attendant higher education institutions' policy implications in the Philippines, Quimbo and Sulabo (2014), conducted a study in five state universities covering 377 randomly selected faculty members. The study reported low research output of not more than two publications in five years per faculty member. Shockingly, the low research productivity levels were similar in all the five state universities studied. Apart from being conducted in a far away and different geographical area, the study included all faculty members with varying educational attainments. This presented a population gap that this study covered by concentrating on a particular cohort of academics holding doctorate degrees.

In another bid to examine the extent of research productivity among private universities' lecturers in south-south Nigeria, Ifijeh, Ogbomo and Ifijeh (2018) conducted a descriptive correlational study with 231 respondents. Results revealed average research publication from private universities, with lecturers publishing between 1-5 times in three years. As indicated, their study was conducted in private universities and covered academic staff of varying academic attainments. Hence the need for a study in a public university and among only doctorate holding academic staff to cover the contextual and population gaps in the above study. However, an analysis of medical and biomedical research productivity in Saudi Arabian universities, (Latif, 2015) conducted a bibliometric analysis of 1562 biomedical papers from 2008 to 2012. His study revealed a clear linear increase in biomedical research productivity. Latif further reported that there was more research productivity from the old universities than from the relatively new universities whose medical colleges had been purposely established to train more medical personnel to provide clinical services in their communities. This is against the belief that medical



colleges should actively engage in research so that the teaching function is conducted concurrently with research. However, the above study focused on only medical and biomedical research productivity and measured it only in terms of articles published or accepted by PubMed journals. This left methodological, discipline and geographical gaps. Hence the need for this study to examine research productivity from a university-wide perspective.

In another survey of research productivity of Arab Institutions of Higher Education, Abouchedid and Abdelnour (2015), surveyed research productivity in 310 Institutions of Higher learning in Jordan, Lebanon, Morocco, Saudi Arabia, Qatar and the UAE. Research productivity was measured in terms of article publication, book authorship and conference paper presentations. The study found that research output in the Arab institutions remained generally low, and widely undocumented. Thus, confirming a widespread notion of an Arab knowledge deficit (Alan, 2005; MBRF and UNDP-RBAS, 2009; World Bank, 2008). However, this study included a variety of Higher Education Institutions ranging from Universities, University Colleges and business schools whose academic staff was not necessarily qualified with advanced degrees to competently conduct research and publish findings. This therefore leaves a population gap that this study filled by studying Ph. D holding academic in a university setting.

Khalil and Khalil (2019) surveyed sixty-one (61) academics to examine their perceptions about the impediments to performing research at the Kuwait University. Research productivity was conceptualized as peer-reviewed publications including journal articles. Books and book chapters, conference presentations, funded projects and self-rating of one's research productivity compared to colleagues in the same discipline. The study reported low research productivity in all the measures used in the study. These findings confirm those of Abouchedid and Abdelnour (2015), who also reported a relatively low research productivity in the Arab universities.

However, this study was conducted in only one academic unit of a university. This leaves a discipline gap. Secondly, the conceptualization of research productivity in form of individual comparative self-rating with colleagues in the same discipline is more of a subjective assumption that does not bring out empirical evidence on productivity, hence an empirical gap.

Furthermore, Salman et al., (2018) surveyed academics to examine the impact of various factors on research productivity in five private universities found in Pakistan. The study discovered that 70% of the respondents had published one or no paper in the two years under study (2015- 2017) which indicated very low research productivity. This study was however conducted in private universities and covered academics of varying education qualifications.

This presents population and contextual gaps in addition to the geographical gap between an Asian country and an African country.

In a quest to examine the scholarly productivity among academics in a Malaysian public university, Kaur, Roliana and Selemat (2015) conducted a descriptive survey among the academic staff at University of Technology-Malaysia. Their study revealed that although there had been a satisfactory level of scholarly publication among academics under study, targets for the key performance indicators had not been met. This implies that their research productivity was still below expectation. Their study was however conducted in a science-based university of technology with expectedly high research output, leaving a discipline and geographical gap that this study covered by conducting research in a Ugandan university with both Science and Humanity-based academic units.

However, in a bibliometric study to examine the research performance of Australian planning academics, Pojani et al, (2018) analysed research publications, citations and grants winning rates among 196 scholars in 24 universities for the years 2006 to 2016. The study reported a high

research productivity of about three publications and 48 citations per lecturer per year on average, regardless of rank and gender. However, it should be noted that the study employed document analysis from various university websites and Bibliometric analysis from only Google scholar and Scopus databases. This leaves out the views, feelings and perspectives of participants in the study. It also covered only academics from the planning departments leaving out the varying university academic units. Also, it was carried out in a developed country university setting whose policy framework, funding and research infrastructural support environment differs from those of an African university. This left methodological, empirical, discipline and contextual gaps, which calls for the need for a mixed study to cover academics from several units and fill the aforementioned gaps.

In the quest to examine patterns of individual research productivity among top performing researchers and the national research output in Poland, Kwiek (2018) conducted a quantitative survey to compare the Polish top research performers with the rest of the academics for a three-year reference period (2015 to 2018). His sample comprised 2525 academics randomly selected from both science and humanities-based disciplines. The results revealed low research productivity among Polish academics with 39% of academics in humanities and 57% in medicine and health related fields not publishing a single paper or book during the reference period. The study also revealed high inequality in research productivity where a smaller number of scholars (10%) produced almost half of all the Polish publications, with the mean research productivity of the top performers across disciplines being seven times higher than that of other academics.

In another study to explain the increasing publication rates among academics in Norwegian universities, Kyvik and Aksnes (2015) reported high and increasing research productivity in all

age-groups among academic staff. Similarly, in an earlier study to examine the scholarly output of Hong Kong academics, (Jung, 2012) surveyed 811 academics in 11 Higher Education Institutions across a spectrum of academic disciplines. The study reported high research productivity among the surveyed academics. However, Jung's findings were from Asian First World City-State universities setting operating in policy frameworks, funding, cultural and infrastructural environments far different from those of a third world country like Uganda. This left geographical and contextual gap that were addressed in this study.

In academia, research outputs play a crucial role in realising success as they are highly correlated to promotion, tenure, salary and other benefits. Despite this enumerated significance, many university lecturers in Uganda hardly conduct research and innovation to produce significant and impressive publications or register acclaimed patents (Muriisa, 2014; Musiige, 2014; Kasozi,

2017). Several studies about University academic staff productivity (Okioga, Onsongo and Nyaboga, 2012; Wamala and Ssembatya, 2015; Kasozi, 2017) indicate that many University lecturers in Uganda spend most of their time doing consultancy work and part-time teaching at several institutions to be able to supplement their meager pay earned from their full-time job. The average number of publications of a Ugandan Ph. D holder was thus projected at ten pieces and 0.6 patents (Wamala and Ssembatya, 2015).

In Uganda, it is only Makerere University that appears to compete favourably in research rankings among the top twenty in Africa (Makerere University Self-Assessment Report, 2013; Makerere University Strategic Plan Review, 2017; SIR World report, 2012). Other public universities such as Mbarara University of Science and Technology and Gulu University are beginning to develop impressive research policies and structures like Research and Innovations policies, research grants management policies, Research Ethical Committees and Research Administration offices (Kasozi, 2017). However, almost all of them lack the research facilities and funds to fulfill their research missions. Consequently, most of their efforts are geared toward teaching.

In a study to investigate organisational correlates of university staff research productivity in four

Ugandan private universities, Hiire et al., (2020) reported low research productivity among the 210 academics. However, the study was conducted in private universities which, though governed under the Universities and Tertiary Institutions Act (2001) have widely varying agendas and operate under their individual administrative frameworks as opposed to public universities that operate under a common administrative policy framework, hence a contextual gap. However, in an earlier investigation, Kyaligonza (2015) reported moderate research output among academics in Ugandan public universities.

Similarly, Hite and Mugimu (2009), in their study of research participation among Uganda's lecturers, they revealed that, in practice, less than half of them were participating in research and publication activities. Surprisingly, the same study indicated that 80% of the lecturers had taken educational research courses. This implied that they had the knowledge and skills necessary to conduct research. So, their low participation in research was not attributable to lack of skill or priority interest in research.

In the Ugandan setting, there seems to be a gap between researchers, university managers and national policymakers. Due to the lack of unifying structures, many active academics at Ugandan universities prefer to work independently with overseas collaborators rather than with colleagues in their institutions, with no organizational infrastructure support and incentives (Musiige, 2014). Researchers also prefer providing consultancy services on projects funded externally by western donors but which do not translate into research publications, rather than to work in research groups in their faculties with no financial benefits attached (Mamdami, 2011; Musiige, 2014). Consultancy work has thus overtaken research work.

The aforementioned studies have examined the lecturers' research productivity. The results of most of these earlier works generally indicate low research productivity among university lecturers. This indicates that research productivity is challenging, suggesting the need for lecturers to be supported as an important factor for improving their performance of this noble function of the university.

Although a great deal has been written about the lecturers' research productivity, none of them cited has examined how organizational support has influenced the research productivity. More to this, although empirical studies have been conducted globally on lecturers' research productivity, they have largely been restricted to developed countries in North America, Europe and Australia South East Asia and the Arab world. However, not so much has been done in this line in the context of Ugandan universities. A prevailing gap in the literature that this study sought to fill.

### **2.3.2 Organisational support**

In today's highly competitive work environment, employees are acknowledged as the most important assets for any organization especially in service-based organisations like Universities to deliver their visions. This is because they are considered as the engines through which organisations run their day-to-day activities. As such their productivity is a key determinant for the success of any organisation. Therefore, organisations need to focus on organisational support for employees as an important factor for improving organisational performance and success (Colakoglu, Culha and Atay, 2010).

Various scholars have attempted to study organizational support. In a study to examine the perceived influence of organizational support on police officers' effectiveness in China, Boateng

and Wu (2019) revealed a positive but statistically insignificant relationship between perceived organizational support and police officers' performance effectiveness. Their findings were however in contrast with those from an earlier survey of 145 police officers of Accra, Ghana by Boateng (2014), whose study revealed a positive and statistically significant relationship between Perceived Organisational Support and police officers' effective performance. Consequently, this lends credence to the widely held belief that workers' productivity rises with their perceived degree of organizational support (Armeli et al., 1998; Eisenberger et al., 1986, 1990, 2002; Rhoads and Eisenberger, 2002). It is worth noting that both studies were conducted in a criminology context that does not relate organizational support to research productivity. This presents discipline and geographical gaps that necessitated the current study on lecturers in a Ugandan public university setting to fill the above-mentioned gaps. The above findings were however in line with those from SariLase and Hartijasti (2018), study conducted in an unnamed university in Jarkata- Indonesia. In their quantitative survey of 100 academics from the faculties of Economics, Languages and arts, results indicated a positive relationship between organizational factors and research productivity.

In a descriptive survey of predictors of research effectiveness among the college of Dentistry academics at a Philippines University, Bay and Clerigo (2013) revealed that organizational support from the university towards lecturers' research activities was not associated with their research productivity. However, individual factors such as self-motivation, research skills and experience were found to be the key drivers encouraging lecturers to do research. However, their study was conducted in only the Oral Health College of a university, which creates a discipline gap since such findings may not be easily generalized to a full university. The above findings

corroborate the findings by Tafreshi et al, (2013), who did not find a direct effect of organizational factors on faculty research productivity in Iran.

In slight variation from the findings from the above studies, Paul et al, (2017) conducted a qualitative micro-level analysis to understand the major determinants of research productivity. The study identified eleven factors that were categorized into two broad categories of five organizational and six personal factors. The study concluded that optimum research productivity can only be harnessed when personal and organizational factors work in harmony. However, their study was conducted only among Agricultural scientists in Agricultural Institutes as opposed to a university, used only interviews for data collection and limited research output to the researcher's role, journal publications and research funds as the only indicators of research productivity. Hence the need for this study to include other dimensions and broaden the perspective of research productivity in a university.

On the other hand, other studies found organizational support factors to be the major determinants of research productivity. For instance, in a study to analyse constraints to research productivity in the University of Nairobi, Kenya, Muia and Oringo, (2016) found that the major independent variables on which research productivity depended were all organisational factors, ranging from research culture, research environment, institutional factors and resource factors.

Arokiasamy et al, (2014) found that organizational variables, particularly mentoring, social networks, and organizational support, were the significant contributors to the career advancement of the academics in the six universities under study. The study was a correlational investigation to examine the influence of individual and organizational variables on the career advancement of 105 full-time academics in Malaysian private universities. However, this study was conducted in private universities as opposed to a public university under the current study



hence a contextual gap. Secondly, the study was not about research productivity but about career advancement, which creates a knowledge gap. Thirdly, the study was conducted in Malaysia in Asian setting as opposed to a sub-Saharan setting, hence a geographical gap.

In a further study, Kyaligonza (2015) examined the correlates of research productivity among academics in five Ugandan public universities. Results indicated that organisational factors such as research funding had a moderate effect on research productivity. However, environmental factors such as organisational culture and working environment which are also organisational factors had a high impact on research productivity. Similarly, in another study to investigate organisational antecedents of university staff research productivity, Hiire et al. (2020) explored the impact of organisational factors on staff research productivity in private universities in Uganda. Results established that organisational factors supporting research productivity were moderate. Results further revealed that overall, organisational factors like technological progression, computer skills and funding were significant antecedents of academic research productivity. It should however be noted that this study was conducted in private universities as opposed to public universities which are the focus of this study.

From the review above, it is evident that several studies have been conducted on organizational support. Some of the studies have revealed that employees' behavior is modelled on their perceptions of the support they receive from their organisations. Thus, affirming that organisational support is a booster for positive work outcomes like job satisfaction, organisational commitment and employee performance (Boateng, 2014; Muia and Oringo, 2016). Other studies have revealed a weak linkage between organizational support antecedents and outcomes (Arokiasamy et al., 2014; Paul et al., 2017; Hartijasti, 2018; Boateng and Wu, 2019). Others have found no relationship between the variables (Lertputtarak, 2008; Bay and

Clerigo, 2013; Tafreshi et al, 2013). Although a great deal has been written about organizational support, there is still a scarcity of studies focusing on its impact on the research productivity of lecturers especially in the Ugandan context. This necessitates the need to focus attention on the need to conduct this study in a Ugandan public university with an assumption that for universities to guarantee their Lecturers' highest research performance, they must put in place high-level organizational support policies, management practices and resources as motivators of energies and abilities to realise high research productivity.

#### **2.4 Research policy its effect on research productivity**

Every organization wants to succeed, and one of the most critical factors for organizational success is having well-laid supportive policies (Ghabban et al, 2019). Well-thought-out policy guidelines are necessary for the intricate and complex endeavor of promoting the university research function. As Neumann and Lindsay (1988) cited in Muia and Oringo (2016), noted, universities need research policies that consider not only the demands for national research but also the complete spectrum of goals of higher education, as well as the values, procedures, and structures that go along with those goals. A research policy is driven by the University's research agenda, which is usually nested in the National Development Framework. According to Santos and Horta (2018), a research agenda combines tactical frameworks for tackling problems in order to accomplish the organization's research objectives. The greatest method to increase research productivity and make it simple to track academic achievement at a university is to have a research agenda and a policy that outlines the goals of research in that institution (Nordling, 2013; Cloete et al., 2015; Kasozi, 2017; Ghabban et al., 2019). Policy implementation guidelines and management systems are then developed to support the policy and deliver the agenda.

Among the principles of a supportive university research policy should be its ability to create an enabling research environment in form of research centres of excellence, multi-disciplinary research teams and research laboratories. To provide research support services such as library resources with adequate subscriptions to relevant databases, with accessible fast and strong internet connectivity and other ICT for staff members in all academic and research units. Also, to provide support for staff to attend and present papers in conferences and facilitate research collaborations and global research net workings. The policy should also strengthen research management and coordination. This is through continued research skills training, mentorship and apprenticeship cultures in the university. Support the development of research grants management tools and strengthen research management and coordination structures such as research and publication boards, university press, ethical committees, intellectual property management and editorial boards. The policy should also improve funding for research in the university as well as a research and publication culture through tracking staff research progress and outputs, and a system to recognize and reward outstanding research and innovations (MAK Research and Innovations policy, 2008; MAK policy on establishment of research institutions and entities, 2021; MUST research Policy, 2019).

Research productivity and research policy have been linked in a number of studies. In an effort to investigate the barriers to research productivity in Tanzanian universities, Okendo (2018) discovered that the main institutional barriers to research productivity at Mwenge Catholic University were the lack of a sound policy framework to support research activities and an institutional policy on research productivity. Though the above results were from an African university setting, the study was conducted in a private religious founded university as opposed to a public university for the current study. This left a contextual gap. The study was also guided

by the Expectancy theory (Vroom, 1964), which majorly relates individual performance motivation to the expected outcomes, while the current study will be guided by the organizational support which majorly relates performance motivation to supportive organisational policies, systems and resources availed to employees, hence a theoretical gap.

In order to draw attention to the significant events, observations, and experiences that pose challenges to knowledge creation in UAE higher education institutions, Ryan and Daly (2019) wrote a monograph. They noted that the United Arab Emirates lacked strong policies to support and incentivize extensive research, innovation, and knowledge creation. They emphasized the need to create organizational conditions that facilitate and appropriately reward intensive research. These would require re-examining research and innovations policies, workload policies, Human

Resource policies, salaries and benefits and research support structures. However, their findings and consequent recommendations were not derived from an empirical study of organizational policies and research productivity. A gap that this study sought to fill.

Starovoytova (2017b), conducted a micro-level mixed-method study to analyse research productivity among 15 academics at the Moi University school of engineering in Kenya. The study discovered that the absence of institutional policies on research and publication was a major institutional hurdle to good scholarly performance. These results concur with those of a previous report by the Kenya Commission for University Education (2013), which indicated a lack of connection between university research and Kenya's economic growth ambitions. Similarly, according to Sondari et al. (2017), the low research productivity among Indonesian university academics was caused by the university's complicated research policy and systems, which made it difficult for researchers to accomplish their tasks.

Latif (2015) conducted a bibliometric analysis of Saudi Arabian medical and biomedical scholarly performance for a five- year period, from 2008 to 2012. The study revealed that the deliberate effort by the Saudi government to change its national development policy from oil to an internationally viable knowledge-based economy, especially in technological advancement had led to increased research performance. This called for the formulation of supportive university research policies for the advancement of both basic and applied research. In his study, he further advised the Kingdom of Saudi Arabian Universities to have policy guidelines with both short-term and long-term targets against which performance would be regularly monitored and assessed. However, the study did not bring out empirical evidence from participants to link the increased research productivity to universities policy support. Its implied relationship therefore leaves an empirical gap that the current study intends to fill by obtaining primary data from respondents to link research policy to productivity.

In the quest to identify the factors that enhance research productivity, Ghabban et al., (2019) revealed that the university research policy research was the major identified aspect for boosting research output among Saudi universities. However, findings from Saudi universities cannot automatically be generalized to relate to Ugandan Universities due to wide policy variations in regard to research funding, ICT support access and other research support facilities.

In a later study to ascertain the institutional factors influencing research productivity in developing countries found in the global south, Heng, Hamid and Khan (2020) indicated that the university culture and research policies were the most critical organisational factors for academics' scholarly performance. However, their study employed a literature review for

secondary data collection. This leaves an empirical knowledge gap since secondary data is less reliable as a basis for arriving at conclusions. Secondly, their study was not attached to a particular academic institution. The global south is widely varied in terms of cultural settings, education systems, political, social and economic advancements that determine their ability to support higher education. This leaves geographical and knowledge gaps that the current research intends to address by paying more attention to a Ugandan public university context.

Shahbazi-Moghadam et al, (2015) investigated the factors that affect research productivity in Higher Education Institutions in four Asian countries (Malaysia, Taiwan, Japan and China), their study concluded that the university policy significantly enhanced research performance in institutions of the countries under study. None the less, their study relied on secondary data in form of literature., This leaves a methodological gap. Secondly, their study was not categorically conducted in universities but in various higher education institutions, hence a subject gap. Lastly, their study focused on only publication and citations as the surrogates for research performance. This leaves a conceptual gap that the current research intends to fill by focusing on research productivity from a broader conceptual perspective taking into account of publications, authorships, presentations and graduate research supervisions.

## **2.5 Research management and its effect on research productivity**

Another organisational factor that affects research productivity is the availability of effective research management systems, practices and processes to implement the policy in order to meet the university's research objectives. According to Beerkens (2013), universities now employ high level academic and administrative employees whose main duty it is to plan, direct and promote research activities, attesting to the increased professionalization of research management. He further reveals that most Australian public universities have reviewed their

institutional structures and reinforced their research management by establishing high-level administrative positions to the equivalent of Deputy Vice Chancellor-Research and innovations. Such officials are devoted entirely to research and strengthening the function of faculty Deans in the management of research in their academic units. This study intends to establish whether Kyambogo University has well-established and functional research management structures to drive its research agenda.

Although the general trends in research management methods are becoming better understood, there is still a lack of empirical evidence showing how these strategies impact the success of research. Nevertheless, studies have made efforts contribute to the understanding of this matter. In a bid to establish the effects of management practices on research productivity Beerkens (2013) conducted a systematic literature review of 35 public universities in Australia to establish how their research management practices influenced their academics' research productivity. Findings revealed that intensifying research management increases research productivity growth. Hence confirming that research management and research performance are positively related, regardless of the research performance measure applied. Therefore, this study proved that research management within an institution is crucial for research productivity. In a case study of constraints of research productivity in Universities in Tanzania, Okendo (2018), revealed that the absence of research teams, timely submission of progress reports and closeout reports as the key research constraints in the university under study. However, his study was conducted in a privately-owned catholic university whose management systems could be influenced by the founding religious setting. The study results may not therefore, be generalized to represent a Ugandan public university. This leaves a contextual gap, hence the need for the current study.

In its report about the state of university education, the Kenya Commission for University Education (2013) also revealed that poor management of research programmes, weak supervision, monitoring and evaluation of university research activities to be the key impediments to research productivity in Kenyan Universities. Similarly, in a descriptive cross-sectional survey, Feyera et al, (2019) sought to explore the factors and barriers influencing publication productivity in Ethiopian universities.

Results indicated the lack of recognition for research performance through promotions and the absence of an institutional research journal as the major barriers to high-level research performance among the surveyed academic staff. These are a confirmation of the positive correlation between research management and research productivity. However, the study population sample comprised more of master's degree holding academics (96%). These are assumed not to be well trained, groomed and experienced in conducting research as opposed to Ph.D. holding academics. This leaves population and practical knowledge gaps that this study intended to fill.

One of the management aspects for promoting research productivity is the acquisition of research assistants to help academics in their scholarly activities. These could be recruited from graduate students at master's or doctoral programs under research training. Several scholars (have attempted to analyse the effect of hiring research assistants on research productivity in varying contexts. In a study to examine individual and organisational predictors of research productivity in hospitality and tourism management faculties in U.S Institutions, Mody et al., (2018), surveyed 98 faculty members using a self-administered questionnaire. The findings revealed that availing research assistants to faculty members positively impacted on their research productivity in terms of annual publication count in the six leading hospitality and tourism journals, with each



additional hour of weekly research assistance increasing annual faculty productivity by 0.140 publications. Although this was an empirical study with reliable results, it was conducted only among hospitality and tourist management academics. This leaves a discipline gap in regard to generalizing their perceptions to represent all university academics. Secondly, the study was conducted in the United States Institutions, with varying research management systems, structures and practices. Such differences in the research culture and other research environment factors leave a geographical and other contextual gap that make the transferability of the study results to a Ugandan university context unconvincing.

The above findings are however supported by those from another study conducted by Nafukho et al, (2019) who examined the academics' research outputs at the two biggest public universities in Kenya. The study revealed that the number of Ph. D. students enrolled, was positively correlated with lecturers' research output at the two public universities in Kenya. This finding confirms that reported by other scholars in earlier studies (Valle and Schultz, 2011; McGill and Settle, 2012) who affirmed that graduate students act as research assistants for academic staff and their close collaboration increases the academics' research productivity.

In an exploration of the impact of formal research groups as a strategy for improving research productivity in Norwegian Universities, Vabo et al., (2016) found that the majority of research groups in traditional universities in Norway have multiple doctorate and master's students on staff because they are deemed to be an essential workforce on research projects. Traditional universities had engaged several doctoral and master's students because they provide a vital workforce in research projects. Their findings are consistent with those Kyvik and Aksnes (2015) who reported that the increased research output from Norwegian academics was a result of increased external funding on top of the government grants that enabled the hiring of more

Ph.D. candidates undertaking research projects similar to those of their supervisors. Hence an independent effect on the productivity of academic staff in the medical sciences and technology fields.

It's also important to note that academic staff members who supervise Ph.D. students also write articles with them. In order to increase their production, doctoral students consequently not only help with research but also stimulate and motivate their supervisors to publish more research.

This view is supported by Ghabban et al., (2019) who emphasized that Ph.D. students are a critical factor for research productivity progress in universities. Out of the quest to ascertain whether computer science academics received the university resources and other forms of support consistent with their research requirements as outlined in their job description and promotion guidelines, McGill and Settle (2012) revealed that the supply of research assistants to academic staff research activities led to higher research productivity. The study thus urged universities to enroll and provide doctoral students as research assistants to help in conducting research. This confirmed the findings by Alghanim and Althamali (2011) and Lewis (1998) in the US who also observed that graduate students hired as research assistants positively correlated with lecturers' research productivity.

Furthermore, Jung (2012) explored the faculty research productivity of Hongkong academics across disciplines. The study revealed that the social and behavioral sciences unlike the hard disciplines, had a negative relationship between the number of graduate students and faculty or departmental research output. As observed earlier, this could be because hard discipline science fields use graduate students more effectively in both teaching and research activities. Though most of the literature tends to point to a positive association between the hiring of research assistants to lecturers' research productivity, there are contradictions and conflicting findings

depending on the variations in academic disciplines and institutional research culture and environment setting. Secondly, since none of all the above-cited studies was carried out in a Ugandan public university setting, there remain several contextual gaps. This necessitated the current study to bring out evidence from a Ugandan university perspective.

Another research management factor influencing research productivity is the proportion of time for conducting research as compared to other functions like teaching and administrative work.

For academic staff, time is one of the most important resources. The scarcity model, as proposed by Hattie and Marsh (1996), views research and teaching as mutually exclusive pursuits that compete for limited resources such as time, energy, and commitment. It has been observed that greater time dedicated to teaching equates to less time for research, and vice versa (Hattie and Marsh, 1996; Toews and Yazedjian, 2007; Leišytė, 2016). Smeby (1998) and Hattie and Marsh (1996), maintain under the conventional wisdom model that research and teaching are interdependent, complementary, and mutually beneficial endeavors in which each imparts knowledge to the other. Several academics, however, contend that there is no connection between research and instruction (Milem, Berger, and Dey, 2000). To that end, this study is intended to analyse whether the university's policy on workload allocations for lecturers leaves them with appropriate time for teaching and conducting research.

Several scholars have attempted to relate time and workloads to research productivity.

In an attempt to identify the factors affecting research productivity, Henry et al., (2020), found that heavy teaching and administrative workload among the surveyed academics reduced the time devoted to research activities. Their conceptualization of research productivity was too broad including grants acquired, the status of investigator and intellectual property rights.

However, although they had a broad definition of research productivity, it may not however be applicable in the Ugandan university context with both STEM and non-STEM academic units.

In a bid to examine the academic research performance in Malaysia, Latif and Subramaniam (2016) conducted a mixed-method cross-sectional survey to establish levels of academics' involvement in research performance as well as the barriers to research performance in the Open Malaysia University. The majority of respondents (67%) expressed that a lack of time as the primary cause of the low research and publication output. They contend that a fair and open academic workload policy model should be created in order to identify the various tasks carried out by academics and allocate a set amount of time for each one.

Salman, Kausar and Furqan (2018) in their empirical study sought to identify the determinants of research productivity in a developing country scenario. Results revealed teaching responsibilities as the strongest determinants of research productivity, since 70% of the respondents had published less than two research articles in five years. Almost the same percentage of respondents indicated spending little time of less than five hours on research as opposed to about 11-15 hours spent on teaching. However, this study was conducted in private universities with varying missions, policy frameworks, management systems and funding sources that do not apply to Ugandan public universities.

In an earlier investigation, Houston, Meyer and Paewai (2006) conducted a mixed design survey to analyse the university's approach to faculty workload models and responses to workload expectations and realities. The study results revealed that time allotted to research was measured in terms of the time left after teaching and administrative responsibilities. This implied the limited importance attached to the research function. Kotrlik et al., (2002) conducted a survey of

predictors of research productivity at agricultural education academics in the USA. They, found that universities allocated an average of 67% of lecturers' time to teaching, as compared to 13% for conducting research. Although the two studies had interesting revelations, the time lag between them and the current trends in university management practices leaves a time gap which necessitated the current study to establish the reality in regard to workload allocations and time for research activities in a Ugandan university setting.

Wamala and Ssembatya (2015) in their study to establish linkages between output and outcome indicators of productivity in academia explored 534 Ph.D. holders who had published journal articles, authored books or supervised graduate students to completion. Results revealed that the low academic scholarly performance in the low developed countries was a result of heavy teaching and supervisory workload. This is because of the increasing students' enrolments without a corresponding hiring of academics to handle them. Similar findings were reported by Latif and Subramaniam (2016) and Starovoytova (2017b) whose studies found that lack of time was the main cause of the low research and publication output in the Open University of Malaysia and in Moi University in Kenya. Such findings were also confirmed by Mody et al., (2018)'s study which revealed that the number of classes taught had a negative impact on research output of hospitality and tourism academics in the USA.

In a study to investigate factors for faculty scholarly productivity in 28 US research intensive universities across disciplines, Hadre', Beesley, Miller and Pace (2018), collected data using an online questionnaire from 781 academic staff from 28 research intensive universities from 17 states across the continental USA. The ANOVA and path analysis were administered to test the factors contributing to faculty members' research productivity. Results revealed that the number of teaching hours per week had a very strong negative correlation with research productivity,

while the time invested in research had the strongest positive correlation with research productivity. The study further revealed that most of the academics regarded teaching and research as essentially distinct activities, with teaching load demands competing with research for the limited resources like time and energy. This study was however conducted in research intensive universities in USA. The findings therefore cannot be directly applied to Ugandan non-research-intensive public universities hence a contextual gap. Secondly, the study had a narrow conceptualization of research productivity in terms of only peer-reviewed journal publications and conference paper presentations. This left a conceptual gap that this study filled by taking a broader perspective of research productivity including Book authorship and graduate students' supervision.

Scholarly obligations are typically neglected due to the demands of teaching, supervising students, and processing exams. This is particularly noticeable in developing-nation universities, Uganda included, where enrollment of students exceeds the number of academic staff members (Wamala and Ssembatya, 2015). Such imbalances imply that teaching workloads reduce the ability of academic staff to balance the time for teaching and research responsibilities. In an effort to investigate the determinants of research performance among Spanish academics, Albert, Davis and Legazpe (2016) found that teaching loads of over 50% of working time decreased research productivity among Spanish academics. The study however measured research productivity in terms of only books, book chapters and journal articles published or accepted. This left out other forms of research endeavors like graduate student supervision and conference paper presentations, hence a conceptual gap that this study included besides publications.

Khalil and Khalil (2019) examined the effects of personal factors on scholarly performance and perceived research constraints among the business faculty academics at the Kuwait University.

The single university survey used journal publications, book and book chapter authorship, conference presentations and research funded projects as the proxy for research productivity of 61 academics. Results showed that time spent on research and time spent on teaching variably affected the research output among the academics under study. However, the respondents were not entirely decided on whether the time constraints brought by participating in committees and handling administrative tasks hindered their ability to conduct research.

However, in an investigation of institutional factors that increase scholarly productivity in higher education institutions in Indonesia, Sondari et al., (2017) failed to generate a consensus on the definition and implications of the time dimension as respondents and authors failed to agree on whether the time they spent supervising graduate students and carrying out structural position functions could be categorised under teaching or under research. Okendo's (2018) findings from a case study of constraints of research productivity in Tanzanian Universities also affirmed the negative effect of teaching time on time available for research and thus research productivity. His findings corroborate with those of Salman et al., (2018) whose study revealed that the low academics' research productivity in Pakistan coincided with very heavy teaching loads of up to 36 hours a week among the same respondents.

In a bid to examine factors associated with academic research productivity, Nguyen et al., (2016), explored the enablers, barriers and motivators towards research engagement by academics in a research-oriented university in Vietnam. Most participants indicated the heavy teaching load as the main reason for their failure to engage in research activities. The above findings imply that despite the shift in university performance priorities from teaching to research and innovation, faculty members are expected to fulfill research, teaching and service obligations. However, most faculty members often find themselves unable to satisfy the

requirements for the three functions, especially finding time for scholarship while carrying heavy teaching loads and service commitments. To that end, Nguyen et al., (2016) concluded that reduced teaching time was an extrinsic motivation to do research, but noted that many academics preferred teaching to research since they could earn more money from teaching than from research.

Heavy teaching loads are obstacles to research productivity (Iqbal and Mahmood, 2011; Jung, 2012; Xu, 2014;; Nguyen et al., (2016); Putri & Sofyandi, 2019; ). In an explorative study to examine research productivity of Hongkong academics, Jung (2012) noted that time mainly affected academics in hard disciplines, but not in soft sciences where academics perceive teaching and research as compatible functions. Such a view was also advanced by Wood (1990) who asserted that heavy teaching loads are normally perceived as a diversion from the research initiative but not essentially a burden that reduces research output in all situations. Hence a confirmation to the argument that prolific scholarship does not obstruct academics teaching (Jung, 2012).

In his seminal book titled “Improving your research Management: a guide for senior research managers”, Pence et al., (2014) posits that although some scholars contend that teaching undergraduates and conducting research are discrete activities, they are intricately linked and interdependent. There is also evidence that teaching postgraduate students helps the academic staff to become better researchers (Feldon et al., 2011; Johnson, 2013). Yet its researchers who are perceived to enjoy higher status, better employment conditions and improved promotion prospects. It is upon the above contradictions and empirical gaps in Asian and Australian University settings that this study was intended to establish the relationship between teaching time and research productivity from a Ugandan public university perspective.



Leisyte (2016) evaluated the teaching-research balance among Dutch academics and found that, in accordance with the scarcity model (Hattie and Marsh, 1996), the quantity of peer-reviewed articles, monographs, and patents produced was inversely correlated with the amount of time spent on teaching each week. According to the model, research and teaching activities compete for resources like time, effort, commitment, and energy. The same study did, however, find a negative correlation between research productivity as measured by the number of articles published in academic journals, book chapters, and scholarly edited volumes, and the amount of time spent on research each week. Although this could be understood in the sense that peer-reviewed journals are a criterion for academic performance evaluation and promotion, hence taking up more research time than other types of publications, it is surprising that having more time for research does not lead to writing other publications other than peer reviewed articles. Surprisingly, the above study is consistent with that of Kyvik and Aksnes (2015), that did not find any empirical support for the argument that increased output resulted from spending longer working hours or more hours available for research among Norwegian academics.

However, in an examination of university effectiveness in transforming research input into research output, Zhang et al., (2019) revealed that, despite the rising research funding, heavy teaching and administrative workloads hinder academic researchers' capacity to conduct research, publish findings and share discoveries. Academics in particular had to deal with larger administrative and/or instructional burdens, primarily due to an increase in student enrollment. The findings imply that despite the increased research funding, heavy teaching and administrative workload reduces the research output among academics.

Therefore, investigations on the relationship between research and teaching time yield differing results based on the examined variables and their quantification. Furthermore, some of those

studies were focused on private universities, others were conducted in specialized institutions offering particular courses like tourism and hospitality, Business, Accounting and Finance, while none of them was conducted in a Ugandan University. This leaves conceptual, methodological and contextual gaps that this study intends to fill.

Another research management component influencing research productivity refers to research partnerships and collaborations. These can be in research groups within an academic department, faculty universities, non-university research institutions, international organisations, commercial and industrial business organisations and government departments both within and outside the country (Boateng and Tutu, 2018; Abbas et al., 2019). Collaboration may also take the form of co-authorship/ multi-authorship or a formalized relationship involving a memorandum of understanding between the collaborating parties/institutions (Bozeman et al, 2013).

In an exploration of the enablers, barriers and motivators towards research engagement by academics in a research-oriented university in Vietnam by Nguyen et al (2016), Most of the study's interviewees emphasized working together with colleagues. They understood the value of collaboration in research and peer support, particularly for young academics who lacked confidence in their abilities. Therefore, working together would help junior and less seasoned academics develop their research technique. In turn, this would increase their self-efficacy in the field. The study thus concluded that regular and intensive collaboration maintains research motivation among colleagues and creates a supportive research culture among academics which consequently leads to higher research productivity.

Universities are anticipated to have a significant impact on the processes of knowledge generation and transfer in support of today's globalized knowledge-based economic dynamics.

This requires collaboration with external actors like processing and service industry to drive economic growth and societal transformation (Perez Vico and Hallonsten, 2019). In order to develop the pertinent information required to address social issues and take part in the larger global economy, universities, the business sector and public institutions must collaborate (Aziz et al., 2012). In this regard, industries often rely on universities to conduct innovation-enhancing research to increase business opportunities and competitiveness. This form of collaborative effort has been cited by several scholars with differing terms such as technology transfer (Breznitz and Fieldman, 2012), academic entrepreneurship (Shane, 2004), University-Industry interaction (Perkmann and Walsh, 2007), D'Este and Perkmann, 2011; Perkmann et al, 2013; research collaboration (Bozeman and Boardman, 2014), the third mission of universities (Pinheiro, Langa and Pausits, 2015; Hellstrom, Jacob and Wigren-Kristoferson, 2013), Universities in innovation systems (Jacobsson and Vico, 2010; Lundvall, 2010) and the Triple Helix (Johnson, 2013; Abbas, 2019).

In an attempt to analyse university-government collaboration in China, Abas, Avdic and Xiaobao (2018) explored how bilateral research collaboration could generate and commercialize knowledge for use in industries. The study found that the Chinese government takes a leading role in generating and commercialising knowledge for use in business and industry. Their study concluded that collaboration generated new knowledge, and urged government to play a key role in supporting universities and fostering an environment that encourages research in order to maintain them as centers of knowledge creation. The study recommended the creation of university-based knowledge transfer offices to link University generated knowledge through research to both government and industry. Therefore, the study advised government to formulate flexible policies that can enable industrial actors to better acquire knowledge from universities.

However, it is worth noting that the study was conducted in communist China where government has a firm hand in directing activities in all political, social and economic spheres as opposed to Uganda's private sector and market-driven economy with minimal state controls. This leaves a contextual gap in comparison with public university-government operational relations in Uganda.

The above study findings confirm those from an earlier comparative study of scholarly performance of academics conducting contracted research by industrial establishments in Belgium by Van Looy et al, (2004) who found that participating in contract research encouraged publication rates among academics in Belgian Universities. Such study findings give credence to the emerging consensus that the promotion of closer ties between the university and industry researchers has resulted into increased engagement among universities in scientific innovation progress (Lowe and Gonzalez-Brambila, 2007; Abas, et al., 2018). As a result, universities, government agencies and the business community have established several initiatives to closely link their research to industrial innovations.

The drive to increase university-industry linkages is occurring across countries. The university has thus become a key component in the triple helix of relationships among university, government, and industry (Johnson, 2013; Abbas, 2019;). In many cases, this closer collaboration between universities and the business community has led to a remarkable upsurge in university generated patents, licences and start-ups especially in the developed world (Lowe and Gonzalez-Brambila, 2007).

Khademi et al., (2015) argue that funding is a critical predictor of research outcomes. International universities position themselves to improve relations with industry aimed at

extracting the funding needed to enhance research productivity. In a study of effects of university-industry inter-disciplinary collaboration on research activities in Sweden, Perez Vico and Hallonsten (2019) revealed several impacts of industrial collaboration on the content and conduct of academic research, including positive impacts on mutual trust and recognition, on research infrastructure and research funding.

While many studies have revealed positive effects of university–industry collaboration on research productivity (Abramo et al., 2009; Abas, 2019; Perez Vico and Hallonsten, 2019), others have produced unclear results (Perkmann et al, 2011). In an investigation of the relationship between university research quality and research collaboration with industry Perkmann, King and Pavelin (2011) found varying relationships between faculty research quality and industry involvement depending on the research discipline. Collaboration in various forms being positively related to faculty research quality especially in the physical and engineering sciences. The medical and Biological sciences posted a negative relationship while results for the social sciences indicated a positive association between the proportion of quality research and involvement in collaborative research.

Similarly, Zhang et al., (2015) examined the influence of university-industry collaborations on the innovations developed by Chinese enterprises. Their study findings indicated that the relationship between academic collaborations and industry innovation performance was not uniform across institutions and sub- national regions but varied across regions. This implied that the success of university-industry collaboration efforts depended on both the industry and

University’s specific factors like the location of an institution. They concluded that industries would benefit from having fewer but more beneficial academic relationships because excessive

involvement in research with academic institutions can be harmful to the industry's innovative abilities.

However, their study focused on products brought to the market as the only proxy measure for research and innovation. This indicates that their study focus was more on applied research and even then, other forms of productivity such as patents were not considered hence a conceptual gap.

Studies analyzing research have also shown that the best scientific knowledge is produced through international research collaborations (Adams, 2013; Boateng and Tutu, 2018). The benefits of international research collaborations have been analysed by researchers with mixed results.

In an explorative study to analyse trends in research productivity in Western Europe and North America, Adams (2013), found that publications in British Institutions with international co-authorships had a higher citation impact than those without international collaborations. He further reasoned that internationally co-authored publications were more highly cited due to their high quality research, hence concluding that the higher levels of institution's collaboration were more likely to generate high-impact research. However, his analysis focused on research productivity from European and American perspectives with advanced research culture, funding and infrastructural support systems, as compared to Sub-Saharan African universities where the above variables remain in short supply, hence a contextual gap.

Reflecting on their wide experience in conducting research in the Middle East region, Ryan and Daly (2018) authored a monograph highlighting the barriers to high-quality research in the UAE in particular and in in the Middle East in general. They emphasized that promoting international

collaborations enhances the academic community's competence in research and research-related issues. This in turn helps to break down some barriers to publication and add real value to theory and practice. Similarly, in a study of personal and organizational factors that influence scholarly performance in universities, Ghabban et al., (2019) found that international collaboration is key in promoting research performance in Saudi universities. However, both findings were from the Arab world with varying cultural setting and research support structures and opportunities from those of Universities found in Sub-Saharan Africa, Uganda being no exception. This left Geographical gap that the current study intended to fill. Secondly, Ryan and Daly's argument were based on only their experiences but not on empirical findings from academics in the Middle East universities. This left an empirical knowledge gap that the current study intended to fill by conducting empirical research on the affected population.

International collaboration can help to improve universities' research and innovation infrastructural capabilities. Zainab (2000) argued that universities can heavily benefit from enhancing international collaborations. This can be through improvements in the library and laboratory infrastructure, sharing field equipment and electronic resources, in addition to providing new research topics upon which to collaborate. In a study of predictors of research output among scholars in Spain, Albert et al., (2016) found that International collaborations involving post-doctoral visits, were a key determinant of research productivity. Their findings confirmed earlier findings by Teodorescu (2000) who had reported a positive correlation between over-seasconferences attended and publications of academics in several countries. Similarly, Lee and Bozeman, (2005) and Abramo et al., (2009) in varying dimensions, collectively asserted the significance of international collaborations in boosting research productivity.

However, in an earlier study to investigate research supporting factors among Australian academics, Bently (2011) found a statistically insignificant effect of international research collaboration on research output in Australian Universities. Other scholars have also argued that although both local and international collaboration generally increases research productivity, it majorly depends on the research type and discipline (Lee and Bozeman, 2005). Literature has also affirmed that research collaboration does not uniformly influence productivity across academic fields, especially among natural sciences, social sciences and humanities (Leisyte, 2016). To that effect, it was thus critical to examine the extent to which Kyambogo university promotes international collaborations with its lecturers, with a view of enhancing research productivity and consider the perspectives of lecturers regarding how international collaboration can be used to enhance research in their university, since some of the above cited studies do not show a positive correlations between international collaboration and research productivity.

As the trend towards research collaboration grows, the focus on multi-disciplinary/ cross-disciplinary collaboration to bring together researchers from various academic disciplines and institutional settings is becoming an effective form of research collaboration (Jung, 2012). Boateng and Tutu (2018) further argued, that various disciplinary skills and approaches are brought together into an interdisciplinary arena to clearly understand the problem under study and consequently offer multidimensional approaches to dealing with the problem at hand. The above opinion is further confirmed by Garner et al., (2018) findings. They reveal that, participating in interdisciplinary research was not only found to attract more prolific researchers but to boost research productivity by increasing the number of publications and citation rates in leading journals across academic rankings, gender and organisations. However, their study was conducted in the US with advanced research culture setting, more supportive policy frameworks



and research management systems as compared to those available in Sub-Saharan Africa universities, Uganda being no exception. This leaves a contextual gap that this study intends to fill by examining multi-Disciplinary research collaborations from a Ugandan university contextual perspective.

Jung (2012) argues that as academics and practitioners from various disciplines, backgrounds and institutional settings work together, they can easily forge comprehensive approaches to more complex and diverse problems through multi-disciplinary synergies. However, in an investigation of relationships between the scope of fields and intensity of interdisciplinary collaboration in an Italian university, Abramo et al., (2014) revealed that having high levels of interdisciplinary collaboration do not increase research outputs. It should however be noted that their study focused on citation counts to measure research productivity. Hence the need to use publication counts to fill the methodological gap in the study.

The positive relation between the intensity of departmental collaboration and research performance is further thoroughly verified in the literature.

In an investigation of the effect of research climate and institutional support on research performance at a private university in Indonesia, Putri and Sofyandi (2019) found that collaboration within and among universities both within the country and abroad could increase the performance of university scientific publications. Their findings confirm those of Vabo et al., (2016) whose study established that formalized research teams could positively influence the quality of individual research as well as on researcher training.

Boateng and Tutu (2018) posit that as collaboration widens a researcher's networks and connections, the new contacts become additional intellectual resources for co-advising, co-supervising and further co-authorship. Their position is supported by Khalil and Khalil (2019)

whose study found that the absence of a research-supporting culture, with faculty members not interested in joint research and lack of networking opportunities were the major factors that negatively influenced research efficacy among the Business faculty academics in a Kuwait university. However, none of those studies was conducted in a Ugandan University context. Hence the need for the current study to fill the contextual gap.

The bouncing of thoughts back and forth from colleagues in research teams enables the refinement of ideas and helps to provide meaningful feedback to challenges received from colleagues. In support of this idea, Jameel and Ahmad (2020) who investigated the contributors to research productivity of academics at Cihan University in Iraq found that collaboration whether national or international had a positive and significant impact on research output. Though all these studies identified collaboration as critical to research productivity, none of them was conducted in a Ugandan University. This leaves a contextual gap that this study filled by conducting an empirical study in a Ugandan University.

In the bid to examine the effect of co-authoring and multi-discipline research activities on the number of publications in quality tier journals, Seibert et al., (2017) revealed that co-authoring heterogeneity had and significantly positive effect on the quantity of first-tier publications, but not significantly related to second and third-tier publications. This implies that working with several co-authors results into producing high-quality research due to the resourcefulness benefits associated with co-authoring.

They therefore concluded that researchers who expect to raise their scholarly impact should spend more time and effort building stronger collaborative networks. However, study was conducted among full professors whose productivity and research networks are expected to be already high and wide respectively, which indicates a population gap. The study was also

conducted among management departments“ academics only. This does not paint a clear picture about academic research productivity in general, hence a discipline gap. The study also focused on Ph.D. programmes of US universities. These universities are assumed to have a long tradition and well established research culture, which may not be the case in the context of Ugandan universities. This leaves a contextual gap. Finally, the study was guided by the Social Network and the Organisational knowledge theories which do not necessarily link it to the support availed to academics to collaborate on their research endeavors at different levels. This also leaves a theoretical gap that the current study intended to fill.

In a study to examine the human and social capital influence on faculty research productivity among speech and hearing academics, Ramkumar (2018) revealed that both faculty to faculty and faculty to student collaborations had significantly positive and high correlations with faculty research publications and presentations. However, the study focused on only speech and hearing institutions“ academics and on publications and conference presentations as the surrogates for research productivity. This leaves discipline gaps and conceptual gaps that the current study is intends to make a contribution. This is through studying research productivity across all academic units in a university and by applying a broader measure of research productivity to include books and book chapter authorships and graduate student supervision in addition to publication and presentation counts.

In another study to explain the increase in research productivity among Norwegian academics, Kyvik and Aksnes (2015) contend that collaboration helps to distribute the research workload among more people, where each collaborator is able to contribute to many publications. They however argue that the productivity of co-authored publications depends on the method used to calculate article-equivalents. Where co-authored publications are awarded the same score as

solo-authored publications, collaborative researches hugely increase individual academics' productivity. Other measures award the same score to all co-authored publications regardless of the number of co-authors, while some use a formula where the score is fractionalized and distributed among the number of co-authors. This reduces their publication equivalents. It can therefore be conclusively stated that although most of the literature indicates that increasing the number of co-authors may lead to growth in research productivity overtime, the conceptualization and measuring of co-authored publications has remained controversial in academic circles. To avoid those controversies, this study will apply the same score for all publications regardless of authorship.

In Uganda, although the College of Health Sciences at Makerere University still records low research output, it remains the leading research producing academic unit in the country (MAK Strategic Plan Review Report, 2017; Nakanjako, et al., 2017). However, this is thought to be a result of the research funding by external organisations outside the university. This explains why 44% of the

67% publications that had data on collaboration involved collaborations with institutions in Uganda and 38% had collaborations with institutions in North America and Europe (Nakanjako, et al., 2017). This implies that 82% of the research from the College of Health Sciences, involved collaborations, hence the affirmation that collaborations lead to increased research output.

Although earlier studies have underscored the significance of collaborations in enhancing research productivity, they mainly skewed towards developed world. Consequently, it remains uncertain how academic collaborations influence research and innovation in Under-developed countries, with fundamental differences in institutional environment. Hence the need to conduct

the current study in a Ugandan public university to fill the geographical, contextual, methodological, population, theoretical and discipline gaps cited in the above literature.

The last management aspect influencing research productivity is the availability of guidelines on research publication. There are many forms, forums and channels to disseminate research findings. They include: book reviews, papers in conference proceedings, invited chapters, books and monographs, talks, workshops, website discussion groups and academic idea exchange sites such as tweets and journals. (Knight and Steinbach, 2008; Tay and Diener, 2018). However, Journal articles guarantee long-term access to scholarly work and are given essential consideration by promotion panels and search committees. Journal articles thus remain the hub for scholarly dissemination (Tay and Diener, 2018). To that end, university faculties and departments need to guide their lecturers to select appropriate journal publication outlets as a critical factor to publishing success.

Although little research has been particularly directed at the topic of journal selection, The Knight and Steinbach, (2008) model came up with three major considerations to guide the selection process. That is the likelihood of timely acceptance that includes the timeline from submission to publication, potential impact of the article, taking into account the Journal reputation in form of credibility, prestige and journal visibility, and lastly the philosophical and ethical concerns

In regard to Open Access, Library issues and Intellectual property/copyright issues. Similarly, Tay and Diener, (2018) identified four characteristics to consider when selecting the right journal for a paper, namely; The fit of the article to the journal, the reputation and quality of the journal, the academic readership and beyond and lastly, the turnaround time and rejection rate.

According to Ani (2014), academics from developing (African) nations prefer to publish in international journals because of their relative high visibility, scholarly calibre, and international reputation in their disciplines. Individual academic staff members as well as the university as a whole gain from international publication, since publishing output is one of the major factors considered in the global ranking of institutions. This explains why foreign publications are preferred by the majority of researchers, research policy administrators, and university management in emerging nations (Ani, 2014; Anderson and Feist, 2017). Okafor (2011) and Ani, (2014) reported that Nigerian universities have a cut-off requirement for their academics on the number of international publications before being promoted to senior academic ranks.

Since most local publication outlets are deemed to be of poor quality, their publications are unable to receive international citations and are consequently not indexed by scholarly databases like the Web of Science or Scopus, frequently used to rank scholars and journals (Ani, 2014). Besides, majority of their publications are focused on local issues that do not call for much attention from the international community. National journals, particularly those from developing nations are typically not mentioned globally. As a result, researchers in poorer nations prefer to publish their findings in international journals.

In a bibliometric investigation of the publishing trends among Kenyan information science academics, Kwanya (2020), analysed the quantity, quality, and visibility of the publications indexed by Google Scholar. Apart from the low quantity, quality and visibility of research publications where twenty (22.4%) serving academics were yet to publish any scholarly work, 185 (42%) of the published papers had not been cited. The findings revealed that the low publishing performance could have resulted from limited access to scholarly dissemination outlets among others. Kwanya (2020), thus asserted that Kenya's universities have not

prioritized scholarly publishing, and that many academic units do not have their own or recommended peer-reviewed journals.

In Uganda, most of the publishers have concentrated on publishing textbooks, workbooks, revision question banks and note handouts mainly for primary and secondary education levels due to their wider ready market. Ugandan Universities except Makerere have not established University Presses for publication of their academic staff scholarly work (Kasozi, 2015). Many public universities, Kyambogo being no exception still do not have functional University Journals. More still, many academic departments at Kyambogo University, do not have lists of accredited journals to guide their lecturers and Ph.D. students to publish their research findings. The absence of departmental or faculty accredited lists of journals and publishers poses a challenge for lecturers publishing in less credible and predatory publication channels.

Hite and Mugimu (2012) Kyambogo university factbook (2017-2018) and Kyambogo university Graduate school guidelines (2019) affirm that in Ugandan Universities, participation in Educational Research activities is in principle for all Ugandan universities as a high priority. However, the academic staff research productivity remains low and with no clear explanations for this contradiction. This study is therefore interested in establishing whether it is insufficient organizational support that is responsible for the low research productivity among lecturers in Kyambogo University.

## **2.6 Research funding and its effect on research productivity**

Due to increased funding from university budgets, government research grants, and external funding sources through university-industry linkages, particularly in the developed world, there have been notable improvements in research conditions worldwide. But funding research in

higher education, particularly in Sub-Saharan Africa, remains significant problem for universities, whose meagre financial resources are severely limited by the numerous conflicting demands placed on them. Several scholars have attempted to investigate the effect of funding to research productivity with varying findings.

Jameel and Ahmad (2020) conducted a questionnaire survey among 87 academics to determine the effect of funding, partnerships, ICT resources and research productivity of academics at Cihan University. Results revealed that funding was the most critical motivator of academics to enhance their research productivity.

In an earlier study, Doh et al., (2018) examined the impact of funding from universities, local and central government, private firms and foreign sources on research performance among 32,064 academics in the science faculties from four universities in Korea. Results indicated that research funding from various sources significantly and positively impacted research performance. The results thus implied that better funded researchers tend to achieve higher in research. However, the study revealed that some research performance indicators were not highly influenced by funding across academic areas. This study was however conducted in only science-based faculties where research performance is more usually measured by patent applications, patent registrations and licensing fees, that are rare in humanities and social sciences. Therefore, such the findings could not be used as a reliable measure of research performance across academic fields, hence a discipline gap. It is also worth noting that data for this study was from South Korea, an emerging industrial power and therefore not of a realistic generalization to the context of a Sub-Saharan country University which is the subject of the current study.



The financial muscular strength of a university determines the strength of other capacity correlates (Sanyal and Varghese, 2006). Paul et al., (2017) examined the major determinants of individual research productivity among 200 randomly selected agricultural scientists in India. Results indicated provision of adequate financial support for research as the highest organizational determinant of research productivity. However, the study was conducted in only agricultural institutes as opposed to universities. This leaves a discipline gap that the current study filled by conducting a university- wide study comprising all academic disciplines. Secondly, the study employed only interviews for data collection. This leaves a methodological gap that the current study attempted to fill by triangulating data collection methods to include questionnaire survey and interviews for more generalizable results.

Furthermore, Zhang et al., (2019) analysed the changing trends in research funding and output at three research universities in Atlanta, Georgia, between 2002 and 2015. The analysis revealed that, a decline in funding for hiring research assistants and for postdoctoral students were the major barriers to their increased research output during the period under study.

However, survey results highlighted that despite an increase in the level of research funding from tuition fees obtained through increased students' enrolment during the crisis period, academics ended up with heavier administrative and/or teaching loads, mainly resulting from increased student enrollment. This considerably reduced their ability to publish research findings, bring out new invention disclosures and apply for patents. This implies that an increase in research funding sources alone does not guarantee productivity when other factors are not improved. However, this study was conducted among US universities whose funding levels, systems and research environment are far different from those of a Ugandan university. This leaves a geographical gap that the current study attempted to fill. Secondly, the study's conceptualization of research

productivity in form of publications, invention disclosures and patents were more aligned with science faculties since they majorly conduct applied research whose products are in form of inventions and patents. This leaves conceptual and discipline gaps when compared to all university academic units from which the current study placed its focus.

In an extensive literature review to investigate factors that affect research engagement and productivity, Heng et al., (2020) indicated research funding, research rewards and incentives as the institutional factors that influenced the faculty research engagement and output. In an earlier investigation Ebadi and Schiffauerova (2016) conducted a bibliometric study to assess the impact of research funding and other determinants of research output in Canada. Results confirmed a positive impact of funding on the quantity and quality of publications. The study therefore, recommended an increase in long-term, focused funding programmes to improve the quantity and quality of publications. However, apart from the empirical gap left by the use of secondary data, the study was conducted in North America (Canada) which has more funding opportunities for research such as the presence of a federal public research funding agency in Canada. Such opportunities are nonexistent in Uganda where government has no funding structures for individual researchers, hence a contextual gap.

In an effort to examine research productivity, Nafukho et al., (2019) conducted a mixed-method survey among 612 academics at two Kenyan public universities. Results indicated that the funding allocated to research was positively correlated to the academic staff research productivity. This indicates that the presence and amount of funding determined the level of research productivity. However, the study conceptualized research productivity qualitatively using the h-index as its measure. This measure of quality alone leaves a conceptual gap that the current study addressed using quantitative counts.

In an earlier study, Muriithi et al., (2013) surveyed research and publication problem areas among 248 academic staff sampled in four disciplines across four Kenyan universities. Results affirmed that the major constraints cited by academic researchers were the difficulty of getting funding and low amount of funding. The above findings were confirmed by Starovoytova (2017b) in a study conducted among academics at the Moi University Engineering School in Eldoret. It was found that all respondents pointed out inadequate research funding as the main impediment to effective research performance. This study however focused on one academic unit, the school of engineering. This leaves a discipline gap that raises questions of generalizability of results, which was filled by the current study across the university academic units.

Kwanya (2020) who also analysed research productivity in Kenya, revealed low quantity, quality and visibility of research publications. This was mainly attributed to lack of scholarly writing skills, inadequate research funding and facilitation. However, this study also focused on one academic discipline of information science, hence a discipline gap that makes generalizing of results across disciplines questionable.

Away from Kenyan contexts, Yang (2017) explored the factors affecting Taiwanese University academics' research output through a mixed study survey. Results indicated governmental research funding as the most influential factor affecting research productivity. Similarly, the descriptive statistics indicated that Taiwanese professors projected low satisfaction with the level of research funding.

Khalil and Khalil (2019) explored the perceived research barriers to conducting research at the Kuwait University (KU). Research productivity was operationalized as peer-reviewed journal publications, book authorships and conference presentations. Results indicated financial barriers

as the most cited challenges to research performance. The business academics believed that their research performance was hampered by the difficulty of obtaining research funding, a lack of finances for attending conferences, lack of extrinsic research benefits (such as salary raises, promotions and job stability) and unclear guidelines for allocating research funds. Similar observations from the Arab world were reported by Arrahlah (2016) that insufficient funding or lack of funding was a major motivational hindrance to dental faculty members' research productivity at the Taibah University in the kingdom of Saudi Arabia. Both studies however focused on only one faculty (Faculty of Business Administration and Dental faculty respectively) to examine research barriers. Such a discipline gap may raise questions about the generalizability of its research findings to other academic units and institutions.

However, in an analysis of research productivity among academic faculties in six Arab countries, Abouchedid and Abdelnour (2015) found a low and insignificant correlation between research output among academic faculties and budgets allocated for research in Higher Education Institutions for each country. The findings indicate that research funding is not a major challenge in the oil- rich Arab state's universities. In contrast, Nguyen et al., (2016b) found that Vietnamese academic staff research productivity was limited by the inadequate research funding that could not enable them to buy research materials and pay publication fees. Similarly, in an exploratory study of constraints of research productivity in Tanzania, Okendo, (2018) found that over 50% of the lecturers participating in the study indicated that the salary of the teaching staff does not encourage them to actively engage in research activities. In addition, the study revealed that the university under study allocated less than 2% of its income for research. Although these findings are from a private University, they are in tandem with Kyambogo University's budget

allocation of 1% for research, consultancy and publication (KYU operating Budget FY 2017-2018).

Putri and Sofyandi, (2019) surveyed academics in a private university to investigate the influence of research institutional support on the quantity and quality of publications of universities in Indonesia. Results revealed that the influence of institutional support on the scientific publication performance of the university was low, at 22%. This indicated that the increase in the performance of university scientific publications was not majorly influenced by a proportional increase in institutional support. The study findings imply that if the universities continue to provide funding for research and publications, as well as funding opportunities for lecturers to attend seminars and research conferences, the quantity and quality of research publications are likely to increase but at a low pace. However, this study was conducted in a private university.

Private universities' sources and mechanisms of funding vary according to ownership, vision, mission and management systems. Such findings may therefore not be directly transferable to the context of a public university (which is the subject of the current study) majorly controlled by governments' funding policy frameworks.

Ordinarily, the availability and allocation of funds would be considered as one of the most important motivating correlates to research productivity. To that end, Teferra and Altbach (2004), Tetey (2006) and Zeleza (2012), postulate that the continuing crisis of research by academics in African universities, Uganda being no exception is lack of enough funds. Their position is consistent with that advanced by Ifijeh and Ogbomo (2018). In their study to examine the relationship between the use of library resources and lecturers' research productivity in

private universities in South-South Nigeria. the study found the inability of academics to meet publication costs as the major constraint to their research productivity. This implied that the main difference in faculty research productivity depended their ability to access funding. However, this study was conducted in private universities whose funding sources, policies and management systems widely vary from those of a public university, the subject of the current study.

Several earlier authors, including Aghanim and Alhamali (2011), Moahi (2007) and Sendikadiwa (2005) noted that the low publication rates among academics in developing countries could be due to inadequate funding and facilitation for research activities. In contrast, Kyvik and Aksnes' (2015) study to explain the increasing research productivity among Norwegian academics found that as a result of reduced government research grants, academics had to mainly rely on external sources for research funds, mainly through university-industry linkages. The quest to attract external funding agencies in turn led to increased productivity especially among academics conducting industry-based research projects. However, in the Ugandan context, the industrial sector is still narrow, shallow, fragmented and too weak to provide enough funding opportunities for university research (Kyaligonza et al., 2015 Kasozi, 2017). Hence the need for government to take up funding for university research as a precursor for national development.

In Uganda, many and varied factors militate against academic research productivity in Public Universities. However, the most outstanding ones include the annual university budgeting that pays minimal attention to research and the government's underfunding of public universities generally and research specifically. The heavy teaching load caused by large class sizes, the inadequate remuneration of academic staff who receive un-attractive salaries, the absence of university-industry links, the infrequent strikes by students and lecturers that cause disruptions to

university schedules, the lack of dedicated and well-trained researchers to produce credible proposals that can attract foreign funding (Mayanja, 2007; Mamdani 2011; Kyaligonza et al., 2015).

However, as Kasozi (2005) and Kyaligonza et al., (2015) posit, the root cause of all the above challenges is inadequate funding.

There are few empirically grounded studies conducted to link funding to research productivity in Ugandan universities. Most of the cited literature on the subject is from commissioned reports, consultancy reports, policy and strategic plan reviews and assessment reports. In a qualitative study at Makerere and Mbarara University of Science and Technology, Kyaligonza et al. (2015) investigated the sources and amount of funding for academic staff research in public universities in Uganda. The results of the study showed that there is a severe lack of funding for academic research, with universities allocating very little money for it and receiving little assistance from their industry-linkages. The survey also showed that most public university lecturers would rather only conduct research for academic purposes in order to receive higher degrees or to be considered for promotions, as a result of insufficient funding for research. In light of this, the study suggested that government should increase funding for the university research function. More to this, universities should also consider alternative sources of funds to increase allocations to research. Although this was one of the very few studies about research funding in Ugandan universities, the study was conducted in Uganda's two oldest public universities whose contexts differ from those of the majority of public universities, which are relatively new and could be facing more unique funding challenges. This indicated a contextual gap that this study was compelled to address by conducting the current study in a relatively newer university.

However, in their study to investigate the organisational antecedents of private universities' academic staff research productivity, Hiire et al., (2020) revealed that funding had a negative and non-significant relationship with academic staff research productivity. It should however be noted that this study was conducted in private universities with differing funding levels and financial regulatory policies from those in public universities like Kyambogo, hence a contextual gap. On the other hand, Nakanjako et al., (2017) conducted a case study in the need to accelerate health research productivity at Makerere University College of Health Sciences. Results indicated that out of the 64% of publications that had information on funding source, 41% were funded by institutions in the USA and Canada, 23% were funded by European Union institutions and that only 6% were locally funded in Uganda. Even the source of local funding was not clearly stated whether by the government, university's internally generated funds or by local non-Governmental Organisations. This raises the question of research prioritization and sustainability in Uganda's public universities. Although the study revealed interesting results about research funding in a public university in Uganda, it focused on one academic unit. This leaves a discipline gap that will be filled in the current study through a university-wide study approach.

Although Most of the Ugandan public universities' strategic Plans (Makerere university Strategic Plan, 2008/09-2018/19) stipulate institutional commitment to research and innovations of at least 3% of their internally generated funds annually. However, evidence from the Self-Assessment Reports (Self-Assessment Reports, 2013/14) and the Strategic plan review reports (Strategic plan review reports, 2017) indicate that research funding has been at 1% or less over the years in most of the public universities. Overtime, both Makerere and Mbarara Universities'



recurrent budgets did not indicate any expenditure on research (MAK & MUST Expenditure; 2011/2012; 2012/2013), but rather sandwiched in the academics and tuition vote. This implies that university policymakers and administrators who happen to be highly educated and are former members of the academic staff who are supposed to appreciate the crucial role of research for their universities and for the nation at large, either attach minimal importance to research, or are incapacitated by poor funding, hence in practice neglect the research function which is a core mandate of universities worldwide (Kyaligonza et al, 2015).

Financial constraints usually lead to a severe scarcity of scholarly resources such as libraries and access to current research literature necessary for conducting research. Nguyen et al, (2016b) asserted that research funds can help to equip libraries with online information sources to increase the opportunities for academics to access updated literature in their fields. Nguyen, (2015) further asserts that even academics with intrinsic motivation to conduct research may not be willing to dip into their pockets and meet the costs for conducting research and publishing findings. They therefore end up unable to engage in meaningful research activities. This confirms the notion that lecturers' research motivation and publishing outputs heavily depend on the university support. Such a scenario raises the need for universities to allocate sufficient research funds to cover expenses related to their academics' research tasks, and to broaden and deepen their research competence. Similarly, Ramesh Babu and Singh (1998) argued that research funding is critical for promoting research productivity, especially in science fields where regular experiments are conducted on expensive equipment. This could give credence to the fact that research output in science and technology fields in developed countries with high funding levels and opportunities is far higher than that in developing countries with very limited or no funding (Nguyen et al., 2016b).

In an investigation of research productivity in Ugandan universities, Hite and Mugimu (2009) in their study reported that 71% of the lecturers received no financial remuneration for engagement in research activities while 90% had low research funding. According to Kasozi (2017), public universities lack the financial autonomy necessary to freely fund essential components of their operations. He goes on to say that Ugandan universities' capacity to carry out their research function has been negatively impacted by the absence of institutional autonomy and academic freedom for staff. Although the government adopted neoliberal policies in the 1980s resulting into a decrease in state funding public universities from 100% to an average of 40% the state retained and further tightened its financial control over public universities than it had before the neoliberal era (Kasozi, 2017). Thus, government acting through several statutory instruments and policies still stifles the financial independence of universities to perform their functions. Consequently, this reduces their ability to create and disseminate knowledge (Kasozi, 2017). Consequently, even with the increase in financial resources from other sources like the internally generated funds, research funding remains limited, hence the need for this study to examine the lecturers' perceptions of the financial support they receive for research productivity.

## **2.7 Research infrastructure and its effect on research productivity**

As an institution of higher learning, a university is expected to provide enabling infrastructure facilities for teaching and research services. In this study, the research infrastructure facilities shall comprise the physical infrastructure and the electronic resources. There have been attempts by several scholars to investigate the effect of work place environment infrastructure on research productivity. Kasule (2015) conducted an exploratory cross-sectional survey to find out how the prevalent work environment affected academic staff job performance at Kyambogo

University. Results indicated that work environment factors have a significant positive relationship with academic staff job performance. He thus argued that productivity in any organisation is a result of several factors. These include a conducive office environment such as executive furniture, lighting and aeration, computers and printers all of which have a positive influence on employees' health and work attitudes and ultimately their productivity. These findings corroborate with those of Kyvik and Aksnes (2015) and Moore et al., (2016), who also pointed out that research infrastructure creates a favourable environment that attracts prolific researchers and improves communication and collaborations between research communities. Although Kasule investigated research infrastructure, he did not directly relate it to research productivity, hence a subject gap.

However, in another study to find linkages between work environment and perception of institutional policies on lecturers' productivity in Uganda Christian University, Naikote and Bakabulindi (2011) found no significant relationship between work environment and lecturers' productivity. However, this study was directed towards lecturers' productivity in general other than research productivity in particular, which leaves a subject gap as well. More so, their study was conducted in a private university where the physical work environment conditions may not be as poor as those in Ugandan public universities.

Any organizational performance culture heavily relies on the available infrastructure. In a bid to investigate the relationship between workplace environment and organisational performance,

Chandraseker (2011) surveyed 285 employees from different public sector organizations in India. The study found that the physical workplace environment in form of office space, furniture and furnishing and storage of materials had a profound effect on employee performance.

The study was however not conducted among academic staff, nor in regard to university academic research performance. This leaves subject and knowledge gaps which may raise questions in regard to the generalizability of such findings to university academic research performance, which was the interest of this study. Commenting on the low research output in Kenya, the Kenya Commission for University Education (CUE, 2013) report revealed the lack of research infrastructure in form of laboratories and equipment to be the major constraints to university research productivity. However, the report observations were not directly derived from an empirical study on the subject. This leaves an empirical knowledge gap. However, the report position was supported by Sondari et al, (2017) study which revealed the absence of laboratory facilities for research as one of the major barriers to increased lecturers' research output in Indonesia.

In a study to evaluate the research productivity of individual academics in Kenya, Starovoytova (2017b) found the lack of testing equipment and other related research infrastructure to be a major barrier to quality research of academics of School of Engineering at Moi University. Her study confirmed earlier findings by Nguyen et al. (2016) whose study found that it was necessary to provide adequate funding to meet costs for research experiments materials and equipment and to pay publication fees. These findings also relate to the ones of Bentley (2014) and Patchawong, Wangpan and Ounjit (2012) who revealed a positive linkage between academics' research productivity and their satisfaction with the infrastructure support provided by their university, mainly laboratories and research equipment. However, none of these studies was conducted in a Ugandan context. Such gaps render their findings not easily generalizable to Uganda's university environment.

In an exploratory study of motivational factors on research productivity in Saudi Arabia,

Alrahlah's (2016) findings indicate better and stronger infrastructure as the leading factors in enhancing scholarly output among faculty members in Taibah University. A similar study conducted by Khalil and Khalil (2019) among Business faculty members at a Kuwait university revealed inadequate laboratories and equipment as the barriers encumbering their research productivity. Both Alrahlah and Khalil and Khalil's studies were carried out in particular faculties (Dental and Business) and in an Arabian context which is different from a Ugandan public university context in terms of funding and other management policies. Hence the need for this study to fill the discipline and geographical gaps.

Iroaganachi and Izuagbe (2018) conducted a survey to examine the effect of the use of electronic information resources on 334 academic staff research productivity in six federal, state and private universities in South-west Nigeria. Study results revealed that the use of electronic information resources had a significant positive impact on academic staff research productivity in all surveyed universities regardless of type, though with varying degrees of relationships. The study recommended the need for government and university management teams to adequately provide the required infrastructure that could boost their utilisation and consequently research productivity.

In another attempt to determine the relationship between digital literacy, digital competence and research productivity of educators, Yazon et al (2019) conducted a descriptive-correlational survey among faculty members at a State Polytechnic University, in Philippines. The findings revealed a positive and significant effect of faculty members' digital literacy on their research effectiveness. Likewise, faculty members' digital competence was significant and positively correlated to their research output.

In a descriptive cross-sectional survey to explore the factors and barriers to research productivity among academics at Jigjiga University in Ethiopia, Feyera et al., (2017) revealed poor access to electronic information sources as the major barrier to the research function among the surveyed academics. The study emphasizes that many organisations in developing countries have enhanced the application of Information Technology to increase the productivity of their workers. In particular, the use of Information Communication Technology (ICT) has become the most essential element for enhancing the productivity of university staff, academics being no exception. It is therefore imperative that the same study (Feyera et al., 2017) that reported poor access to electronic information sources also reported low research productivity among the surveyed academics.

Ghabban et al., (2019) investigated the academic staff perceptions about the use of ICT in enhancing research performance in Saudi universities. The results revealed that the use of ICT was positively related to research productivity. In addition, research productivity was positively influenced by ICT funding. Similarly, in another survey to identify predictors of research productivity of academics at Cihan University in Iraq, Jameel and Ahmad (2020) found that ICT use positively impacted academic research productivity. However, the two studies were conducted in the Arab world universities whose research context in terms of research culture, funding and university management frame vary from those of a Ugandan university.

Ani et al. (2015) surveyed 324 academic staff members from Calabar and Ibadan University to examine the impact of accessibility and the use of electronic resources on the productivity of academic staff in Nigerian universities. The study discovered that productivity at the surveyed

Nigerian universities was significantly positively correlated with accessibility and use of electronic resources. The findings suggested that greater use and accessibility of electronic resources increases productivity in research. In particular, the study found that the University of Ibadan, which invested more in ICT facilities, had a stronger positive correlation than the University of Calabar, which invested less in electronic resources and thus offered less accessibility and utilization of e-resources for research.

The introduction of electronic information resources has altered the way academics conduct research as well as how they view and utilize libraries and their resources (Iroaganachi and Izuagbe, 2018). Put differently, electronic resources have emerged as a fundamental element of a contemporary academic library, with the majority of the library's budget going toward subscriptions to electronic journals (e-journals). As a result, researchers have tried to find out how the availability of electronic libraries affects the output of research.

Haliso and Toyosi (2013) conducted a descriptive survey to investigate the influence of information availability and utilisation on academic productivity of lecturers in Babcock University. Results revealed a positive and significant influence of information sources' availability and utilisation on the academic productivity of lecturers. The study recommended the need for library administrators to ensure timely, appropriate and latest information sources, together with modern information technology facilities for lecturers to use and improve their academic productivity.

In an earlier study, Haliso (2011) investigated the constraints to use ICT in Nigerian university libraries. It was established that institutional constraints such as absence of ICT strategy and lack of focus by the institutional management as the major barriers to enhancing the use of electronic

resources. Electronic libraries are essential for users' continued access to scholarly material both from within the library and beyond the walls of the complex building (SCONUL, 2018; Worsley, 2019). In this regard, academic libraries now engage in building extensive digital libraries with institutional repositories for sustainable access to relevant and recent information.

In a study to examine the utilisation of library resources for research productivity among lecturers in private universities in south-south Nigeria, Ifijeh et al, (2018) found that increased use of library electronic resources led to proportional increase in lecturers' research productivity. They emphasized that library electronic resources reduced the lecturers' access cost for books, journals and other information sources. From the findings of earlier studies by Alebaikan (2010); Odaro (2010), Ifijeh (2011), and Emorjorho (2013), it was revealed that regardless of their disciplines, lecturers use library resources to acquire information for their teaching and research function. However, academic staff in private universities were more inclined towards Electronic Information Resources use for research than their counterparts in federal and state universities. The above finding could imply that private universities have better electronic resources and ICT infrastructure than public universities. This leaves a contextual gap that this study attempted to fill by conducting its investigation purposely in a public university.

The use of digital library resources provides fast and easy access to information, and unlimited information from different sources (Ghabban et al., 2019). Besides, electronic library resources enable remote access by academic staff without physical visits to the library. Yang (2017) surveyed the perceptions of university professors in Taiwan towards influential factors for research performance. The findings revealed digital library resources as a key factor in Taiwanese academics' research output.



The findings were in line with those of Chinamasa (2015), Nguyen et al., (2016) and Okendo (2018) who also attested limited library resources as one of the biggest obstacles to lecturers' research productivity. However, all their studies were conducted in private universities, hence the need for the current study in a public university.

There is increased reliance on internet facilities for research and development activities (Mamun and Rahman, 2016). Online searching helps researchers to identify relevant information easily. Besides, the internet helps researchers to participate in scholarly electronic discussions and access to online databases. Several researchers have attempted to establish relationships between internet availability, use and research productivity with mixed findings and conclusions. Yazon et al., (2019) reported that an increase in the use of digital technologies positively impacts on the faculty members' ability to conduct and disseminate findings, in a Phillipines university. Likewise, faculty members' digital competence was found to be strongly and positively correlated to their research productivity. The study recommended the need for university managers to install fast internet connections to all faculty rooms so that members could easily browse scholarly online journals and thereby increase their research capability. It important to note that the lecturers' digital literacy and competence strongly relate to the availability of electronic ICT resources in a university. This is because if the resources are available, lecturers are likely to be trained in their use.

In a related study, Ghabban et al, (2019) established that the use of e-resources in Saudi universities positively impacted scholarly publications. Their findings are consistent with prior studies (Basak, 2015; Ng et al., 2015) which indicated that using ICT in research activities increased research output. However, Ghabban et al., (2019) found the use of e-resources in Saudi universities to be unacceptably low. This could explain why their universities are ranked lowest

when compared to other universities. It therefore remains unclear whether the reported low use of e-resources among Saudi academics was a result of their unavailability, or due to other factors.

Using internet supported ICTs is believed to have other benefits, such as increased informal communications and increased ease of finding related information. From this perspective, Starovoytova, (2017b) found the lack of reliable and fast internet-access in academic staff offices as a major barrier to effective research among lecturers of Moi University in Kenya. But the above findings were in disagreement with those of Sangowusi (2003) who had earlier on reported that access and use of ICTs did not have a significant impact on the research productivity of professors in a Nigerian top University. He noted that this could have been so because most of the few professors available in African universities at the time would be carried away with teaching and administrative responsibilities in their universities leaving them with limited time for research).

The use internet, has been found to have additional potential for increasing scholarly work especially in the developed world where governments have been expanding their internet infrastructure to connect homes and institutions (Mamun and Rahman, 2016). In a study to explain the increasing research productivity among Norwegian academics, Kyvik and Aksnes (2015) expressed that among the major reasons for increased research output were the major technological changes like the introduction of advanced computer software, electronic databases and improved access to the internet. Similarly, in a study to explore the usage of electronic journals for research in Aligarh University in India, Raza and Upadhyay (2013) found that the slow download of papers due to low internet speed remained the main challenge faced of using

e-journals. The above findings imply that good internet infrastructure is a key requirement for academic staff to conduct effective research activities.

The use of e-journals is believed to enrich research productivity. Raza and Upadhyay (2013) express that although many researchers are eager to search for information from e-journals. They however face a problem of low internet speeds. Similar findings were reported by Okiki (2013) who found that slow internet connectivity was a major inhibitor to research productivity among Nigerian federal universities academic staff. In an exploration of the perceived obstacles to the use of mobile technologies for research among Nigerian University lecturers, Ogunlade and Onasanya (2018) reported that all lecturers in the sample, regardless of their socio-demographic factors encountered network related obstacles while using mobile technologies for research. Therefore, Okiki suggested the need for Nigerian university administrators to provide fast internet facilities and adequate mobile technologies to all lecturers in order to facilitate effective research.

In a related study of relationships between internet use and academic research performance, Mamun and Rahman (2016) also found that increased internet use contributed to increased research output. They therefore recommended the provision of high-speed internet and sufficient training for proper use of internet resources for all academics as a worthy public policy. In Uganda, internet data bundle costs are still too high for individual researchers like lecturers to afford on their own. It was therefore in the interest of this study to examine the effect of internet access on academic research productivity.

The advent of information and communications technology (ICT) has changed research at universities, sparking a migration from print to electronic information resources. Books, journals, magazines and newspapers are now being published on the Internet, referred to as e-resources

(Ani et al., 2015). Researchers have made attempts to examine the relationship between access to online publications and research productivity. For instance, in a qualitative study of affordances, barriers and motivators to research productivity at a Vietnam university, Nguyen et al., (2016) found that many academics lacked access to contemporary literature. Instead they had to rely on their counterparts from universities abroad for reading materials., hence the urge for their university to allocate more funds to equip libraries with more recent publications.

The digital technology migration has thus accelerated University Libraries' subscription to online publications for easy access to research information.

Rafi et al., (2019) conducted a survey to analyse the scholarly productivity of academics using digital databases. The study found that productivity significantly improves with the use of standard databases. The study therefore recommended the need for adequate budgetary provisions for the establishment of modern libraries. Iroaganachi and Izuagbe (2018) also suggested academic libraries should try to always subscribe to relevant online databases as a critical support base for research development. These online databases have thus become a reliable source of published literature which has deepened and extended the boundaries of academic research, casting a substantial impact on research progress regardless of discipline and specialty (Rogers and Nielsen, 2017, Rafi et al., 2019).

Currently, several academic institutions and professional associations store scholarly resources on databases, online directories and websites. These are commercially accessible as subscription outlets or free of cost as open access publication outlets whose main goal is to promote researchers' easy access to information (Mole and Mesagan, 2017; Rafi et al., 2019). In a survey of causes of low research productivity at higher education level in Pakistan, Zafar et al., (2011)

revealed that the faculty members lacked access to the latest books and journal articles as a measure to improve their research productivity.

These findings are in line with Alshahrani (2013) who expressed that obtaining appropriate and latest information from the internet as well as improved access to recent publications led to an increase in research productivity in Saudi Arabia. Similar findings were reported by Putri and Sofyandi (2019), who also affirmed that access to research resources such as citation journals, textbooks and other supporting literature is critical for promoting university research function among academics in Indonesia. Although these studies contributed to the impact of electronic resources on research productivity, their findings cannot be fully applicable to the Ugandan context. Hence the need for this study in a public Ugandan university to fill the cited contextual gaps.

Worsley investigated of the opinions of health science scholars in Oxford Brooks University on accessibility to electronic journals in their academic library and its impact on their research. The findings revealed that most of the academics were satisfied with e-journal accessibility since they could easily access the information they needed for teaching and research. This appeared to be majorly due to the high library subscriptions to electronic information sources that were deemed crucial to their research needs, hence the feeling of abundant access to the needed information. However, the study was conducted in the UK where academics enjoy fast class access to the most recent journals and books due to their institutional subscriptions. On the contrary, in the developing countries like Uganda, inadequate funding for universities has left the development of digital libraries lagging behind in the required online information resources as a major research challenge.

In an explorative study of research productivity among, facilitators in disability health living and rehabilitation institutions in the USA, Moore et al (2016), observed that increased journal subscription leads to higher levels of research output. Although these studies contribute to the problem under study, they relied on a review of literature hence an empirical gap that this study attempted to fill by conducting an empirical study among university academic staff.

Availability of software for data collection and analysis is also an important component of a research e-resources. Software commonly used for research includes SPSS-AMOSS, EndNote, NVivo, Turnitin, and Microsoft office among others. There are some empirical studies that have been conducted in this line. According to Shanbari and Meadows (2015), the effectiveness of research within an organization can be impacted by the individual use of software for tasks like data collection, statistical analysis, online database searches, and email use. They stated that having access to statistical software makes data analysis for academic staff easier.

In an investigation of research constraints in Tanzania, Okendo (2018) found that universities do not have adequate software for data analysis and plagiarism checks. His findings are supported by Ghabban et al., (2019) who observed that new IT software for research improves academics' ability to store, retrieve, test and check the authenticity of knowledge easily. The findings were also in corroboration with those of Rodríguez-Bravo and Alvite-Díez, (2013) who in an earlier study found that the use of electronic resources increased academic research output. Okendo's study was however carried out in a catholic founded as opposed to a public university (the subject of the current study) which strictly follows government policy guidelines on financial and infrastructural support development.

## 2.8 Research gap

This chapter reviewed literature in relation to organizational support and research productivity. The review helped the researcher to develop a thorough grasp of the key the concepts under study. It revealed the various organizational support relevant for research productivity and the earlier works conducted pertaining the research problem. This helped to identify the existing gaps to be filled by this study.

Putting into consideration the existing literature on organizational support and research productivity, most of the studies cited indicate the importance of organisational support in promoting research productivity. However, it was noted that, a bulk of scholarship has been directed towards developed countries where institutional research cultures and university management contexts are very different from those of the Ugandan context. Some were conducted in privately owned universities with differing management policies and agendas from those of a public university like Kyambogo. Others were conducted in non-academic business organisations and public sector organisations like in health, tourism and hospitality and finance that are not managed as universities. This means that there is still a paucity of research studies focusing on organizational support in influencing research productivity in a university setting. Also, in their analysis, studies used different theoretical applications to study research productivity. Specifically, studies focusing on organizational support especially in the Ugandan context are still missing. Some relied on publication counts, others on citation counts while others relied on visibility counts to measure research productivity. Hence conceptual gaps that necessitated this study. More so, some studies were based on literature review for data collection, hence empirical methodological gaps. To address these research gaps, this study analysed the

effect of organizational support on lecturers's research productivity at Kyambogo University. In the next chapter, I present the methods that were used to conduct this study.



## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 Introduction**

This chapter presents the philosophical orientation of the study, research design, study area and population, sampling design, data collection methods and instruments, operationalization and measurement of study variables, data quality control, data analysis and presentation, and ethical considerations.

#### **3.2 Philosophical orientation**

The philosophical orientation refers to what exists for people to know about (ontology), how knowledge is created and what is possible to know (epistemology) and the generalised world view (Paradigm) that guides the study.

##### **3.2.1 Ontological Assumptions**

Ontology is defined as the study of the nature, existence, and structure of reality (Crotty, 2003; Ahmed, 2008; Dudovskiy, 2016). Whether social entities should be viewed as realist (objective) or relativist (subjective) ontologies is the question of ontology. According to realist ontology, there is only one reality that can be investigated, comprehended, and felt as the truth (Moon & Blackman, 2014). Realists assert that existence of the real world is separate from human experience. On the other hand, relativist ontology is predicated on the idea that there is only one true reality, which is created by the human mind. In contrast, reality is relative to how people perceive it in any given moment and location (Moon & Blackman, 2014).

Regarding the assertions made about reality, ontology aids researchers in identifying the nature and existence of the objects they study as well as how to resolve divergent and contradictory conceptions of reality. To that end, the study was guided by both realist and relativist ontological assumptions. With regard to realist ontology, the study assumed that reality could be studied independently following scientific approaches, specifically, developing hypotheses to be tested, using Quantitative data collection methods and statistical applications to test hypotheses and produce timely and context free generalizable findings (Ahmed, 2008; Moon & Blackman, 2014). The study thus assumed that the dimensions of organizational support and research productivity could be observed and measured objectively using self-administered Questionnaire and the findings obtained therefrom the sample generalized to the population of lecturers in public universities. Guided by relativist ontology, the study also assumed that reality can be created by the researcher from the perceptions and actions of the study participants, using qualitative approaches particularly through interviews and findings analyzed narratively using emerging themes (Ahmed, 2008; Moon & Blackman, 2014).

### **3.2.2 Epistemological Assumptions**

The study of knowledge, or epistemology, aims to comprehend and elucidate how we come to know what we do (Crotty, 2003; Moon & Blackman, 2014). The goal of epistemology is to give a philosophical foundation for determining what forms of knowledge are feasible and how to guarantee that they are authentic and satisfying (Crotty, 2003; Ahmed, 2008). In research, epistemology influences how researchers frame their research, which consequently determines the research design in their attempts to discover knowledge.

This study was guided by both objective and subjective epistemology. The perspective that social entities exist in reality apart from the social actors who are concerned with them is portrayed by epistemological objectivism. According to objectivist epistemology, reality exists independently of or outside of each person's mind. Hence, objectivism is an epistemological stance that maintains the existence of social phenomena and their meanings apart from social actors. In regard to the study, the researcher remained detached from and independent of the researched respondents by use of a self-administered questionnaire. The study also applied deductive logic to test theories and hypotheses in a cause-effect relationship following the study variables. Objectivist research was helpful in giving the study's findings external validity, that is the ability to be applied to different contexts, and reliability which is the consistency of the results attained.

Subjectivism, on the other hand, holds that social phenomena originate from the perceptions and ensuing acts of those social actors who are involved in their existence. According to subjective epistemology, reality can be expressed in a variety of symbol and language systems and can be adapted to suit the needs of each individual, allowing them to give the world meaning and interpret it in a way that makes sense to them (Moon & Blackman, 2014; Ahmed, 2008). Subjectivist research is valuable because it sheds light on how a person's experiences affect how they perceive the world. Concerning the study, subjective approaches were applied through interviews to obtain participants' perceptions for an in-depth understanding of the study problem. Besides, the study interpreted the qualitative data using personal and informal language developed from the themes that evolved from the participants' perceptions during data collection.

### 3.2.3 Research Paradigm

A pragmatic research paradigm that combined positivist and interpretivist viewpoints within the parameters of a single study served as the study's compass. According to Dudovskiy (2018), the pragmatist research paradigm only considers concepts to be relevant when they facilitate action. Because there are multiple realities, pragmatics acknowledge that there are numerous ways to interpret the world and conduct research and that no single point of view can ever provide the full picture (Creswell, 2014; Dudovskiy, 2018). According to pragmatics, the approach that finds a solution to the issue is the best one to employ (Patel, 2014). To pragmatists, something is true only insofar as it works (Kelly, 2011; Creswell, 2014). Pragmatism thus applies a pluralistic approach to understanding a problem and deriving knowledge about the problem (Tashakori & Teddlie, 2010).

Since truth is what is practical at the moment, pragmatic researchers are therefore free to select any procedures, methods, and techniques that best fit their goals and needs (Creswell, 2014). Because pragmatics are able to integrate various research philosophies, such as constructivist and positivist perspectives, within the confines of a single study, depending on the nature of the research question, mixed research methods are necessary in a single study.

Studying the impact of Organisational Support on Research Productivity therefore warrants a pragmatic approach to understand the Lecturers' perceived organizational support needs for research productivity to derive knowledge from the study.

### **3.3 Research Design**

In order to collect and analyze quantitative and qualitative data simultaneously but separately, the study used a convergent parallel mixed research design (Creswell, 2014; Hanson, Creswell, & Petska, 2005). In order to validate, cross-validate, or corroborate results, this method compared quantitative and qualitative datasets to find convergences, differences, and combinations. The mixing aspect happened during the side-by-side interpretation and discussion of results from both quantitative and qualitative datasets to appropriately validate and substantiate findings (Creswell, 2014). In particular, the study employed both correlational cross-sectional survey and exploratory designs to relate organizational support to lecturers' research productivity.

### **3.4 Study Area**

Kyambogo University (KYU) served as the area of study and unit of analysis for the investigation

Kyambogo is the second largest public university in the nation and the first to be established under the Universities and Tertiary Institutions Act (2001).

### **3.5 Study Population**

The study population consisted of 156 Ph.D. holding lecturers from the different academic departments as the primary respondents, whose research productivity formed the unit of analysis.

The population also comprised key informants that included deans of faculties/schools, Directors and Heads of research supporting departments in the university. These were selected because they were thought to have relevant information and expertise concerning the study. The Kyambogo University newsletter (Jan/ Feb. 2021), quoting the Vice Chancellor's address at the

new general assembly induction (2021), indicated that there were 156 Ph. D holding academic staff. This assertion was in tandem with the records obtained from academic faculties and departments about the number of Ph. D academic staff in their faculties.

### **3.6 Eligibility Criteria**

The eligibility criteria which include both the exclusion and inclusion criteria helps to determine members of the parent population who should, or should not participate in a research study (Nikolopoulou, 2023). This was intended to generate a more homogeneous sample in the study.

For this study, the inclusion criteria among respondents was the possession of a Doctorate degree. The university Human Resource policy, which established a doctorate degree as the minimal qualification for one to fully qualify as a “Lecturer” in an academic university (Kyambogo University News Letter, Jan/Feb. 2021; Makerere University appointment and promotion policy, 2006 & 2014), directed the focus on only the Ph. D. holding lecturers. Second, among other goals of Ph. D. training programs are expanding one's network, experience, and research knowledge. This makes its holders more research capable and self-assured (Heng et al, 2020). Ph. D holding academics are therefore assumed to have received the necessary preparation for undertaking research, preparing presentations and writing publications thereby having a high research productivity (Alhija & Majdob, 2017; Brew, Boud & Namgung, 2011; Eam, 2015; Heng et al, 2020; Henry et al, 2020; Quimbo & Sulabo, 2014; Sari Lase & Hartijasti, 2018). They are also the ones required to supervise masters” and Ph. D students. Ph. D holding lecturers are thus supposed to be more research productive than those without. They are therefore more directly responsible for research productivity in their universities.

However, although all faculty deans were Ph D holding academics, they were excluded from the primary respondents (Lecturers) because they were to appear as secondary respondents in Interviews to give their in-depths insights on lecturers' research productivity and the organisational support availed to lecturers for research activities. The study therefore selected information rich cases that included faculty Deans, Directors of university directorates and Heads of research supporting departments as the key informants. These were thought to have the relevant information concerning the levels of research productivity in the university and the levels of support given for promoting the university research function.

### **3.7 Sampling Techniques**

Since the population of Ph.D. holding lecturers was generally small, census sampling was used to obtain respondents in order to obtain a representative sample of lecturers from the seven faculties. Respondents were first asked to participate in the study by the researcher via phone calls and emails. Those who gave a positive response got the questionnaire via Google Forms, either in hard copy or in soft copy. The researcher also used purposive sampling to select information rich cases that were the Deans of faculties, the directors of three university directorates and two heads of research supporting departments. A purposive sample is subjectively selected to get participants with vast information, knowledge and experiences about a study question even when their sample may not be big enough to represent the whole population (Cresswell & Planoclark, 2011; Palinkas et al, 2016; Rahman, 2023). Purposive sampling was thus preferred due to its ability to select well informed participants for the collection of focused information on the study questions.

### 3.8 Sample size

There were six academic faculties and two schools in Kyambogo University. However, the graduate school only coordinated graduate studies conducted by academic staff from other faculties and the school of management and entrepreneurship. It therefore, did not have its own academic staff and did not feature in the samples for lecturers. Its Dean however featured among participants in the category of faculty and school Deans. In selecting the sample, the researcher followed the non-mathematical assumption or convenience method of Onen and Oso (2008), in which the sample was dependent on the size of the population to be sampled. Owing to the relatively small target population of 156 Ph D holding lecturers in the university which was manageable, the study employed census sampling technique in which all the Ph D holding lecturers were targeted.

**Table3. 1: Summary for quantitative population sample size**

No	Faculty/School	Target population (No. of Ph. Ds)	Accessed population
1	Arts and Social Sciences	36	29
2	Education	27	22
3	Engineering	16	13
4	Science	43	34
5	Special needs and rehabilitation	08	7
6	Vocational studies	17	14
7	School of management and entrepreneurship	09	8
	<b>Total</b>	<b>156</b>	<b>127</b>

**Source: Kyambogo University Faculty websites, 2021; KYU Newsletter, Jan/Feb. 2021**

Table 3.1 shows the number of representative lecturers selected from each faculty/school. This enabled the researcher to analyse the lecturers' perceptions from all academic units across the university. According to the table, only 127 lecturers (81%) of the 156 respondents to whom the questionnaire was distributed responded and returned completed copies to the researcher. The



American Association of Public Opinion Research (AAPOR) (2011), considers a response rate above 70% as ideal for social science studies. A response rate of 81% was therefore adequate for analysis.

The researcher also selected key informants to give their in-depth insights regarding the study variables. The samples are presented in table 3.2 below.

**Table3. 2: Summary of qualitative population sample size**

<b>Category of Departments</b>	<b>Target population</b>	<b>Accessed population</b>
Faculty/school Deans	7	5
Directors of Directorates/ Departments	3	2
Heads of research supporting nonacademic departments	2	2
<b>Total</b>	<b>12</b>	<b>9</b>

Table 3.2 shows the number of representative key informants selected for the study. The table shows that the researcher was able to schedule interviews with five of seven faculty/school deans. The researcher was able to speak with two of the three Directors, and the two heads of research supporting the non-academic departments were also interviewed, making nine participants in total who were accessed.

### **3.9 Unit of Observation and Unit of analysis**

The unit of observation is the actual items or units being measured (Kumar, 2018). It is thus the entity on which data is collected. For this study, the Ph D holding lecturers formed the study unit of observation since it is their research productivity that was being measured. On the other hand, the research unit of analysis is the smallest unit a researcher can use to identify and describe a

phenomenon and make conclusions at the end of the study (Kumar, 2018). It is the whole unit being researched that could be in form of individuals, groups and organisations depending on the research objectives, research questions and hypotheses being answered and examined. It provides the basis on which data is analysed. For this study, the units of analysis were at two levels. The first level was at individual level lecturers' individual research productivity was analysed in form of article publication, book authorship, conference paper presentation and graduate students' supervision. At the second level, the unit of analysis was at organizational level where the study analysed the level of support the university as the organisation provided to its lecturers to conduct its research function, and the relationship between the two study variables.

### **3.10 Data Collection Methods**

Research evaluation studies use different methods and their corresponding instruments based on the study purpose and indicators to be studied (Tekneci, 2014). For this study, the researcher was interested in the views, opinions, perceptions, feelings and attitudes of participants in regard to the study variables. Such data could be best collected through the use of a questionnaire survey, interviews and document analysis methods.

#### **3.10.1 Questionnaire**

The researcher distributed self-administered questionnaires to all the 156 lecturers. 127 lecturers responded to the questionnaire. It took an average of 30 minutes to fill. The SAQ had a title, an introductory letter and consisted of three sections that are Sections A, B and C. The questions on Section A were about background characteristics to classify respondents by age, sex, marital status, highest academic qualification, academic rank and length of service in the institution. The

questions in Section B collected data about the independent variable and Section C on the dependent variable.

### **3.10.2 Document analysis**

Document analysis involved analysis of records of lecturers' research productivity, records of funding provided by Kyambogo university as well as records on graduate students' supervision for the period under study. These were obtained from the Directorate of Research and Graduate training as well as from the Kyambogo University Library repository. The document analysis method employed a document analysis guide and its findings were used to enhance the discussion in the study.

### **3.10.3 Interview**

The researcher used open-ended face to face interviews to obtain views from five Faculty Deans, the Directors of two research supporting directorates and two Heads of research supporting departments. The interview method was used because of its ability to elicit complete responses to provide in-depth information necessary for deep exploration and clarity from participants (Bryman, 2016; Worsley, 2019). The interview method therefore offered a great opportunity to increase the researcher's understanding of the phenomenon under study. The interview method employed an interview guide and the sessions lasted about 45 minutes.

## **3.11 Research Procedure**

Following the proposal's approval, the researcher received an introductory letter from the Dean Graduate School, clearance from the Gulu University Research Ethical Committee, clearance from the Uganda National Council for Science and Technology, and clearance from the secretary

of Kyambogo University. The researcher personally collected data from participants and respondents, contacting lecturers directly through faculty administrators and department heads who provided him with the telephone and email addresses of the respondents. He also followed up with those who could not be reached by phone, requesting them to participate in the study and to specify the method of delivering the questionnaire. He distributed the questionnaire together with a clearance letter from the University Secretary and consent form. 27 respondents preferred online questionnaires while the rest received hard copies.

Written requests for interviews, along with consent forms, introductory and clearance letters, and interview guides, were prepared and distributed by the researcher. The request was approved by five deans, two directors, the librarian, and the bursar; interview times and dates were set. On the agreed date and time, the researcher requested the interviewee to first fill the consent form before participating in the study. The researcher then asked participants to answer the questions he asked orally as he took down the notes of the interviewee's responses. Although the researcher collected the data himself, he remained detached from the participants by asking the participants to review the results for him after the analysis. They showed satisfaction with most of the narratives captured from their responses. For the few items with which they had minor reservations were accordingly corrected by the researcher to reflect the participants' original insights. He also conducted an audit trail by reviewing the findings with two external auditors who helped him to independently generate themes from the participants' narratives

### **3.12 Operationalization and Measurement of Study Variables**

The study's dependent variable is the productivity of lecturers in conducting research. The number of book chapters published, research conference papers given, journal articles published in peer-reviewed journals, and graduate students (at master's and doctoral levels) supervised to

completion per lecturer over the previous five years (2016-2020) was used to operationalize this. Numerous academics have used this well-liked method of gauging the productivity of their research (Kim et al., 2007; Iqbal & Mahmood, 2011; Jung, 2012; Albert et al., 2016; Ifijeh & Ogbomo, 2018; Jameel et al., 2019 Henry et al, 2020). The research productivity was specifically measured by Kim et al. (2007) using the eleven-item scale that is listed below: "Submitted articles for publication in an academic or professional journal." published research-related, non-refereed articles. accepted or published articles that have undergone peer review. published sections of a work. submitted a study proposal to a public or private organization. prepared a study report for a company, organization, or other group. presented at conferences for professionals. obtained grants from institutions. got grants from outside sources. advisor for master's theses that are finished. advisor for doctoral theses that have been finished. Ifijeh and Ogbomo (2018) employed a six-item scale titled "Number of Journal articles published in referred and non-referred journals" in a similar manner. The quantity of books released. The quantity of book evaluations. the quantity of presentations at conferences. The quantity of grants received" to measure their research productivity

Although the limitation of this approach would be its inability to provide information about the quality of the publications, this was addressed by the data collecting instrument which specified and collected data on the number of publications in peer reviewed journals, since peer reviewed journals are deemed to be reliable sources of information. Based on the above two studies, this study selected and adapted five widely used items that fit the research context of Kyambogo University. These included the number of articles published, number of books authored, number of book chapters authored, number of conference papers presented, and number of graduate

students supervised to completion. This broad operationalization of the dependent variable accounted for the different research productivity modes across disciplines in the university.

The independent variable is organisational support. This was operationalized as research policy, research management, research funding, and research infrastructure. The dimensions and scale items of the independent variable were adopted and modified from several scholars (Kotrlik et al, 2002; Bay & Clerigo, 2013; Okendo, 2018; Ghabban et al., 2019). Specifically, items on research management were adopted and modified from Kotrlik et al., (2002), Bay and Clerigo (2013) and from Ghabban et al (2019), items on research policy from Okendo (2018) and Ghabban et al (2019). Items on research funding were from Kotrlik et al, (2002), while those on research infrastructure were from Bay and Clerigo (2013), and Ghabban (2019). To comply with the requirements of the Kyambogo University research policy and its purported implementation setup within the institution, the researcher did, however, incorporate a few extra items on research policy and research management. During analysis, every negative item was flipped and coded to look positive. The respondents indicated their levels of research productivity by circling/ticking the appropriate answer on the scale. For a few common characteristics, like age and respondent category, the researcher employed a nominal scale of measurement (Amin, 2005). The opinion data required to assess respondents' perceptions of organizational support for research productivity on a five-point scale was gathered using the Likert scale.

### **3.13 Data Quality Controls**

Realist ontology calls for objectivity in studying, examining and understanding the truth. In research, this calls for ensuring the validity and reliability of the study instruments to correctly measure the variables they intend to measure across situations and time.

### **3.13.1 Validity of instruments**

The degree to which a tool measures what it is supposed to measure is known as its validity. High validity research yields findings that match actual attributes, traits, and variances in the real world, whether it be social or physical (Middleton, 2019). Hi, Validity is the ability to draw logical conclusions from the study sample to the population based on an individual's meaningful and comprehensible scores on an instrument (Cresswell, 2014; Yasar & Cogenli, 2014). The Content Validity of data collection instruments was ascertained with the help of the technical opinion of three experts at the level of senior lecturer and above in management. These rated each item based on the relevance and clarity of the questions such that the instruments could meet the set objectives on the four-point scale (See appendix H). The number of relevant items were noted for each variable, after which the Content Validity Index (CVI) was computed for each study variable as shown in table 3.3.

**Table3. 3: Content Validity Index and convergent validity for study variable items**

	<i>Total Number of Items</i>	<i>AVG Number of Relevant Items</i>	<i>Content Validity Index</i>	<i>Average variance extracted (AVE)</i>
Research Funding	10	8	0.800	.604
Research Infrastructure	16	13	0.813	.501
Research Management	12	9	0.750	.604
Research Policy	17	15	0.882	.519
Organisational Support (IV Items)	55	45	0.818	
Articles Publication	3	2	0.800	.815
Book Authorship	2	2	0.750	.751
Conference Presentation	4	4	0.833	.645
Students' Supervision	3	2	0.75	.548
Research Productivity (DV Items)	12	10	0.783	

**Source: Primary data**

Table 3.3 above presents the average content validity and convergent validity results. Results indicate that the items in the tool met the recommended minimum CVI requirement of 0.700 (Field, 2013). All variable items had a CVI of over 0.700 with the lowest being 0.750 for research management for the independent variable dimensions, book authorship and students' supervision for the dependent variable dimensions. The highest CVI was 0.882 for research policy. The nonrelevant and unclear items were improved by rephrasing and aligning them to the study variables and objectives.



Convergent validity was also computed for the research scale items for Organisational support and research productivity. Convergent validity is the degree to which the items used to measure a specific variable, correlate with the other items of the same variable or dimension. The Average Variance Extracted (AVE) is a useful measure for understanding the Convergent validity of a scale. It is an indication of the variance that items can capture relative to the variance that is due to an error in the measurement of the variable. As such the AVE is expected to be at least 0.500 for the researcher to be confident that the measurement error in capturing the variable was less than the variance that was captured. For this variable, all organisational support dimensions had AVE values above 0.500 and the least was 0.501 for Research Infrastructure. Similarly, results from the table indicate that all research productivity dimensions had an average variance (AVE) value above

0.500 with the least being 0.548 for graduate students' supervision. The results show that the items for the study variables were able to capture more than 50% of the desired variance in the study variables. It can thus be concluded that the research instrument items satisfied the condition for convergent validity.

**Discriminant Validity for Organisational Support.** Discriminant Validity is described as the level of uniqueness that exists among items that are used to measure the various variables. The ideal situation is that items used to measure a certain variable, should have a uniqueness that is only common to them and not common to items used to measure other variables. The Discriminant validity in this case was assessed using the Fornell-Larker Criterion and the Cross-loadings.

Fornell Larker tests for Discriminant Validity of Organisational Support. The Fornell-Larker results below show the various dimensions of Organisational support. The focus in the model are

the Square roots of the AVE in the leading diagonal which should all be greater than the correlations that other dimensions have with the value in question. For instance, in table 3.7 the Square root of the AVE for Research Funding was 0.718. A comparison of the Correlations for the other dimensions of Organisational support and Research funding shows that the highest value was 0.490 which is lower than 0.718. Another example is that of Research Infrastructure which has a square root of the AVE at 0.678 and the correlations from other dimensions in the same column are 0.658 and 0.466 which are still lower than .678.

**Table3. 4: Fornell-Larker Criterion for the Organisational Support Variable**

	Research Funding	Research Infrastructure	Research Management	Research Policy
Research Funding	.718			
Research Infrastructure	.490	.678		
Research Management	.321	.658	.640	
Research Policy	.315	.466	.558	.689

**Source: Primary data**

This implies that the items from all dimensions satisfied the Fornell-Larker condition for discriminant validity and therefore effectively measured the variables they were intended to measure. Cross-loadings for Discriminant Validity of Organisational Support. Cross-loadings are the second alternative measure for the Discriminant Validity. The rationale behind the approach of Cross-Loadings, is that the loading of a specific item on a given variable dimension, should be higher than the same estimated loading the item has on another variable dimension. For example, the Research Policy Dimension, has nine items with acceptable outer loadings in the measurement model. All the item loadings for this dimension are higher for any given item, than the loadings that the items have for research management, research funding, and research

infrastructure. For example, the item RSPCY12 has a loading of 0.703 on the Research Policy dimension and 0.374, 0.161 and 0.237 on Research Management, Research Funding, and Research Infrastructure respectively.

**Table3. 5: Cross Loadings for Organisational Support**

	<i>Research Policy</i>	Research management	Research funding	Research infrastructure
RSPCY12	.703	.374	.161	
RSPCY13	.776	.503	.302	.460
RSPCY14	.584	.331	.193	.257
RSPCY16	.633	.422	.103	.333
RSPCY2	.651	.447	.364	.246
RSPCY5	.754	.524	.175	.341
RSPCY7	.723	.337	.280	.396
RSPCY8	.692	.253	.197	.293
RSPCY1	.667	.365	.136	.269
RSMAN10	.408	.846	.364	.382
RSMAN11	.437	.808	.461	.500
RSMAN17	.494	.717	.260	.550
RSMAN9	.479	.729	.108	.409
FUND10	.223	.149	.759	.298
FUND3	.359	.494	.784	.344
FUND7	.225	.344	.729	.435
FUND8	.073	.086	.496	.404
FUND9	.166	.193	.779	.308
RINFR10	.450	.471	.250	.742
RINFR11	.373	.475	.274	.711
RINFR12	.363	.318	.210	.757
RINFR13	.099	.172	.323	.609
RINFR14	.195	.295	.457	.602
RINFR16	.234	.386	.483	.707
RINFR2	.337	.511	.146	.629
RINFR8	.361	.569	.471	.679
RINFR9	.307	.286	.425	.647

Source: Primary data

Likewise, the items for the other dimensions satisfied the criteria that were observed for Research Policy since their item loadings were higher on their respective dimensions than on any other dimension. This implies that the items for each dimension could measure best the variables they were intended to, and hence would produce valid results.

Discriminant Validity for Research Productivity. The discriminant validity for research productivity items was measured using the Fornell- Larker Criterion and Cross loadings as shown in the table 3.6 below.

**Table3. 6: Fornell Larker Criterion for Research Productivity**

	Articles Publication	Book Authorship	Conference Presentation	Student Supervision
Articles Publication	.903			
Book Authorship	.344	.866		
Conference Presentation	.615	.607	.803	
Student Supervision	.423	.539	.770	.740

Source: Primary data

From the table, the square root of the AVE in the column of articles publication was 0.903, and the correlations from the other dimensions in the same column were less (0.344, 0.615 and 0.423). Similarly, the square root of the AVE in the column of book authorship is 0.866 while the correlations from the other dimensions in the same column were also less (0.607 and 0.539). This implies that the items from all dimensions satisfied the *Fornell-Larker* condition for discriminant validity, hence they measured best the dimensions they were intended to and could therefore generate valid results.

Cross Loading values for Research Productivity. As a second alternative measure for the Discriminant Validity, the loadings of specific items on a given variable were higher than the same estimated loadings the items had on other variables. For instance, all the outer loadings for

article publication were higher for this dimension than for any other dimension. A similar trend exists across items in all dimensions of research productivity as shown in table 3.7.

**Table3. 7: Cross Loadings for testing discriminant validity of Research Productivity**

	<i>Articles Publication</i>	<i>Book Authorship</i>	<i>Conference Presentation</i>	<i>Student Supervision</i>
RPAPB1	.833	.335	.602	.193
RPAPB3	.623	.414	.400	.217
RPAPB4	.825	.288	.567	.350
RPBKA1	.400	.919	.564	.336
RPBKA2	.484	.899	.642	.543
RPBKA3	.231	.774	.328	.284
RPCFP1	.297	.201	.676	.454
RPCFP2	.625	.589	.906	.558
RPCFP3	.700	.573	.898	.500
RPCFP4	.520	.512	.821	.611
RPCFP5	.539	.501	.649	.410
RPSUP1	.315	.410	.624	.900
RPSUP2	.324	.395	.617	.830
RPSUP3	.265	.484	.538	.866
RPSUP4	.086	.050	.018	.504

Source: Primary data

The cross-loadings in the study show that the items for each dimension were intended to measure those dimensions but not other dimensions. This confirms that the items on the data collecting tool were valid and hence collected the right data.

### 3.13.2 Reliability of instruments

The consistency with which a tool measures something is known as reliability. A measurement is deemed reliable if the same outcome can be consistently obtained under the same conditions with the same tool and procedures (Middleton, 2019). Thus, reliability implies that data scores from an instrument are stable and consistent. Reliability assessment procedures were conducted to make sure that the tool would collect the data it was intended to

from the sample. A pilot study of the research instrument was therefore conducted using 47 lecturers from Makerere University

Business School as respondents. The data gathered was captured using Statistical Package for the Social Sciences (SPSS) version 20. After this, the reliability and validity tests of data were conducted using SMART-PLS to generate the measurement models. Please find the generated models, Factor mode estimates tables and effect size and prediction tables in appendix N, factor mode estimate tables in appendix O and effect size and prediction tables in appendix P.

Reliability was then computed using the Cronbach Alpha and the Composite Reliability. Both measures should have a value that is at least 0.700 for the tool to be regarded reliable. Both measures were generated from the measurement model in order to ascertain that the reliability level is acceptable. Table 3.8 presents the pertinent results

**Table3. 8: Reliability for Organisational Support and research productivity**

<b>Organisational support</b>	<b>Cronbach's Alpha</b>	<b>Composite Reliability</b>
Research Policy	.843	.882
Research Management	.779	.858
Research Funding	.783	.859
Research Infrastructure	.831	.874
Overall	.809	.868
<b>Research productivity</b>		
Articles Publication	.773	.898
Book Authorship	.836	.900
Conference Presentation	.858	.900
Students" Supervision	.720	.827
Overall	.797	.881

**Source: Primary data**

According to the table above, all dimensions of the study variables had Cronbach Alpha Coefficients above .700, with the lowest value being 0.720 (*Cronbach alpha*) and 0.827

(composite reliability) for students' supervision. The results indicate that the research instrument was reliable enough for the full-scale data collection.

### **3.13.3 Quality of qualitative instruments**

In Qualitative Studies, validity and reliability are substituted by the concept of trustworthiness of findings. This contains four aspects of credibility, transferability, dependability and confirmability (Guba & Lincoln, 1985; Morse et al, 2002). For confirmability of findings, Brink (1993) and Yasar and Cogneli (2014), propose researcher bias, informant bias, and sampling bias as the major causes of low confirmability.

**Researcher Bias.** This may develop as a result of the inclination of the researcher to infer results in based on his biases, motivations, interests and perspectives, hence leading to selective observation and recording of certain data while leaving out the rest (Brink, 1993). To address this weakness, the researcher did not possess any original principles and expectations regarding the research situation, conducted interviews and reported findings in a transparent manner, checked and rechecked the collected data during the entire analysis process. This enabled him to maintain an neutral stand on the phenomena studied.

**Participant Bias.** This is when participants do not give true responses out of the desire to impress, out of fear, or out of deliberate unwillingness to share some information (Brink, 1993; Golafshani, 2003). To mitigate this bias, the researcher, as recommended by Brink, (1993) made it clear to participating informants that the nature of the study was purely academic to avoid giving false information, distorting or withholding some information.

Sampling Bias. This may be resulting from selecting subjects who over represent or under represent a phenomenon under study (Brink, 1993). As a mitigation measure, Brink (1993), Morse et al, (2002), and Busetto et al., (2020) recommend purposive sampling of informants to contrast cases and views and to select participants with adequate knowledge. The sample must therefore be appropriate, consisting of participants who best represent or have knowledge of the research topic. In that regard, the researcher used purposive sampling to select key informants. These were the faculty deans who were deemed to have adequate knowledge concerning to research productivity in their faculties. To contrast cases and views, the researcher also included directors of quality assurance whose department ensures the quality of teaching, research and community services as the core university functions. The study also included the director of Human Resource Management, University Librarian and the University Bursar as heads of core departments in providing the support needed for research productivity among lecturers. All this helped to reduce cases of relying on inaccurate and insufficient data to draw conclusions.

To improve the credibility of findings, the researcher applied sample triangulation as a key strategy to identify convergences, complimentaries and divergences in the narratives from the multiple sources of information and to form themes in a study (Creswell & Miller, 2000; Patton, 2001; Golafshan, 2003; Busetto, 2020). Sample triangulation was used to collect the same data from different categories of participants in order compare and contrast their opinions on the same phenomena. To that effect, the study collected data from faculty deans, directors of Quality Assurance, Human resource, the University Librarian and University Bursar with each giving views from his/her professional and occupational standpoint in the university on organizational support for research and on research productivity in the university. The researcher then compared the results obtained from the sources to ensure the credibility of the study findings. In



further observance of credibility, the researcher used verbatim quotes from the transcribed data to justify the reported findings on their themes.

To promote Transferability of findings, the researcher ensured that the recruitment and selection of informants was based on their expert knowledge of the phenomenon under study (Forero et al., 2018; Daniel, 2019). These were faculty Deans and Directors of research supporting departments in the university, deemed to be adequately knowledgeable about research productivity in the university and the organizational support systems and structures available for promoting the research function. To ensure the dependability of findings, the researcher subjected his findings to an audit by two outsider researchers who reviewed the collected data and the entire research process, and gave their views about the findings. These were mainly about theme and sub-theme generation. Their views were considered and used by the researcher to improve the consistency of findings.

### **3.14 Data saturation**

Data saturation refers to the point at which data collection is discontinued when new data becomes redundant of data already collected (Saunders, Sim, kingstone et al, 2018). This is when the researcher begins to hear the same interview comments with no new themes emerging from the process. For this study, the researcher realised after the 7<sup>th</sup> interview, that there were no new themes emerging from the interviews. He therefore felt that data collection had reached saturation point. He however continued with 2 more interviews after which he confirmed that there no new themes emerging and ended the interview data collection process.

### **3.15 Data Management**

Data from the field were processed and analysed to ensure that it was suitable for conducting descriptive and inferential statistical analyses.

#### **3.15.1 Qualitative Data**

Data analysis commenced with the beginning of interview data collection. Data were recorded in field notes and transcribed verbatim. The researcher familiarized him self with the data by reading and re- reading it to identify and understand common ideas. Data were coded by allocating figures 1-9 to the interviewees. The codes were allocated in ordinal order following the strengths of the data collected from the participants, first from the secondary respondents and then the other key informants. The researcher then generated themes from the main ideas identified. He then reviewed the themes to generate sub-themes, defined and named the themes, and finally made explanations based on themes and sub-themes extracted from the data, established conceptual links between themes as presented and interpreted with their quotations in chapter four.

#### **3.15.2 Quantitative Data**

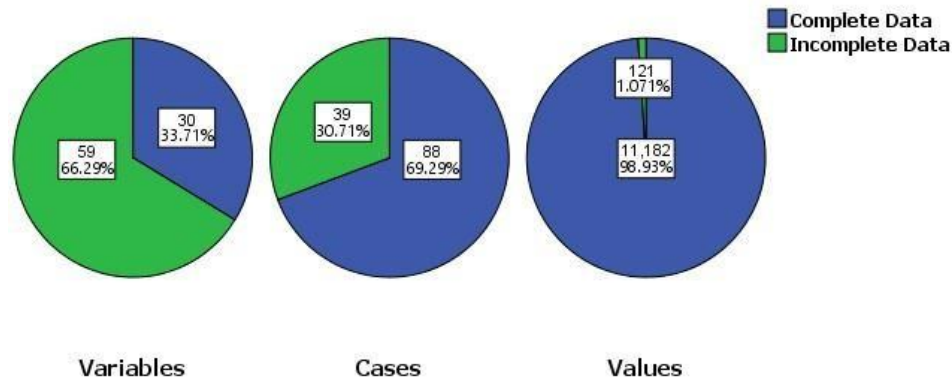
Quantitative data from the field were subjected to several data processing tests. These included missing data analysis, outlier analysis and parametric test assumptions.

##### **3.15.2.1 Missing Value Analysis**

Before the study data analysis was conducted, data from the field were examined for the missing values. If data is analysed without taking care of the missing values, the results could be

misleading, consequently leading to wrong conclusions. As such, it was prudent to start by examining the missing value patterns. The results of the missing values were presented in figure

**Figure3. 1: Missing Values Summary**



**Source: Primary data**

### 3.15.2.2 Variable Missing Data

The SPSS software indicates every item left blank on a questionnaire by a respondent, on a specific variable as having missing data. The results on the diagram above revealed that overall, 66.29% of the variables in the study had incomplete data.

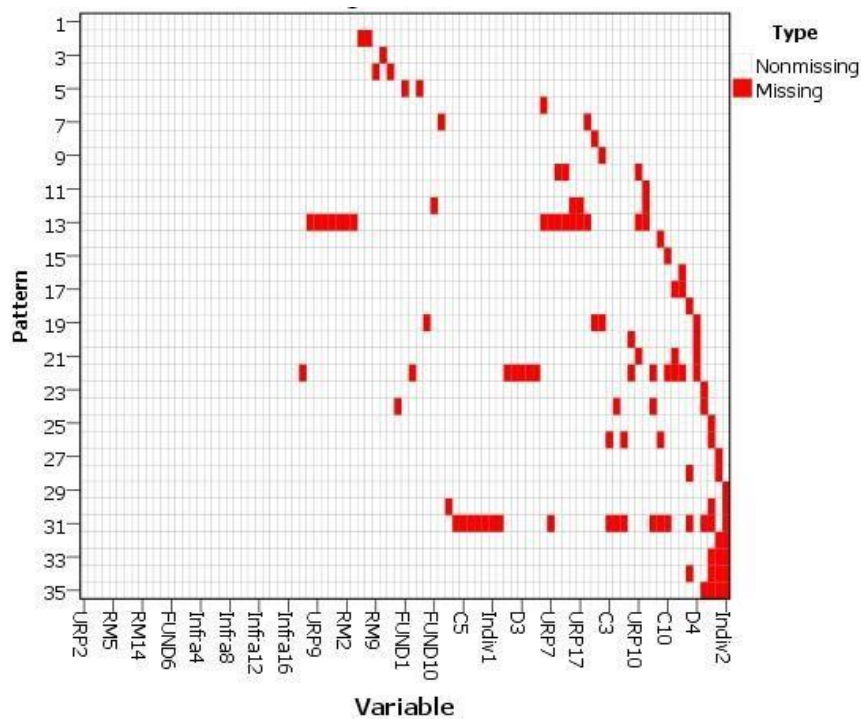
### 3.15.2.3 Cases Missing Data

These indicate the number of respondents with missing data. Each respondent was portrayed as a case in the data file since each person filled one questionnaire. Incomplete data implies that the respondent left at least one item unfilled in the questionnaire. The figure above shows that among the cases, 30.71% had incomplete data while 69.29% of the returned questionnaires had complete data.

### 3.15.2.4 Values Missing Data

This represents the overall picture of the missing values in the data set. Figure 3.1 further shows that overall, there was 1.071% incomplete data while 98.93% of the values had complete data. It was thus evident that the level of missing data was too insignificant (less than 5%) in the data set to affect the results. For further clarity regarding the missing values, a missing value patterns chart was also generated to display the missing data distribution from a more detailed perspective across the study variables as shown in Figure 3.2.

Figure3. 2Missing Value Patterns for the study variables



Source: Primary data

The patterns in the figure show the incomplete data for each group of respondents. On a basic note, each pattern shown was an indication of the cluster of respondents who had missing data on a specific given variable. The data was randomly distributed, giving an impression that data was

missing completely at random. When data is Missing Completely at Random (MCAR), the incomplete data is not left out by the respondents because of some common misunderstanding or fear to address specific questions in the data. For instance, if a question about the age at which one first stole is left blank by all the respondents, such data would not be missing completely at random.

To further confirm that the data was MCAR, the Little's MCAR was conducted as the choice test.

Its results are shown in the table below

**Table3. 9: MCAR Test Results for missing data**

Little's MCAR test		
<i>Chi-Square</i> = 3122.231	<i>df</i> = 2914	<i>Sig.</i> = .351

Source: Primary data

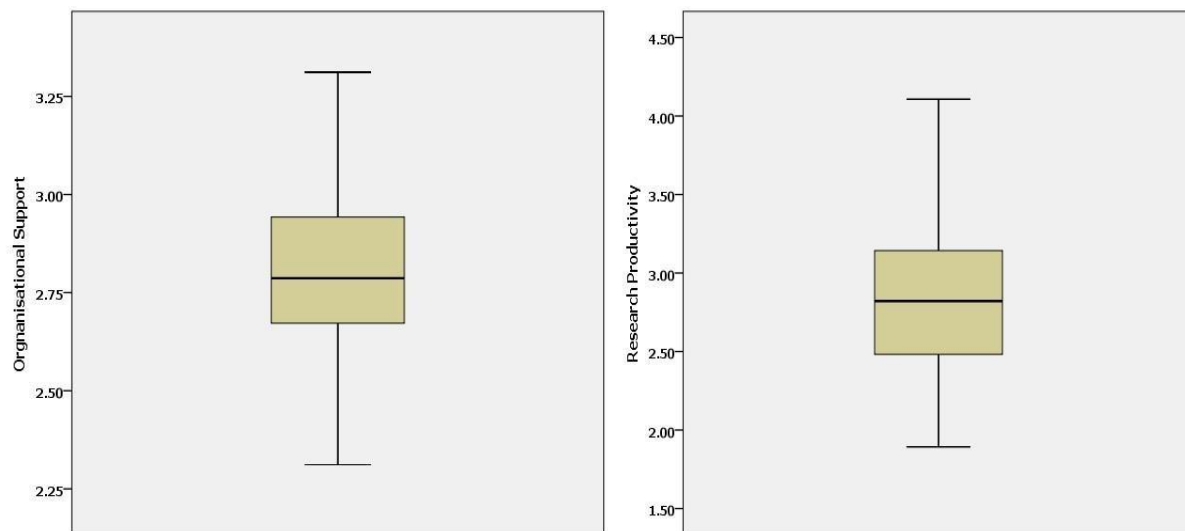
The results for the Little's MCAR test indicated that the test was not statistically significant as noted from the table above (*Chi-Square* = 3122.231, *Sig*>.05), hence confirming that the missing data was missing completely at random (MCAR). This implies that there were no specific items in the questionnaire to which respondents were not comfortable responding to.

### 3.15.2.5 Outlier Analysis

Outliers are scores that are outside of the range of the data. For example, a figure of "7" would be an outlier if the scale upon which a variable is measured, ranges from 1 to 5. Outliers can lead to misleading results and if not dealt with, they can ultimately lead to false representation and conclusions about the hypotheses in question. Box plots were presented to examine the data on

both study variables for outlier scores. The Box plot indicates the range within which all the acceptable values lie using a plot that has two bars. The lower end shows the minimum observed value while the upper end shows the maximum value observed in the data set. A value falling outside the band would be considered an outlier. Figure 3.3 gives the pertinent results.

**Figure3. 3Box Plots for Organisational Support and Research Productivity**



Source: Primary data

The box plots in the figure above revealed that there are no outliers for both variables. This implies that all responses were within the measured ranges of the variables. As such the data was treated for the missing values using the series mean. The imputation method was not used in this case since the missing data was less than 5%.

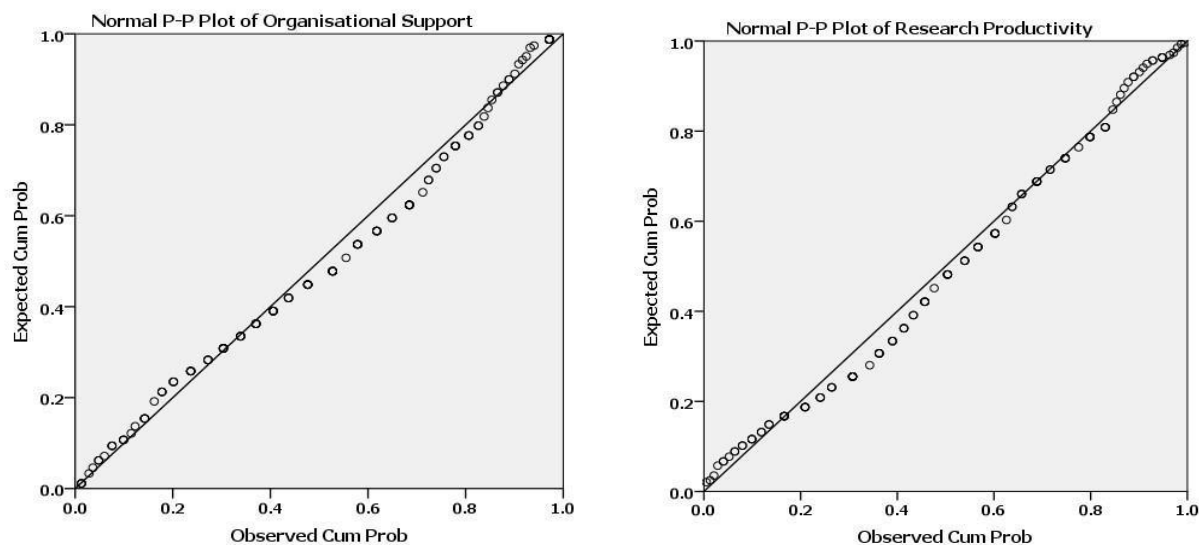
### 3.15.2.6 Parametric Test Assumptions

A data set must meet the parametric assumptions if parametric tests are to be used. If the data does not meet these parametric assumptions and we conduct parametric tests, the results would

be flawed and hence statistically challenged. For this reason, the data set was subjected to parametric test assumptions to determine if it could be used to generate parametric tests. The outcomes are presented in the section below.

The normality assumption. The normal distribution assumption is that data is approximately distributed like that of a bell-shaped probability distribution, with the same number of values on both the left and the right of the midpoint. The normal distribution is also known to have a level of skewness and Kurtosis which are both zero. Normality is assessed using the graphical and statistical approaches. The graphical approach makes use of the P-P Plots and Histograms which are superimposed with normality curves. P-P Plots (Probability-Probability Plots) show the incremental probability of a data set relative to that of the normal distribution. The ideal trend of the P-P Plot for a given data set is that it should be closely aligned to that of the diagonal which would indicate the best fit for the data.

**Figure3. 4: Normality P-P Plots for Organisational Support and Research Productivity**

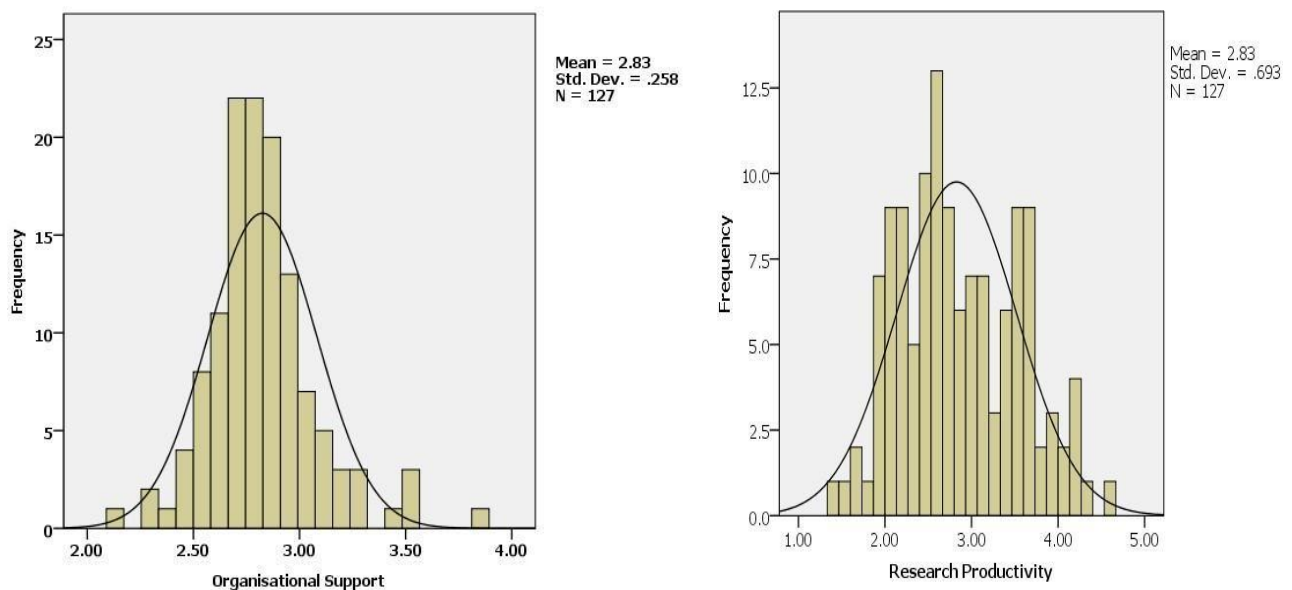


Source: Primary data

The figure above shows that the P-P Plots for Organisational Support and Research Productivity had data points that were closely aligned to the ideal diagonals, an indication that the data was normally distributed.

The histograms for both variables were presented together with the normal curves superimposed over them. The figures show and confirm the finding already identified in the P-P plots that the data were normally distributed. This can be deduced from the fact that most of the data points are lying underneath the normal curves. This implies that data acquired in the study for each construct, was worth subjecting to parametric inferential statistical models to help address the research objectives.

**Figure3. 5: Normality histograms for the study variables**



The histogram superimposed with the organisational support and research productivity in the figure above showed that most of the data for both variables were majorly covered under the normal curves. The figures show that the data was approximately close to that of a normal distribution. This implies that the data could therefore be subjected to parametric tests.



### 3.15.2.7 Statistical Tests for Normality

The statistical tests for normality in this section were presented so as to validate the graphical tests for normality that had been presented in the previous section. The statistical tests for normality included the Kolmogorov -Smirnov and the Shapiro-Wilkson Tests. Tests assessed whether the data acquired was significantly different from that of the normal distribution. When the tests are significant, then the data is not normally distributed.

**Table3. 10: Kolmogorov-Smirnov and Shapiro-Wilk Tests**

	<i>Kolmogorov-Smirnov</i>	<i>Sig.</i>	<i>Sharpiro-Wilk</i>	<i>Sig.</i>
Organisational Support	.118	.149	.968	.266
Research Productivity	.121	.118	.948	.051

Source: Primary data

The results for the Kolmogorov-Smirnov and Shapiro-Wilk Tests above showed that both tests were not significant ( $Sig >.05$ ) implying that the data was not significantly different from that of a normal distribution. The results supported the previous findings from the graphs.

### 3.16.2.8 Homogeneity of Variance

The assumption for the homogeneity of variances demands that the variance in the data should be uniform. Put succinctly, the variance for any given variable should be relatively the same for the different sub-divisions of the sample under consideration. This assumption was tested using the Levine's test, to examine if the variances in the various levels of the sample were evenly distributed and should not be significant to imply that the assumption is satisfied.

**Table3. 11: Test for the Homogeneity of Variances**

	<i>Levene Statistic</i>	<i>Sig.</i>
Organisational Support	.321	.572
Research Productivity	.022	.883

**Source: Primary data**

The results for the Homogeneity of variances in the table indicated that the Levene's statistic was not statistically significant for both study variables ( $p > .05$ ). This is an indication that the research study variable data, satisfied the condition for the Levene Statistic and thus had homogeneous variances.

### **3.15.2.9 Interval data assumption**

The assumption for data being measured using an interval scale was evident for the quantitative data. This assumption dictates that the differences between the data points should be the same. This condition was met since the data was acquired using a questionnaire scale anchored on a five-point Likert scale.

### **3.15.2.10 Independence assumption**

The assumption of independence requires that respondents don't give responses while consulting or influencing one another in any other form. This would make the respondents give biased views which are not a true reflection of their respondents. For this study, the researcher ensured that respondents gave their own free independent opinions by sending questionnaires in both hard and soft copies to lecturers to respond individually from their offices but not together from a common location.

### **3.16 Data presentation and analysis**

Quantitative data was analysed by both descriptive and inferential analysis. This was done by entering data into the statistical package for social sciences (SPSS) computer program version 23 and SMART-PLS. The inferential analysis employed structural equation modelling to measure the strength and direction of the relationship between variables. Qualitative data was presented and analysed based on the themes and sub themes generated from field notes. The presentation followed the research questions of the study. It also included quotations from the participants to give emphasis to the narrative.

### **3.17 Ethical considerations**

Ethical considerations in this research were observed by presenting the study to The Faculty of Education Higher Degrees Committee, and Graduate School Board of Kyambogo University for approval and clearance. The study was also presented to the Gulu University Research Ethics Committee for ethical clearance, and registered with the Uganda National Council for Science and Technology. The researcher sought informed consent from all respondents by requesting them to sign an informed consent form before filling in the questionnaire and before participating in the interviews (Refer to Appendix I). The researcher observed confidentiality by leaving the names of the participants and participating faculties/schools anonymous in all the writings of the research. The filled questionnaires and information from other tools were only accessed by the researcher and securely kept by lock and key. The researcher attempted to prevent bias by applying triangulation in data collection using a questionnaire and interview surveys in addition to document analysis.

Voluntary Participation was observed since no respondents were compelled to participate in the study, and the researcher avoided all forms of plagiarism. No single statement or paragraph was copied directly from the journal articles without acknowledging the source, in the course of writing literature. The researcher then conducted a similarity index check using the Turnitin software and the final result was in the acceptable bracket of not more than 2

### **Chapter Summary**

This chapter presented the philosophical orientation of the study, the research design, the study area and study population, sampling design and techniques, data collection methods and tools, operationalization and measurement of study variables, data quality control methods and ethical considerations in the study.

## **CHAPTER FOUR**

### **DATA PRESENTATION, ANALYSIS AND INTERPRETATION**

#### **4.1 Introduction**

This chapter is a presentation, analysis and interpretation of findings from the study. The chapter includes statistics on data management, results from background and demographic variables of respondents, findings on the independent and dependent variables following the order of the study objectives with descriptive and qualitative results presented first and then inferential analyses last.

#### **4.2 Data Presentation and Analysis**

##### **4.2.1 Background Variables; characteristics of respondents**

The researcher collected data on the background of the respondents. Such information was assumed to help determine whether the collected data was appropriate to the study population. The distribution of respondents by faculty, academic rank, sex (gender), age, marital status, lengths of service in the university. The distribution is illustrated in table 4.1 below.

**Table4. 1: Distribution of respondents by faculty/school, academic rank in university, age bracket, sex/gender, marital status and length of service at kyambogo (N = 127)**

<b>Faculty,</b>	<b>Count</b>	<b>Valid Percentage</b>
Education	28	22.0
Arts & Social Sciences	31	24.4
Engineering	11	8.7
Special Needs and Rehabilitation	7	5.5
Vocational Studies	12	9.4
Science	29	22.8
Schools of Management and entrepreneurship	9	7.1
<b>Academic Rank in the University</b>		
Lecturer	73	57.5
Senior Lecturer	44	34.6
Professor	10	7.9
<b>Sex/Gender</b>		
Male	84	66.1
Female	43	33.9
<b>Age bracket</b>		
30 - 39 Yrs	16	12.6
40 - 49 Yrs	50	39.4
50 - 59 Yrs	38	29.9
Above 60 Yrs	23	18.1
<b>Marital Status</b>		
Married	115	90.6
Single	6	4.7
Others	6	4.7
<b>Length of service at Kyambogo University</b>		
Less than one Year	4	3.1
1 - 5 Year	17	13.4
6 - 10 Yrs	11	8.7
11 - 15 Yrs	33	26.0
Over 15 Yrs	62	48.8

Source: Primary data

Findings from table 4.1 indicate that the highest number of respondents (24%) were from the faculty of Arts and Social Sciences, followed by the faculty of sciences (23%) and the Faculty of Education at 22%. The lowest number of respondents (6%) was from Special Needs and Rehabilitation followed by the school of Management and Entrepreneurship (7%), Engineering (9%), and Vocational Studies at 9%. The findings are in line with the distribution of lecturers in academic units where the faculties of Science, Arts and Social Sciences, and Education have the biggest number of lecturers at 28%, 23%, and 17% respectively. On the other hand, the Special needs, School of management and entrepreneurship, Engineering and vocational studies have the smallest number of lecturers at 5%, 6%, 10%, and 11% respectively. This implies that the distribution of respondents in the study is representative of the distribution of lecturers in the academic units.

Under the distribution of respondents by their academic ranks in the university, Table 4.1 indicates that respondents at the rank of lecturers dominated the actual sample with 57%, followed by senior lecturers at 35% and professors were at 8%. The small number of the top ranks is not surprising bearing in mind that Kyambogo is still a relatively new university whose academic staff are still in career progression, hence the small number of professors.

Regarding sex/ gender, findings show that about 66% of the respondents were males while 34% were females. Uganda has implemented several initiatives for the advancement of gender equality and empowerment of women in all spheres of life. Uganda has a ministry of gender labour and social development which coordinates other line ministries to eliminate all forms of gender inequalities. To that end, the government has enacted several statutory policy frameworks to guide gender mainstreaming, ranging from the national constitution (1995), the National Gender Policy (2007), and the Gender in education sector policy (2016). Uganda is also a

signatory to many international protocols and regulatory frameworks on gender equality. In line with the national and international legal frameworks, Kyambogo university gender policy (2014) emphasises empowering women and men equitably through equal opportunities and affirmative action. However, results indicate that the male dominance of the academic staff persists, and could be attributed to the long period of established male dominance of higher education in Uganda.

Concerning age, about 82% of the respondents were cumulatively below 60 years of age, with specific valid percentages of 39% being between 40 and 49 years whereas 30 % were between 50 and 59 years. This implies that most of the lecturers in the sample were on average young enough to actively engage in rigorous research activities. About marital status, 90% of the respondents reported to be married. This implies that they could clearly understand the effect of marital and family responsibilities on their research productivity. The researcher also explored the period respondents had served in the university. The table indicates that about 75% of the respondents had worked in Kyambogo University for more than ten years. This implies that they had sound knowledge of Kyambogo University's research-related policies, management systems, infrastructure and how these have evolved, hence able to give sound opinions about the support from their university for research productivity.

#### **4.2.2 Analysis of quantitative study variables**

In an attempt to establish the level of organisational support for research productivity availed in Kyambogo University and the level of research productivity among lecturers in the university respectively, the study analysed the strengths of the independent and dependent variables at univariate level, by obtaining the views of lecturers on how they rated the level of organisational support provided for research productivity in their university. The researcher conducted



descriptive statistics of each variable and its dimensions by calculating the means and standard deviations.

#### 4.2.3 Descriptive statistics for Organisational Support and Research Productivity

**Table4. 2: Research Policy Descriptive results (N = 127, Mean = 3.072, Std = 0.778, Range = 4.000)**

	<b>Research Policy</b>	<b>SD</b>	<b>D</b>	<b>UN</b>	<b>A</b>	<b>SA</b>	<b>Mean</b>
<b>1</b>	Promotes the provision of a high-quality research training environment for its lecturers	<b>F 11</b>	<b>30</b>	<b>19</b>	<b>53</b>	<b>14</b>	<b>3.23</b>
		% 8.7	23.6	15.0	41.7	11.0	
<b>2</b>	Supports lecturers to prioritise research among their core activities	<b>F 12</b>	<b>36</b>	<b>23</b>	<b>45</b>	<b>11</b>	<b>3.06</b>
		% 9.4	28.3	18.1	35.4	8.7	
<b>3</b>	Provides for the hiring of research assistants to support lecturers' research activities.	<b>F 39</b>	<b>43</b>	<b>18</b>	<b>18</b>	<b>9</b>	<b>2.33</b>
		% 30.7	33.9	14.2	14.2	7.1	
<b>4</b>	Does not support the formation of inter-departmental Research teams (R)	<b>F 10</b>	<b>32</b>	<b>24</b>	<b>46</b>	<b>15</b>	<b>3.19</b>
		% 7.9	25.2	18.9	36.2	11.8	
<b>5</b>	Does not support the formation of inter-faculty/ School research teams (R)	<b>F 11</b>	<b>43</b>	<b>24</b>	<b>33</b>	<b>16</b>	<b>3.00</b>
		% 8.7	33.9	18.9	26.0	12.6	
<b>6</b>	Does not promote collaborative publishing of journal articles among lecturers in a department (R)	<b>F 9</b>	<b>42</b>	<b>23</b>	<b>38</b>	<b>15</b>	<b>3.06</b>
		% 7.1	33.1	18.1	29.9	11.8	
<b>7</b>	Promotes collaborative publishing of journal articles among lecturers across departments	<b>F 13</b>	<b>39</b>	<b>21</b>	<b>43</b>	<b>11</b>	<b>3.00</b>
		% 10.2	30.7	16.5	33.9	8.7	
<b>8</b>	Does not encourage lecturers to collaborate and publish articles with researchers from other institutions/ universities (R)	<b>F 11</b>	<b>43</b>	<b>16</b>	<b>35</b>	<b>22</b>	<b>3.11</b>
		% 8.7	33.9	12.6	27.6	17.3	
<b>9</b>	Provides for recognition of Individual lecturers for promotion according to their research productivity	<b>F 4</b>	<b>22</b>	<b>10</b>	<b>61</b>	<b>30</b>	<b>3.72</b>
		% 3.1	17.3	7.9	48.0	23.6	
	<b>Overall Mean for Research Policy</b>						<b>3.07</b>

Source: Primary data

Results from table 4.2 revealed that the research policy provided moderate support for lecturers' research productivity with an overall mean of 3.07. The Research Policy mean value thus

indicated that the university research policy was not strongly felt as a dimension of organisational support for research. A standard deviation of 0.778 implied that the mean was a good estimate of the Research Policy dimension in the sample, while a range of 4.000 implied that respondents gave varied responses on the research policy dimension.

Table 4.2 indicates that the means of four of the nine items used to gauge support for research policies were higher than the overall mean. The item that assessed whether the policy allows for the promotion of lecturers based on their individual research productivity had the highest mean (3.72). The results also showed that opinions on the degree of support offered by the university research policy were divided, with cumulative percentages found for six of the nine items used to measure the policy. For instance, 42% of respondents agreed, 40% disagreed, and 18% were unsure about the reversed item, "The research policy does not promote collaborative publishing among lecturers in the department." This suggests that a large percentage of lecturers (60%) don't think the University policy encourages internal research collaboration within departments that would enable senior lecturers to mentor and support junior academics in research skills. Regarding the item "The research policy encourages collaborative publishing among lecturers across departments," 43% of respondents agreed with the statement, 41% disagreed, and 16% were unsure. This suggests that despite the interdisciplinary synergies and other advantages of interdepartmental research collaborations, 57% of the lecturers believed that the university research policy does not support them.

Nonetheless, compared to 20% who disagreed, the majority of lecturers (62%) agreed that the policy allows for the recognition of individual lectures for promotion based on their research productivity. Furthermore, the item's mean (3.72) was the highest. However, with the lowest mean score of 2.33, the majority of lecturers (65%) felt that the policy does not support the

provision of research assistants to help lecturers with their research activities, such as data collection and analysis. Notably, a considerable portion of lecturers (16%) on average remained unsure about the degree of support the research policy offered for their productivity as researchers. This might suggest that these professors were not aware of the guidelines in the university's research policy or were not actively involved in research work.

**Table4. 3Research Management Descriptive results (N=127, Mean=2.332, Std D.=0.677, Range, 3.667)**

<b>Research Management</b>		<b>SD</b>	<b>D</b>	<b>UN</b>	<b>A</b>	<b>SA</b>	<b>Mean</b>
<b>1</b> Has a well-established research and innovations unit	<i>f</i>	<b>46</b>	<b>45</b>	<b>14</b>	<b>17</b>	<b>5</b>	<b>2.13</b>
	%	36.2	35.4	11.0	13.4	3.9	
<b>2</b> Has a developed research and innovations implementation manual to guide the implementation of the research policy	<i>f</i>	<b>33</b>	<b>45</b>	<b>29</b>	<b>17</b>	<b>3</b>	<b>2.31</b>
	%	26.0	35.4	22.8	13.4	2.4	
<b>3</b> Has a functional University Research Grants and Publications Committee to support lecturers' research activities	<i>f</i>	<b>7</b>	<b>30</b>	<b>13</b>	<b>56</b>	<b>21</b>	<b>3.43</b>
	%	5.5	23.6	10.2	44.1	16.5	
<b>4</b> Hires research assistants to support lecturers' research activities	<i>f</i>	<b>57</b>	<b>43</b>	<b>12</b>	<b>10</b>	<b>5</b>	<b>1.92</b>
	%	44.9	33.9	9.4	7.9	3.9	
<b>5</b> Allocates teaching loads that leave lecturers with enough time for research activities	<i>f</i>	<b>30</b>	<b>56</b>	<b>13</b>	<b>22</b>	<b>6</b>	<b>2.35</b>
	%	23.6	44.1	10.2	17.3	4.7	
<b>6</b> Factors-in the time spent on research activities when computing lecturers' workloads	<i>f</i>	<b>47</b>	<b>45</b>	<b>15</b>	<b>15</b>	<b>5</b>	<b>2.10</b>
	%	37.0	35.4	11.8	11.8	3.9	
<b>7</b> Has formally established collaborations with other research organisations for lecturers' research activities	<i>f</i>	<b>10</b>	<b>40</b>	<b>37</b>	<b>30</b>	<b>10</b>	<b>2.92</b>
	%	7.9	31.5	29.1	23.6	7.9	
<b>8</b> Organises regular research dissemination conferences for its lecturers	<i>f</i>	<b>27</b>	<b>65</b>	<b>14</b>	<b>17</b>	<b>4</b>	<b>2.26</b>
	%	21.3	51.2	11.0	13.4	3.1	
<b>9</b> Has its own functional journal for publication of lecturers' research outputs	<i>f</i>	<b>83</b>	<b>28</b>	<b>7</b>	<b>7</b>	<b>2</b>	<b>1.56</b>
	%	65.4	22.0	5.5	5.5	1.6	
<b>Overall mean</b>							<b>2.33</b>

**Source: Primary data**

The second organisational support dimension was research management. The university's research management systems, procedures, and units were still considered to be inadequate, as indicated by the overall mean of 2.33. The means of just three of the nine items used to measure research management were higher than the average. In particular, the low means of seven out of the nine items used to measure this dimension were less than 2.5. These items' cumulative percentages tended to be lower than those of research management practices, systems, and structures. For example, with a mean score of 1.92, only 12% of respondents agreed with the statement "The University hires research assistants to support lecturers' research activities," compared to 79% who disagreed. Such a perception suggests that, just as the university hires teaching assistants to support lecturers conduct tutorials in their teaching function, lecturers miss out on the assistance of research assistants, who would play a crucial role in helping them in field data collection and analysis activities.

On the item

"The University has a well-established research and innovations unit", 72% of the lecturers disagreed with the statement that "The University has a well-established research and innovations unit," compared to just 17% who said that the statement was true. This suggests that in order to lead the, the university does not have research management structures to spearhead the implementation of the research and innovations policy.

On the other hand, 32% of respondents agreed, 39% disagreed, and 29% were unsure about the collaboration item "The University has formally established collaborations with other research organizations." The stark differences in opinions and the large number of definitive answers may indicate that many lecturers were unaware of the formal research collaboration opportunities the

university had established with outside parties, opportunities from which they could gain significant advantages in the form of research funding, training, and co-authorships. These results also suggest that the university's use of research management as a support system was still deficient.

A standard deviation of 0.677 implied that the mean was a good estimate of the Research management dimension in the sample, while a range of 3.667 implied that the perceptions of the respondents in regard to research management in the university were not widely varied. Overall, the results indicate that aspects of research management such as instituting a research and innovation unit, a research ethics committee, instituting a university journal and having formally established research collaborations have not been given the due attention they deserve.

**Table4. 4: Research Funding Descriptive results (N = 127, Mean = 3.077, Std D. =0.522, Range = 3.22)**

<i>Research Funding</i>		<i>SD</i>	<i>D</i>	<i>UN</i>	<i>A</i>	<i>SA</i>	<i>Mean</i>
<b>1</b>	Gives financial incentives to lecturers for their research publications	<i>f</i> <b>41</b>	<b>41</b>	<b>22</b>	<b>18</b>	<b>5</b>	<b>2.25</b>
		% 32.3	32.3	17.3	14.2	3.9	
<b>2</b>	Promptly pays lecturers' allowances for supervising graduate students (Masters and Ph. D) to completion	<i>f</i> <b>56</b>	<b>37</b>	<b>15</b>	<b>16</b>	<b>3</b>	<b>2.00</b>
		% 44.1	29.1	11.8	12.6	2.4	
<b>3</b>	Does not meet lecturers' books publication costs (R)	<i>f</i> <b>13</b>	<b>22</b>	<b>25</b>	<b>38</b>	<b>29</b>	<b>3.38</b>
		% 10.2	17.3	19.7	29.9	22.8	
<b>4</b>	Does not give monetary rewards to lecturers for publishing books in their academic disciplines (R)	<i>f</i> <b>9</b>	<b>5</b>	<b>27</b>	<b>41</b>	<b>45</b>	<b>3.85</b>
		% 7.1	3.9	21.3	32.3	35.4	
<b>5</b>	Does not give lecturers monetary rewards for publishing book chapters in their academic disciplines (R)	<i>f</i> <b>8</b>	<b>6</b>	<b>24</b>	<b>41</b>	<b>48</b>	<b>3.91</b>
		% 6.3	4.7	18.9	32.3	37.8	
<b>Overall mean</b>							<b>3.077</b>

Source: Primary data

The third organisational support dimension was research funding. The overall mean of 3.07 implied a moderate level of research funding as an organisational support measure for research productivity. Three out of the five items used to measure research funding had their means scoring above the overall mean, while the remaining two items scored far below the overall mean. This implies that respondents had consistent perceptions on those items. In particular, the cumulative percentages for all the five of research funding indicators were on the low side. For example, only 15% of respondents agreed with the statement that "The University promptly pays lecturers' allowances for supervision of graduate students' research to completion." This suggests that 85% of lecturers were dissatisfied with the rate at which their graduate students' research supervision allowances were paid, despite the fact that this is key indicator of lecturers' productivity at universities. Comparably, 68% and 70% of respondents agreed with the reversed items "The University does not give monetary rewards to lecturers for publishing books and book chapters, respectively," compared to 11% who disagreed. This suggests that the university does not fairly reward its lecturers for research output which would motivate them to increase their productivity.

A standard deviation of .522 implied that the mean was a good estimate of the Research Funding dimension in the sample, while a range of 3.200 implied that respondents had consistent perceptions on the items used to measure research funding. The results indicate that aspects of research funding such as meeting lecturers' publication costs, prompt payment of lecturers' graduate research supervision allowances and giving monetary rewards to lecturers for their research productivity have not been well attended to.

**Table4. 5: Research Infrastructure Descriptive results (N = 127, Mean = 2.759, Std D. = 0.444, range = 2.556)**

	<b>Research Infrastructure</b>	<b>f</b>	<b>SD</b>	<b>D</b>	<b>UN</b>	<b>A</b>	<b>SA</b>	<b>Mean</b>
<b>1</b>	Provides modern field equipment for lecturers' research activities	<b>29</b>	<b>54</b>	<b>21</b>	<b>17</b>	<b>6</b>		<b>2.35</b>
		%	22.8	42.	5	16.5	13.4	4.7
<b>2</b>	Does not provide complete computer sets to meet lecturers' research needs(R)	<b>12</b>	<b>19</b>	<b>10</b>	<b>35</b>	<b>51</b>		<b>3.74</b>
		%	9.4	15.	0	7.9	27.6	2
<b>3</b>	Provides access to reliable internet connectivity in lecturers' offices for research activities.	<b>9</b>	<b>28</b>	<b>5</b>	<b>63</b>	<b>22</b>		<b>3.48</b>
		%	7.1	22.	0	3.9	49.6	17.
<b>4</b>	Provides lecturers with computer software for research data collection.	<b>34</b>	<b>58</b>	<b>14</b>	<b>17</b>	<b>4</b>		<b>2.20</b>
		%	26.8	45.	7	11.0	13.4	3.1
<b>5</b>	Provides lecturers with computer software for research data analysis.	<b>40</b>	<b>56</b>	<b>16</b>	<b>13</b>	<b>2</b>		<b>2.06</b>
		%	31.5	44.	1	12.6	10.2	1.6
<b>6</b>	Provides lecturers with computer software for research citation and referencing	<b>29</b>	<b>55</b>	<b>15</b>	<b>18</b>	<b>10</b>		<b>2.41</b>
		%	22.8	43.	3	11.8	14.2	7.9
<b>7</b>	Does not provide lecturers with access to recent online publications for their research work(R)	<b>21</b>	<b>33</b>	<b>18</b>	<b>45</b>	<b>10</b>		<b>2.92</b>
		%	16.5	26.	0	14.2	35.4	7.9
<b>8</b>	Does not provide Functional e-Library services for lecturers' research activities(R)	<b>19</b>	<b>51</b>	<b>13</b>	<b>36</b>	<b>8</b>		<b>2.71</b>
		%	15.0	40.	2	10.2	28.3	6.3
<b>9</b>	Provides lecturers with anti-plagiarism software for their research activities	<b>16</b>	<b>42</b>	<b>17</b>	<b>35</b>	<b>17</b>		<b>2.96</b>
		%	12.6	33.	1	13.4	27.6	13.
	<b>Overall mean</b>							<b>2.759</b>

Source: Primary data

The fourth organisational support dimension was research infrastructure. The overall mean of 2.759 implied that the research infrastructure as a measure of organisational support for research in the university was still weak. Five out of the nine items had means above the overall mean.

Specifically, seven out of the nine items had cumulative percentages lying on the side of poor infrastructural support. For instance, for the item “The University provides lecturers with computer software for research data analysis”, only 12% of the lecturers agreed with the statement. The low mean of 2.06 indicates the difficulty lecturers face in accessing up-to-date software for research data collection and analysis while conducting such a dominant university function. On another item reversed as “The university does not provide lecturers with complete computer sets to meet lecturers’ research needs”, 68% of the lecturers agreed with the statement. This indicates that many lecturers still miss out on university computer provision which could go a long way in conducting research activities.

E-library services are deemed vital in enabling researchers to access information especially reviewing related literature. On the reversed item, “The University does not provide e-library services for lecturers’ research activities” 55% of the lecturers agreed with the statement. This implies that the e-library services are not functional enough to support lecturers’ research activities. However, on the reversed item “The University does not provide lecturers with access to recent online publications for their research work, lecturers’ opinion was evenly split with 43% in agreement and disagreement as well, while 14% remained undecided. Still, this implies that 57% of the lecturers could not affirm that the university supports them to easily get access to the much-needed online publications for their research work. The above results therefore paint a picture of low research infrastructure support for lecturers in the university. The close association of the mean and the median at 2.667 implies a normal distribution of the items of Research infrastructure. A standard deviation of .444 implied that the mean was a good estimate of the Research Infrastructure dimension in the sample, while a range of 2.556 implied the consistency among the perceptions of respondents. The overall, the level of organisational



support was indicated by a low mean of 2.8. This implies that the university must improve on its support for lecturers' research activities to promote its research function.

**Table4. 6: Research Management Descriptive results (N=127, Mean=2.332, Std D.=0.677, Range = 3.133**

<b>Dependent variable (Research Productivity)</b>			<i>Never</i>	<i>Rarely</i>	<i>sometimes</i>	<i>Always</i>	<i>Frequently</i>	<b>Mean</b>
<b>Articles Publication</b>								
<b>1</b>	I publish my articles in peer reviewed journals	<b>f</b>	<b>4</b>	<b>11</b>	<b>32</b>	<b>59</b>	<b>21</b>	<b>3.65</b>
		<b>%</b>	3.1	8.7	25.2	46.5	16.5	
<b>2</b>	I collaborate with members within my department to develop research publications	<b>f</b>	<b>13</b>	<b>34</b>	<b>26</b>	<b>32</b>	<b>22</b>	<b>3.13</b>
		<b>%</b>	10.2	26.8	20.5	25.2	17.3	
<b>Book Authorship</b>								
<b>3</b>	I author book chapters in my academic disciplines	<b>f</b>	<b>20</b>	<b>40</b>	<b>40</b>	<b>16</b>	<b>11</b>	<b>2.67</b>
		<b>%</b>	15.7	31.5	31.5	12.6	8.7	
<b>4</b>	I author books in my academic disciplines	<b>f</b>	<b>41</b>	<b>42</b>	<b>20</b>	<b>10</b>	<b>14</b>	<b>2.32</b>
		<b>%</b>	32.3	33.1	15.7	7.9	11.0	
<b>Conference Presentation</b>								
<b>5</b>	I present papers in my faculty conferences	<b>f</b>	<b>23</b>	<b>40</b>	<b>29</b>	<b>23</b>	<b>12</b>	<b>2.69</b>
		<b>%</b>	18.1	31.5	22.8	18.1	9.4	
<b>6</b>	I present papers in national conferences	<b>f</b>	<b>16</b>	<b>32</b>	<b>39</b>	<b>26</b>	<b>14</b>	<b>2.92</b>
		<b>%</b>	12.6	25.2	30.7	20.5	11.0	
<b>7</b>	I present papers in international conferences	<b>f</b>	<b>6</b>	<b>19</b>	<b>36</b>	<b>41</b>	<b>25</b>	<b>3.47</b>
		<b>%</b>	4.7	15.0	28.3	32.3	19.7	
<b>8</b>	I participate in formal departmental research teams to prepared conference papers	<b>f</b>	<b>8</b>	<b>26</b>	<b>34</b>	<b>38</b>	<b>21</b>	<b>3.30</b>
		<b>%</b>	6.3	20.5	26.8	29.9	16.5	
<b>Student Supervision</b>								
<b>9</b>	I supervise masters' students to timely completion.	<b>f</b>	<b>9</b>	<b>17</b>	<b>24</b>	<b>40</b>	<b>37</b>	<b>3.62</b>
		<b>%</b>	7.1	13.4	18.9	31.5	29.1	
<b>10</b>	I supervise Ph D students to timely completion	<b>f</b>	<b>50</b>	<b>26</b>	<b>10</b>	<b>29</b>	<b>12</b>	<b>2.43</b>
		<b>%</b>	39.4	20.5	7.9	22.8	9.4	
<b>Articles Publication</b>								
<b>11</b>	Number of peer reviewed journal articles published	<b>f</b>	<b>6</b>	<b>35</b>	<b>45</b>	<b>13</b>	<b>28</b>	<b>3.17</b>
		<b>%</b>	4.7	27.6	35.4	10.2	22.0	
<b>Book Authorship</b>								
<b>12</b>	Number of book chapters authored.	<b>f</b>	<b>70</b>	<b>44</b>	<b>10</b>	<b>2</b>	<b>1</b>	<b>1.58</b>
		<b>%</b>	55.1	34.6	7.9	1.6	0.8	
<b>Conference Presentation</b>								

<b>13</b>	Number of conference papers presented	<i>f</i>	<b>17</b>	<b>29</b>	<b>30</b>	<b>26</b>	<b>25</b>	<b>3.10</b>
		%	13.4	22.8	23.6	20.5	19.7	
<b>Student Supervision</b>								
<b>14</b>	Number of Master's students supervised to completion.	<i>f</i>	<b>25</b>	<b>29</b>	<b>21</b>	<b>16</b>	<b>36</b>	<b>3.07</b>
		%	19.7	22.8	16.5	12.6	28.3	
<b>15</b>	Number of Ph. D. students supervised to completion.	<i>f</i>	<b>105</b>	<b>13</b>	<b>6</b>	<b>2</b>	<b>1</b>	<b>1.28</b>
		%	82.7	10.2	4.7	1.6	0.8	
<b>Overall mean</b>								<b>2.827</b>

**Source: Primary data**

The study's dependent variable, research productivity, is depicted in Table 4.6 with descriptive results. The university's overall mean of 2.83 suggested a generally low level of research productivity. The mean scores of nine of the fifteen items used to gauge research productivity were higher than the average. In particular, the cumulative percentages of nine research productivity measuring items were highly erring on the side of low research productivity. For example, 58% of the lecturers indicated that they don't typically work with colleagues in their departments to produce research publications. Similarly, with a mean value of 2.32 for books and 2.67 for book chapters, 81% and 79% of the lecturers, respectively, stated that they hardly ever author books and book chapters in their academic disciplines. With the aspect of conference presentations, 72% of the lecturers indicated that they hardly ever presented research papers at faculty-based conferences, and 69% said they hardly ever presented at national conferences. This suggests that a crucial indicator of university research productivity in form of faculty academic conferences at which their lecturers can deliver papers on their research findings is still neglected at the university.

Regarding graduate students' research supervision as an indicator of research productivity, 61% of the lecturers said that they regularly oversee masters students' research projects to ensure they

are completed on time. However, only 32% of them said they had overseen Ph.D. students' research to completion, compared to 29% who said they only occasionally do so and 39% of Ph.D.-holding lecturers who said they had never done so. At 2.43, this item's mean value was the lowest. This suggests that most academic faculties may only offer a small number of Ph.D. programs. As a result, lecturers are unable to collaborate with graduate students to advance their research output.

The study aimed to investigate the productivity counts of lecturers in terms of four distinct measures of research productivity: publication of articles, book authorship, paper presentations, and supervision of graduate students. The findings showed a low productivity level. In comparison, 68% of the lecturers in the sample have published a maximum of four (4) articles in peer-reviewed journals, whereas 5% of the lecturers in the sample have never published any articles in a peer-reviewed journal. Since article publication is the most visible measure of research output, this indicates low research productivity in the University.

Regarding book authorship, 55% of the lecturers revealed that they don't have any authored book chapter on their productivity profile, while cumulatively, 98% have authored a maximum of four (4) book chapters, with a mean value of 1.58. Fourteen percent (14%) of the lecturers attested that they have never presented a research paper in an academic conference, while cumulatively, 60% have presented a maximum of four (4) papers. Paper presentation is usually an output measure of research activities. The low paper presentation rate thus implies low research activity in the university. The analysis of graduate students' supervision indicates that 20% of the lecturers have never supervised a master's degree student to completion while cumulatively, 59% have supervised a maximum of four (4) students. Similarly, 83% of the students have never supervised a Ph D student to completion while cumulatively, 98% have

supervised a maximum of four (4) students, with a mean value of 1.28. This implies low co-authored publications for lecturers and their graduate students.

Overall, most of the dimensions of Research productivity had means of less than 3.5. Article publication had the highest mean, implying that it was the highest form of research productivity in the university. It is therefore essential that the University motivates and supports lecturers to improve their research productivity in all its forms. A standard deviation of 0.693 implied that the mean was a good estimate of the Research Productivity dimensions in the sample, while a range of 3.133 implied generally consistent perceptions among respondents.

#### **4.2.4 Qualitative Findings for organizational support**

The study had two qualitative objectives and two corresponding research questions. The first objective was to establish the level of organisational support for research provided to lecturers in Kyambogo University. Qualitative findings in this study indicated the views of the interview participants. To answer the first research question;

What is the level of organisational support provided to lecturers in Kyambogo University for their research activities? Faculty deans, the directors of Quality Assurance and Human Resource, university Bursar and Librarian were interviewed for their views to give in-depth insights into the scope of organisational support availed to lecturers to enable them conduct the university research function. Their views were deemed helpful in explaining the quantitative results from their perspectives as key informants. As already observed in chapter one, organisational support was conceptualized in form of the research policy, research management, research funding and research infrastructure. Overall, the findings revealed that the extent of organisational support for the research function was still low. This was evidenced by a weak

research policy, absence of supportive research management structures, systems and practices, inadequate and delayed research funding and a weak research infrastructure in the university.

Looking at each aspect, the analysis is supported by the findings below.

#### **4.2.4.1 The Research Policy support**

The research policy support in this case was indicated by three emerging themes and these included; *Institutional research Guidelines*, *Collaboration Protocol* and the *Direct Assistance Policy*.

Institutional Research Guidelines. Research guidelines on lecturers' workloads and on journals for article publication emerged as major elements of the Research Policy guidelines in the university. The discussion in this section details the outcomes of what the key informants revealed regarding the Institutional Research Guidelines. The university has maintained the minimum standard of 10 contact teaching hours per week, after which they should work on publications and research, according to the findings regarding the workload policy guidelines. However, lecturers take on extra teaching loads to generate additional income, primarily from conducting evening and weekend classes, since the research publication activity does not generate any immediate financial returns to meet their financial obligations. This was revealed from several excerpts responding to the question;

Comment on the current status of the university research policy and its implementation in regard to allocating appropriate teaching loads to leave lecturers with enough time for their research and publication function. The excerpts are given below;

The teaching load allocations do leave lecturers with enough time for their research and publication function because officially they are supposed to teach 10 hrs, a week but staff take on extra- teaching loads to make ends meet due to economic dictates and obligations. (**Interviewee-1**)

“... There should be time for research. Time on research should be factored into lecturers’ total workload...” (**Interviewee-3**)

“... We observe and honour the standard of 10 hours a week contact time, but lecturers look for and take on extra-teaching loads to generate more income...” (**Interviewee-4**)

Therefore, the results of the interviews show that, once lecturers follow the rules and regulations pertaining to their teaching duties, which provide them with an immediate and direct source of income, research and publication activities become less important because they do not provide the immediate financial benefits that lecturers require to maintain their families and maintain their own lives. The results suggest that while the required teaching workload is appropriate, lecturers' search for additional teaching load is prompted by their desire to increase their income. This encroaches on their time for research.

Findings regarding journal policy guidelines for article publication showed that lecturers had no clear guidelines regarding which particular journals in which to publish their research findings. This was affirmed from the excerpts below.

“... There are no guidelines in place on the journals for lecturers to publish. As a result, they are duped to publish in predatory journals...” (**Interviewee 1**)

“... There are no institutional guidelines by faculties yet. It’s still a gap...” (**Interviewee 4**)

“...There are no guidelines in place. It is left to individual lecturers to use their knowledge and experience to decide...” (**Interviewee 5**)

The aforementioned results suggest that, as a mechanism supporting high-quality research, the research policy does not guide the prescription for research publication outlets.

#### 4.2.4.1.1 Collaboration Protocol

It was discovered that the policy's current requirements for the creation of research teams and the establishment of alliances and partnerships with outside organizations in order to advance lecturers' research productivity were insufficient. For example, it was discovered that the university lacks a formal policy for the establishment of faculty and departmental research teams, which is one way to encourage interdisciplinary research. Typically, it is up to individual lecturers to find research collaborators and form partnerships that will help them advance their research output. This was evidenced by findings from the interview presented below;

Forming partnerships with supportive teams for the lecturers' research efforts, is not systematically monitored and neither is there a policy for it. Institutionalised collaborations are also not yet in place. Collaboration opportunities are not well cascaded to all members of academic staff. This important research support effort is left to the individual lecturers' initiatives to forge their way out. The policy is fundamentally inadequate on this (**Interviewee-1**)

Another key informant had this to say;

The University top management is not yet directly engaged in the development of collaborations for lecturers to enhance their research productivity efforts, However,

Bottom-up partnerships are encouraged from individual lecturers to departments and faculties through memoranda of understanding at department and faculty levels. At faculty level, we have the consortia of universities in research and the Africa-Asia dialogue under JICA among others. (**Interviewee-4**)

The findings in this case reveal that the policy does not strongly support the establishment of research partnerships and collaborations, and that it is high time the university policy places more emphasis on establishing formal partnerships and collaborations for the academic staff to improve the quality and quantity of their research output. This will especially be possible given the fact that the research policy has been noted to have a significant and positive relationship with research productivity.

#### 4.2.4.1.2 Direct Assistance Policy

It was further revealed that the university policy provides direct assistance to lecturers to conduct research as a university function. The direct assistance is in form of availing research assistants to lecturers and through provision of research grants. With regard to research assistants, findings showed that, similar to teaching assistants who support lecturers with teaching activities, the policy is silent on the direct hiring and assignment of research assistants. The excerpts below lend support to the above assertion.

It is catered for in terms financing for up to 2 research assistants for senior lecturers and above. However, it is not in the policy structure to have permanent research assistants in the university. The policy should provide for the recruitment of research fellows.

**(Interviewee-1)**

Another informant intimated that;

“It is catered for under research grants to lecturers but the funding is still low because the university cannot secure big research grants. They are therefore not in the university structure. Only teaching assistants are recognized.”

**(Interviewee 4)**

Even when it is claimed that the university policy framework sufficiently supports research, the policy has not been adequately implemented due to the absence of a policy implementation guide. As such, academic staff continue to be more active teachers than researchers, which has contributed to the university's research function to remain in a lagged state. The interview excerpts below lend credence to the above revelation.

There are no clear research policy guidelines to streamline the management of research activities and promote productivity. The university should have a clear research policy with implementation guidelines. **(Interviewee-5)**

Another informant had this to emphasize;



There is a challenge of implementation guidelines to execute the research policies. There is a need to put in place good practices to implement the policy in areas like accelerated promotions for outstanding researchers not to wait for the mandatory three years  
(interviewee-3)

The aforementioned disclosures suggest that the research policy, as an instrument of organizational assistance, does not firmly encourage lecturers' research endeavors to advance the university research function.

#### **4.2.4.2 Research Management**

Research management refers to the extent to which the university administration implements supportive practices, processes, mechanisms, and institutes structures aimed at improving research productivity among its lecturers and students. The qualitative research results regarding Research

Management in the study were aligned along with three main themes, namely; *Research training and mentoring*, *Research Monitoring*, and *Research management Units*. These were assumed to create a favourable research environment in the university.

##### **4.2.4.2.1 Research training and mentoring**

Lack of experienced senior staff to mentor the new and younger staff members in scholarly writing, grant proposal writing, and publication writing was one of the unresolved issues regarding research training and mentoring. It becomes challenging to transfer research competencies from one generation of the workforce to the next in order to create a stable pool of highly productive researchers if senior academic staff members, such as associate professors and full professors, are not dedicated to training and mentoring the younger and junior staff members. This was observed from the following interview excerpts.

“We lack senior staff like professors who can mentor the younger staff in research and publishing articles in reputable journals.” **(Interviewee-4)**  
 On the same theme, another informant had this to say.

“The major form of support that lecturers miss from the university is mentoring and indepth training from experienced researchers mainly in scholarly writing.” **(Interviewee-1)**

A similar opinion below was given by another informant;

“Training of staff in areas like reference management software, plagiarism software are some of the missing information services vital for supporting lecturers” research activities Lecturers also lack guidance on the credible journals for publishing their articles.” **(Interviewee-2)**

Another strong observation regarding the absence intensive research training and mentoring came from the perspectives of the key informant below;

There are no challenges at the top (institutional level). There could may be at department and faculty levels where mentoring of staff towards research could be lacking. The university should impose annual research performance targets onto lecturers and on departments and faculties regarding research training and output. The university should look for bigger research funding through training in good proposal writing skills to win grants from big donors. **(Interviewee-5)**

Emphasizing the need for robust research training in the university, another informant stressed;

“There is a need to sensitise lecturers on the policies and opportunities in the university. We need workshops and seminars about the new approaches to research. We need constant meetings from top managers to academic staff.” **(Interviewee-6)**

#### **4.2.4.2.2 Research monitoring**

The university's research monitoring program was another emerging issue with research management.

The results showed that there were no mechanisms in place to track and monitor lecturers' research progress, from its inception to its dissemination, with the aim of

providing them with support for their research endeavors. The excerpts below lend credence to the above assertion.

“There is no mechanism in place for tracking academic staff research performance. The structures are not clear, there are no internal research teams, and it’s upon individuals.”

**(Interviewee-7)**

Reiterating the lack of research monitoring and tracking systems in the university, another informant advised;

“Not in place yet, the deans should be guiding heads of department on how to track research performance in their departments.” **(Interviewee-4)**

Another faculty dean had this to say;

“We don’t have a mechanism in place to follow up staff research performance in our faculty, it is a big gap.” **(Interviewee-1)**

While lamenting the absence of research monitoring systems in the university, another informant remarked;

I am not sure that there is research tracking in academic departments. We have written to heads of departments to submit record of their lecturers’ research performance. We are waiting for feedback but tracking is not yet functional. We have also not taken the evaluation of lecturers’ research output as a priority. We don’t have the personnel to do it. Research tracking and evaluation in terms of both quality and quantity is still missing.

**(Interviewee-3)**

The absence of research monitoring systems was also echoed by an informant who had this to remark;

“My directorate does not directly monitor lecturers’ performance, but only done through the performance appraisal tool. It is up to the individual lecturers to submit their publications for promotion.” **(Interviewee-7)**

The opinions given above regarding the presence of research monitoring systems and structures in the university imply that lecturers conduct research on their own without monitoring and

tracking of their research progress so that every needed support could be rendered by the university management to increase their productivity.

#### **4.2.4.2.3 Research Management Units**

Another research management theme was the university research management units. These included the research and innovations office, research ethical committee, research grants and publications committees, and the university journal. These were considered pertinent in providing different types of research assistance for research, such as finding sources of funding for research, forming internal and external partnerships and collaborations with other organizations, training junior staff how to write grant proposals that get funded, obtaining ethical clearance, and keeping track on the research progress in the university. The results showed that the university does not have an ethical committee for ethical clearance of research projects involving staff and students, nor does it have a research and innovations office at the Deputy Vice Chancellor level in the university hierarchy. The university does not have a journal for disseminating staff and student research, according to the findings. Findings, however, showed that the university has concentric layers of publications and research grant committees, extending from departments to faculties and, ultimately, to the university as a whole, though the committees' functional ability to provide timely financial support for research was found to be inadequate. The excerpts from a key informant below give a clear testimony.

A University research and innovation unit is still a proposed idea at the moment. There should be a separate research office at the Deputy Vice Chancellor (DVC) level to promote research and innovations engagement with commitment from top University leadership. **(Interviewee- 4)**

Another one revealed;

“The policy proposal for the establishment of the ethical review committee is just under the draft research policy review at the council level.” **(Interviewee- 2)**

Another one clarified;

“Research grants and publications committees are in place right from departments. However, there are very few applicants due to the delays and bureaucracies in approving applications.” **(Interviewee -5)**

The informant also opined;

“The absence of the University research journal affects the research output. Surprisingly, there is very little support for it.” **(Interviewee-5)**

Another informant had this to say about the absence of a research grants office and Ethical Review Board;

We do not have a research Grants Office to look out for calls for research and guide staff on how to apply for them, we still lack the IRB (Institutional Review Board) in the University. Efforts are being made at the council level to institute one.  
**(Interviewee-4)**

Another informant intimated;

“The research Grants and Publications Committees are active but they should organize trainings for staff through seminar series, there is need to train high-level research Human Resource to apply for and win grants.” **(Interviewee-8)**

Another one clarified;

“We also need to strengthen the structural support through research offices to support lecturers, establish an IRB, strengthen the graduate school to support staff research and institute programs for training and mentorship of staff in research.”  
**(Interviewee-4)**

While emphasizing the need for an overall research Management Unit in the University, Another Key informant had this to say;

There is no DVC in charge of Research hence a structural gap, there is no REC (Research Ethical Committee and a research and innovations unit is still lacking. However, we have functional Grants and publications committees but the demand for funds is not there due to the poor quality of papers presented. **(Interviewee-1)**

The informant further remarked;

“The University journal is not in place, journals should be a result of active research hence demand driven. With low research output, there is currently no need for it.” **(Interviewee-1)**

Another informant reasoned;

“The university should have a unit for research and innovations, do mentoring and coaching of staff in research and apply the carrot and stick approach by setting annual target requirements for publications.” **(Interviewee-3)**

The combination of the aforesaid challenges, namely; a lack of committed experienced researchers to mentor others, absence of research monitoring frameworks and tracking mechanisms, coupled with a lack of efficient functional research management structures such as the research and innovations unit, Ethical Review Board, University journal and the delays and bureaucracies in the functioning of the grants and publications committees were found to be major research management challenges likely to have a negative effect on the ability of lecturers to improve on the quality and quantity of research productivity in the university. This clearly explains quantitative results which found research management structures, systems and practices to be low in the university.

#### **4.2.4.3 Research Funding**

Research funding is widely assumed to be a critical support element for research productivity. Researchers need financial support for ethical clearance fees of their research projects, for data collection and analysis, for research dissemination in academic conferences and through

publications, book authorships, and patent registration among others. The university has several funding schemes in place. The first is through the competitive research grants scheme where academic staff write proposals and compete for funding. The second one is to access funding through the research grants and publications committee and thirdly through donor money for individual research projects and award research for masters and PhD study programmes sponsored by the university. The two emerging themes under research funding were: The *research budget* and the *funding protocol*.

#### **4.2.4.3.1 Research budget**

Findings revealed that research funding is increasing, leading to an increase in productivity as indicated from the excerpts below;

Funding for research has increased through individual projects donor funding and through money for competitive research by the Vice Chacellor. We also have a new research project from the Netherlands. The competitive research grants scheme is very effective, The University gets more money for publishing and individual lecturers are winning individual projects grants, many are publishing through competitive grants scheme.

**(Interviewee-3)**

However, another participant felt that the competitive research grants scheme has not been well utilized by lecturers as evidenced from the excerpts below;

“Another source of funding is the competitive research grants scheme, which has not been well tapped into by lecturers” **(Interviewee-5)**

The research budget was felt still too small to fund quality research in the university. Participants also indicated that the university still grapples with the challenge of a narrow revenue base from which it cannot appropriate adequately for the research function. This was especially confirmed by the interview excerpts below;

“The funds available for research are very limited and rarely cater for all research expenses.” **(Interviewee-9)**

While reiterating the low research funding, another informant has this to say;

Our University cannot secure big research grants at the moment. As such funding for research is still minimal. The university currently has access to small grants yet the number of the lectures who wish to publish is steadily increasing. **(Interviewee 4)**

The limited funding for researchers at the University poses a challenge for the many who wish to advance their research interests. What also remains questionable is the process by which the limited research funds are distributed to the interested applicants. This leads to the second theme to examine the funding protocol.

#### **4.2.4.3.2 Funding Protocol**

It was revealed that research funding has to be approved by series of research and publications grants committees from the department level through faculty to senate level. However, findings revealed that there is a lot of Bureaucratic delays, lack of transparency and biased subjective treatment of proposals and applications by departmental colleagues in grants and publications committees, and that such negative practices do not support research in the university. This can be verified by the interview excerpts presented below:

The process of accessing research funding is cumbersome, it goes through department, faculty and senate committees causing delays and subjective treatment. It should be automatic once publication journal outlets have accepted the papers **(interviewee 7)**

He also wondered;

“Why should committees of unproductive colleagues in research vet my paper for funding?” **(Interviewee-7)**

Another informant strongly noted;



Sometimes the grants won are reduced/ cut without any explanation given. This demotivates lecturers from the research function. There are structural rigidities in the approval of funding requests. In most cases it depends on individual opinion on who should be funded or not. **(Interviewee-5)**

Another key informant complained about delays in the approval process for research funding as observed below;

The committee meetings to approve lecturers' research funding requests are irregular and such delays lead to failure by staff to publish in the two weeks window given by most journals to pay publication fees after accepting the paper. **(Interviewee 2)**

Another one clarified;

The delays could be in the approval of grants applications by the university research grants committee but the in the accounts department has no delays in releasing funds. We however receive few approved staff requests for research funding. **(Interviewee-9)**

Another key informant also remarked on process of procuring research funds in the opinion given below;

The research budget is still small because Kyambogo University has not yet attracted big research project funding from external sources, and lack of a grant's office complicates the process of procuring even the little funding from the university. **(Interviewee-4)**

The above excerpts imply that that there are still many bottlenecks in the process of procuring research funding from the university and explains the quantitative findings which revealed that research funding was still low. This calls for not only increases in the research budget allocations, but for flexibility and transparency in the process of procuring research funds as well, so as to encourage lecturers to apply for and access these funds to support the university research function.

#### 4.2.4.3.3 Document analysis findings

In the quest to further ascertain the level of the support provided to lecturers for research activities, the researcher analysed the records of research grants provided to lecturers for the period from 2018/2019 to 2019/2020. The records were obtained from the Directorate of Research and graduate training, and ranged from 2018/2019 to 2022/2023. However, the study scope was 2016-2020. That is why only two academic years were analysed for this study. The pertinent results are given in the table below.

**Table4. 7: Document analysis results on research grants**

Faculty	Year (2018/2019)		Year (2019/2020)	
	Number of beneficiaries	Amount (USD)	Number of beneficiaries	Amount (USD)
Faculty of Arts and social sciences	9	18,248	7	28,259
Faculty of Engineering	0	0	1	404
Faculty of Science	4	5,262	2	5,514
Faculty of Special Needs and Rehabilitation	5	11,437	0	<b>0</b>
School of Education	4	7,205	3	3,650
School of Management and Enterprenuership	1	23,000	1	1,340
School of Vocational Studies	2	6,726	0	<b>0</b>
<b>Total</b>	<b>25</b>	<b>71,878</b>	<b>14</b>	<b>39,167</b>

The findings presented in table 4. 7 Above indicate that very few lecturers benefitted from the University research grants. For instance, in the academic year 2018/2019, no lecturers from the faculty of Engineering accessed research grants out of its 16 Ph D holding academics, while the school of Management and Intreprenuership had only one beneficiary out of its 9 Ph D holders. From the entire university of about 332 academics including 156 Ph D Holding academics (KYU strategic Plan, 2020/21-2024/25), only 25 benefitted from the University research grants amounting to about 71, 878 US dollars. For the academic year 2019/2020, the number of research beneficiaries dropped to 14 possibly due to the COVID 19 lockdown. This implies that for a period of 9 months from July, 2019 to March 2020 before the lockdown was effected, only 14 academics had benefitted from the research grants amounting to 39,167 US dollars. The document analysis findings support the interview findings that revealed low research funding, due to a small university research budget since the university can not currently secure big research grants. The small number of research grants beneficiaries could also be a result of delays and rigidities in approving research funding applications as revealed by interview participants.

#### **4.2.4.4 Research Infrastructure**

Two main themes emerged from the research infrastructure qualitative data findings. These Were *Physical research infrastructure* and *Electronic resources*.

##### **4.2.4.4.1 The physical infrastructure**

This comprised the conducive furnished office space, laboratory and field equipment for research activities. Concerning office space, all participants intimated that the University still has a

challenge of availing lecturers with furnished offices that provide a conducive atmosphere for research activities. Interview excerpts below confirm the above position.

With the construction of the new buildings, more office space has been availed to lecturers. However, many of these offices lack furniture for lecturers to conduct university work in relative comfort. The demand for office space however remains as the university grows and recruits more staff. **(Interviewee-1)**

Another informant intimated;

“There is inadequate office space for most of the lecturers in the faculty. Sometimes we just improvise from students’ furniture for staff to get chairs and tables.”  
**(Interviewee-3)**

Commenting on the poor state of office space, another informant had this to say;

The office space is not adequate and most of the offices available are not conducive for university work. Many lack appropriate power connectivity like sockets. Others are not well ventilated as they were originally built as stores and bedrooms but due demand, they were converted into offices. Many academic staff do not have appropriate furniture in the offices. Some still sit on uncomfortable wooden plane chairs. **(Interviewee-4)**

In regard to the availability of quality laboratory and field research equipment, mixed reactions emerged with some participants in agreement that laboratories and field equipment in the university are sufficient for lecturers’ research while others felt that such infrastructural support was inadequate. Those in the affirmative had this to say;

“Our laboratories are generally well equipped specifically to support research in various science disciplines” **(interviewee-3)**

Another one clarified;

“The laboratory equipment is OK, though not the best. New laboratories like the new physics laboratory on the new complex and will support better research activities.” **(Interviewee-1)**

However, some participants indicated that laboratories in the university were not well equipped to support high level research. They had this to say;

“The issue of sufficient laboratories and field equipment for research depends on the funds available. Currently, the competitive grants do not cover such costs.”  
**(Interviewee-4)**

“The labs and field equipment are still inadequate. More investment is need to improve our labs by installing modern equipment to match the current scientific research demands.” **(Interviewee-5)**

The above responses imply that much as there has been an improvement in the equipping of laboratories and the building of new ones like the physics labs, there is more that needs to be done to replace the old equipment in the labs in order to match the current research demands.

#### **4.2.4.4.2 Electronic resources**

Two sub-themes emerged from electronic resources. These were the electronic library services and internet connectivity as infrastructure support services for research activities in the university.

##### **4.2.4.4.2.1 Electronic library services**

These included easy access to major online publication outlets subscribed to by the university, easy access to recent online publications and virtual library services to staff members for research activities. Easy access to major online publication outlets. Access to online publication outlets is very critical in today's global digital village where publications are uploaded on databases to which organisations like universities subscribe for their members to access them.

Participants revealed that there are online publications accessible in the new library though they are still under-utilized possibly due to limited awareness. However, key informants further observed that the subscriptions do not cover the much-needed information sources including most of the recent subscribed publications. The informants' observations are expressed in the interview excerpt below;

The subscription to major online publications is adequate. Many international journals are subscribed to, including research databases like research Africa. However, there is limited awareness about this infrastructural support by academic staff and students. **(Interviewee-7)**

Another informant intimated;

“Online publications are available in the new library. There is a section for staff to access information. The library infrastructure is ok but it is not utilized.” **(Interviewee-1)**

Commenting on the low university subscription to online information resources, a key informant had this to reveal;

Subscription to online research resources is still low. The university depends on only students' library fees of Shs 20,000 per student per year. This collects about 900 million, the library gets about 700 million and budgets for it. We pay about 3000 dollars on e-books and journals, the rest goes to e-journals and staff extra load allowances. The university does not release all the money paid and there is no additional funding for the library from the university. The university should increase funding beyond the students' annual subscription fees to enable the library access better information for staff and students. **(Interviewee-7)**

He also supplemented;

Subscription to online resources is done only through the universities libraries consortium where the university subscribes only 3000 US dollars annually. This is too inadequate... We try to get the best publication outlets like Emerald, Taylor and Francis, Justor and others but some articles and books remain locked due to low subscription packages. **(Interviewee-7)**

With regard to easy access to recent online publications, results indicate that most recent online publications are not readily accessible due to low subscription packages that do not warrant the university library users to access them. This was supported by the interview excerpts from the key informant below;

“The most recent publications are sometimes not readily accessible because they go through other intermediaries like the DDS (Document Delivery Services) to access them.” **(Interviewee-7)**

Another informant also lamented;

There are also delays in the procurement department. Sometimes the unused money is taken back to the treasury due to delays to procure the needed items... The procurement department should also improve and act faster to get the requested for items for library services. **(Interviewee-9)**

Regarding the virtual library services where staff members can remotely access library information services off-campus, say from their homes, results indicated that this is impossible unless one is on campus. This was captured from the key informant’s response below;

It is still a challenge, currently most library resources can only be accessed on campus. There are however plans to install remotex and my locked tools software packages to enable virtual access to library resources. **(Interviewee-7)**

It was however revealed that even when the library department organizes training sessions for staff to get acquainted with the available library resources, many lecturers do not turn up. This was evidenced by the excerpts below;

Training of staff members for instance in reference management and plagiarism software is still lacking. When we organize such training sessions, many lecturers do not turn up. The Deans do not submit all the e-mails of their staff to access communication from the library. **(Interviewee-7)**

#### **4.2.4.4.2.2 Internet connectivity**

The digital information world rotates around internet connectivity. Without strong and stable internet connectivity, researchers cannot access online information resources like those provided through the university library services. The study thus sought to gather the opinions of key informants on this vital research infrastructure in the university. Results revealed that internet connectivity was still a problem as some spots lacked stable and faster internet services. The revelations are indicated in the excerpts below;

“. Internet connectivity is still weak and slow, coupled with intermittent power outages in the university. Some rooms still lack WIFI connectivity”  
(**Interviewee-4**)

“The internet is fairly stable in some offices but the frequent power interruptions make connectivity unreliable” (**Interviewee-7**)

“Some offices still lack connectivity to internet hot spots. This renders the availability of virtual library services non-functional.” (**Interviewee-1**)

The above findings thus imply that the university needs to invest more in the research infrastructure such as strong, reliable and fast internet connectivity, reliable power supply, conducive office environment and quality library services for research. This should however be supplemented with sensitization, awareness and training of academic staff to learn how to access and evaluate information resources for research,

#### **4.2.4.5 Qualitative findings for research productivity**

The second qualitative objective sought to examine the level of research productivity among lecturers in Kyambogo University. Findings from interviews were interpreted to answer the corresponding research question stated as;



What is the level of research productivity among lecturers in Kyambogo University?

The emerging themes from the Research productivity variable were aligned along with the indicators of the variable in the study, namely; *Article publications, Book authorship, students' supervision and conference presentations*. Findings, however, generally showed that university research productivity is still low in all relevant forms.

This was indicated in the excerpts below;

“Kyambogo University staff is more of a teaching staff. The research culture is still **weak**.” (Interviewee-6)

Reacting to the low research output in the university, another informant had this to comment;

The lecturers' research productivity is still low. The topics are relevant but productivity is still low. The lecturers lack time for research, they are preoccupied with teaching, there is more teaching than research. (**Interviewee-3**)

The revelations above imply that the low research productivity is attributed to the historical background of the university as a collection of three teaching institutions with a strong and rich teaching culture as opposed to the triple function of teaching, research, and community service.

#### **4.2.4.5.1 Article Publications**

In conformity with the quantitative findings, qualitative results indicated low levels of article publication, with lecturers conducting research on an individual basis but not institutionalized productivity. This was supported by the excerpts below.

“Article publication stands at about 30% in the university. People are doing it on an individual basis, but not under institutionalized productivity.” (**Interviewee-4**)

The article publication rate is very low. There is a low research culture in the university since research is not yet seen as a source of income for individuals.

It could also explain why the demand for the research publication grants is quite minimal. **(Interviewee-1)**

The above revelations call for the university management to motivate lecturers through research incentives and create a supportive research environment aimed at instilling a research culture among its staff.

#### **4.2.4.5.2 Book authorship**

Findings from interviews confirmed the quantitative findings which ranked book authorship as the lowest form of research productivity in the university. This was affirmed by the excerpts below;

“The authorship of books and book chapters is not there. We need a “carrot and stick” approach with annual requirements for publications and authorships.” **(Interviewee-1)**

“Book authorship is still at a low individualized level, individuals partner with external scholars to author on their own. There is no structured support and no incentives attached.” **(Interviewee-4)**

The above assertions re-echo the descriptive statistics findings where respondents indicated that the university does not meet lecturers’ books publication costs nor gives monetary rewards for publishing books in their academic disciplines.

#### **4.2.4.5.3 Conference presentations**

University staff are not only expected to write and publish research articles, books and book chapters but also to disseminate their research findings through conference presentations. Results indicated that many lecturers present papers in academic conferences but the quality of the presentations is still wanting. The excerpt below lends credence to the above assertion.

Though still low, conference papers are usually presented by many lecturers. Many are however driven by the need for allowance money but the papers presented are of very poor quality and fetch no awards. (**Interviewee-1**)

The above revelation is in tandem with descriptive statistics findings where conference paper presentation was the strongest indicator of research productivity among most respondents.

However, the low quality of the papers presented implies that there is still a weak research Human Resource and lends more support to the need for intensified training through mentoring and coaching of academic staff in research activities.

#### **4.2.4.5.4 Document Analysis findings on Research Productivity**

In further quest to corroborate the findings on research productivity, the researcher analysed records of academic staff research productivity obtained from the Kyambogo University Library repository for the period from 2016 to 2023. The findings are presented on table 4. 8.

**Table4. 8: Document analysis findings on Article publication, Book authorship and Conference Paper presentation from 2016 to 2023**

<b>Faculties and departments</b>	<b>No of academicians</b>	<b>No of journal articles</b>	<b>No books</b>	<b>No of book chapters</b>	<b>No of conference papers</b>
Faculty of Arts and social sciences	461	167	0	5	0
Faculty of Engineering	108	33	0	0	2
Faculty of Science	288	55	0	1	1
Faculty of Special Needs and Rehabilitation	37	16	0	0	0
School of Education	55	27	0	0	0
School of Management and Enterpreneurship	38	13	0	0	0
School of Vocational Studies	39	17	0	0	0
<b>Overall total</b>	<b>1026</b>	<b>328</b>	<b>0</b>	<b>6</b>	<b>3</b>

The findings on the table above reveal that the overall number of publications for a seven-year period was 328 articles published in peer reviewed journals. No authored books according to the repository records, 6 book chapters were authored while three papers presented were recorded by the university library repository. This implies low research productivity from an academic staff of 332 academics. However, the documentary analysis findings also seem to confirm lecturers' perceptions that depositing their works with the repository is not mandatory and that many lecturers don't feel being under any obligation to associate their work with the university that has not provided them with any support to conduct and publish their research work. As such, the

deposited work in the library repository may not reflect the actual level of lecturers' research productivity in the university.

#### **4.2.4.5.5 Graduate student's supervision**

The number of graduate students supervised to completion indicates the level of a lecturer's engagement in research activities hence his/hers level of productivity. Interview results indicated that this has mainly been conducted at master's degree level since many academic units in the university still don't have Ph D programmes. This was evidenced in the excerpts below.

"Graduate students' supervision is at masters. There are no Ph. D programmes because we have been lacking the human resource capacity to handle Ph. Ds" (**Interviewee-1**)

Results also indicated that the incentives attached to research supervision were not attractive enough to motivate academic staff to supervise students to timely completion. This was revealed in the excerpts below;

"Graduate students' supervision is still low due to the unattractive incentives attached. The payment for supervision is very little and always delays." (**Interviewee-3**)

This state of affairs implies that the likelihood of students finishing their research projects on time is very minimal. The above revelations require the university to invest more in Human Resource capacity building to have many of its academic staff at higher ranks to handle Ph D study programmes and also improve on research supervision incentives to increase both students' and lecturers' research productivity, raise the University's image, attract more research funding and students at graduate level.

#### 4.2.4.5.6 Document Analysis findings on Graduate Students supervision

To confirm the interview findings from the participants, the researcher analysed records of graduate students' research supervised in the university. The results are given in table 4. 9 Below.

**Table4. 9: Document analysis findings in graduate students' research supervision**

	<b>faculty</b>	<b>number of PhD students</b>	<b>number of master's students</b>
1	Faculty of Arts and social sciences	0	13
2	Faculty of Engineering	0	18
3	Faculty of Science	1	18
4	Faculty of Special Needs and Rehabilitation	0	28
5	Faculty of Education	4	35
6	School of Management and Entrepreneurship	2	49
7	Faculty of Vocational Studies	0	43
	<b>TOTAL</b>	<b>7</b>	<b>204</b>

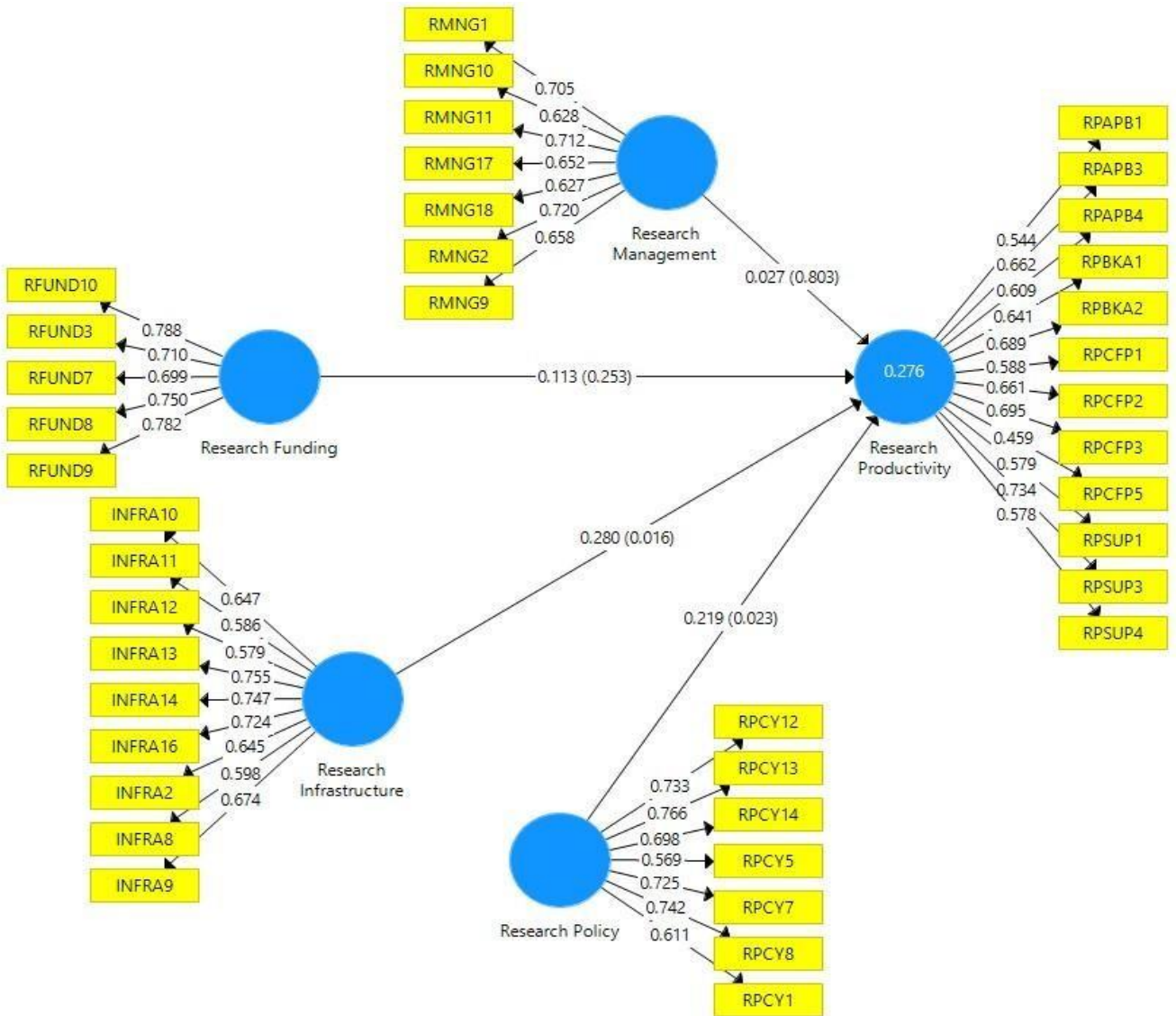
Document analysis findings obtained from the graduate students' research submission records in the directorate of research and graduate training revealed that a total of seven Ph D students and 204 Masters students have been supervised to completion for a 5-year period from 2016-2020. The school of education had the highest number of 4 Ph D students followed by school of management and entrepreneurship with 2 and faculty of science supervising 1 student. The other academic units had not supervised any Ph D student to completion in the study time scope. For master's students, the School of Management and Entrepreneurship had supervised 49 students, followed by the faculty of vocational studies with 42 and school of education with 35. This

implies that on average 40 master's students complete their graduate research while one Ph D student has been completing graduate research annually. This implies low productivity from the university. The document analysis findings confirm the interview findings that revealed relatively high master's students research supervision levels, but very low levels of Ph D students research supervision since some departments did not have running Ph D programmes yet.

#### **4.2.5 Quantitative data analysis**

Inferential statistical analysis was conducted using Structural Equation Modelling to establish the relationships between the variables in line with the study hypotheses. Figure 4.1 and Table 4.10 present the pertinent results

Figure4. 1: Structural Model Estimates



Source: Primary data



**Table4. 10: Structural Model Estimates**

<i>Structural Model Estimates</i>	<b>Beta</b>	<b>Mean</b>	<b>STDEV</b>	<b>T Statistics</b>	<b>P Values</b>
Research Funding → Research Productivity	.113	.111	.098	1.145	.253
Research Infrastructure → Research Productivity	.280	.290	.116	2.408	.016
Research Management → Research Productivity	.027	.065	.107	.249	.803
Research Policy → Research Productivity	.219	.218	.096	2.285	.023

#### Model Prediction Estimates

	<b>R Square</b>	<b>R Square Adjusted</b>
Research Productivity	.276	.252

The Adjusted R square of 0.252 implies that 25% of the variation in research productivity can be explained by other variables i.e. research policy, research management, research fundings and research infrastructure. A detailed analysis of the relationships of each IV dimension on research productivity is presented in the subsequent sections.

#### 4.2.5.1 Research policy and lecturers' Research productivity

The third study objective sought to establish whether lecturers' research productivity was related to the university research policy, hence hypothesis one to the effect that;

*[H<sub>1</sub>-There is a statistically significant positive effect of research policy on lecturers' research*

*Productivity in Kyambogo University.]*

The structural equation model revealed that research policy has a significant and positive effect on the lecturers' research productivity in Kyambogo University ( $\beta = .219, p < .05$ ). This finding led to the acceptance of the first hypothesis that there is a statistically significant positive effect of research policy on lecturers' research productivity.

#### **4.2.5.2 Research Management and Research Productivity**

The fourth objective sought to investigate the effect of research management on research productivity, hence the hypothesis that;

*[H<sub>2</sub>- There is a statistically significant positive effect of research management on lecturers' research productivity in Kyambogo University.]*

Structural Equation Modelling results established no direct significant effect of research management on lecturers' research productivity in Kyambogo University ( $\beta = .027, p > .05$ ). The findings lead us to reject the second hypothesis that there is a statistically significant positive effect of research management on lecturers' research productivity.

#### **4.2.5.3 Research Funding and Research Productivity**

The fifth objective sought to examine the effect of research funding on lecturers' research productivity, hence the third hypothesis that;

*[H<sub>3</sub>- There is a statistically significant positive effect of funding on lecturers' research Productivity in Kyambogo University.]*

Results from the model revealed that research funding is not statistically and significantly related to the Research productivity ( $\beta = .113, p > .05$ ). The findings in this case, lead us to reject the

third hypothesis that there is a statistically significant positive effect of research funding on lecturers' research productivity.

#### **4.2.5.4 Research infrastructure and Research Productivity**

The sixth objective was to assess the effect of the university research infrastructure on lecturers' research productivity, hence hypothesis four to the effect that;

*[H<sub>4</sub> - There is a statistically significant positive effect of research infrastructure on lecturers'*

*Research Productivity in Kyambogo University.]*

The results in the structural model indicated that research infrastructure has a significant positive effect on lecturers' research productivity in Kyambogo University ( $\beta = .280, p < .05$ ).

The results reveal that when lecturers are availed with computer sets with relevant and up-to-date software, and can easily access fast and reliable internet connectivity, they can access the most and latest research information sources such as e-books and journal articles for research in their fields. Providing these resources thus enables lecturers to enhance their productivity by for instance supervising students promptly, authoring books in their fields of specialty, and publishing articles in reputable journals. The findings in this case, lead us to accept the fourth hypothesis which states that there is a statistically significant effect of research infrastructure on lecturers' research productivity. All quantitative findings and their corresponding hypotheses are summarized in Table 4.11.

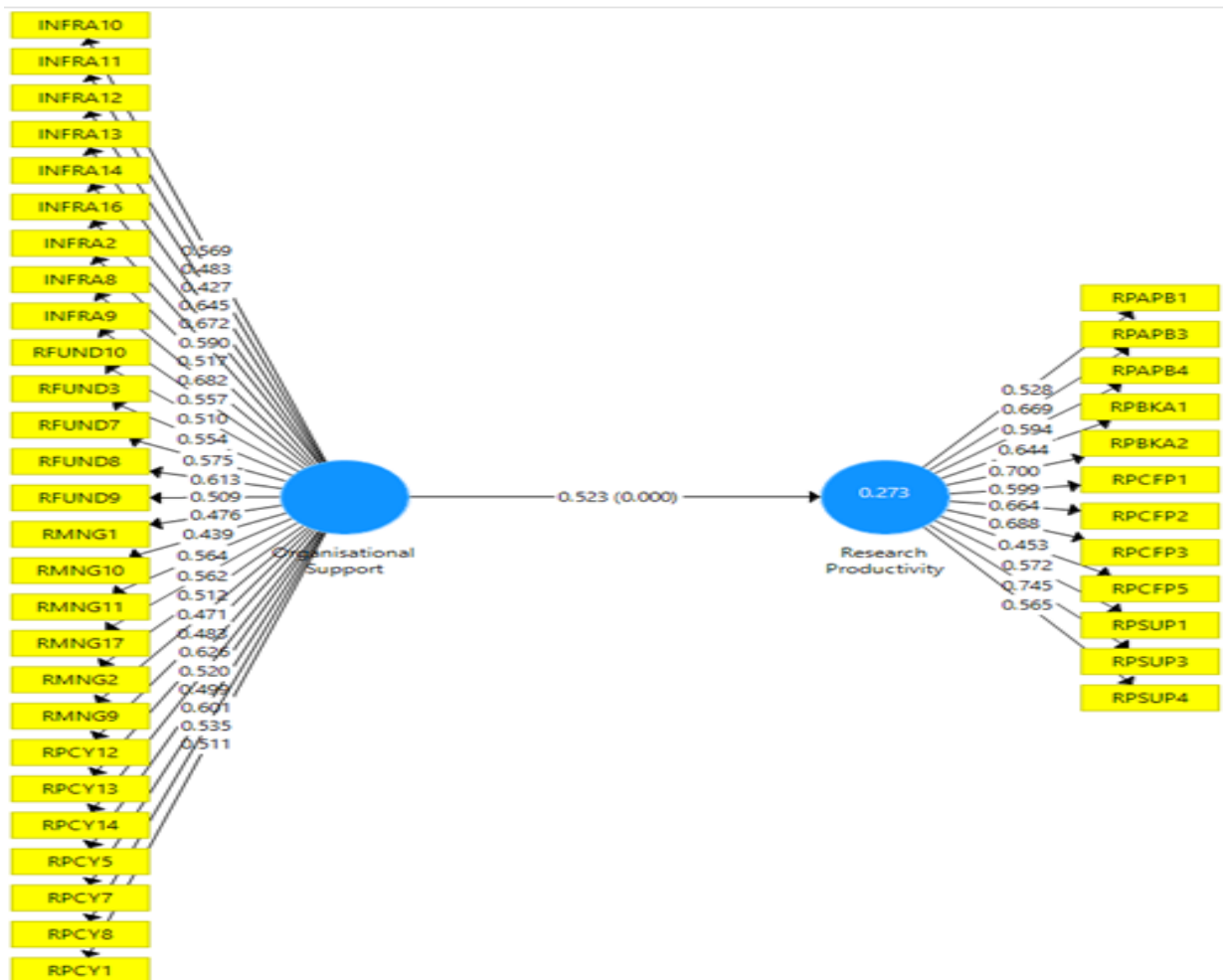
**Table4. 11: Summary of Findings on the hypotheses**

<b>Hypothesis</b>	<b>Finding</b>	<b>Verdict</b>
<b>H<sub>1</sub></b> - <i>There is a statistically significant effect of research policy on lecturers' research productivity in Kyambogo University.]</i>	Positive significant Effect ( $\beta = .219, p < .05$ ).	Accepted
<b>H<sub>2</sub></b> - <i>There is a statistically significant effect of research management on lecturers' research productivity in Kyambogo University.</i>	No significant Effect ( $\beta = .027, p > .05$ ).	Rejected
<b>H<sub>3</sub></b> - <i>There is a statistically significant effect of funding on lecturers' research Productivity in Kyambogo University.</i>	No significant Effect ( $\beta = .113, p > .05$ ).	Rejected
<b>H<sub>4</sub></b> - <i>There is a statistically significant effect of research infrastructure on lecturers' Research Productivity in Kyambogo University.</i>	Positive significant Effect ( $\beta = .280, p < .05$ ).	Accepted

#### **4.2.5.5 Overall Effect of organisational support on research productivity.**

The study sought to assess the overall effect of organisational support on research productivity. Results indicated that there was a positive and significant relationship between organisational support and research productivity. The model in Figure 4.9 and its corresponding table 4.19 present the pertinent results.

Figure 4. 2: Structural Model Estimates for Organisaitonal Support and Research Productivity



**Table4. 12: Structural model estimates on the overall effect of organisational support on research productivity**

<i>Structural Model Estimates</i>		<b>Beta</b>	<b>Mean</b>	<b>STDEV</b>	<b>T Statistics</b>	<b>P-Value.</b>
Organisational	Support	—▶ .523	.566	.049	10.735	.000

Research Productivity

The research results in the model and table above show that Organisational Support which is a composite of Research Funding, Infrastructure Support, Research Management, and Research Policy, has a significant and positive effect on the Research Productivity ( $\beta = .523, p < .01$ ). The results imply that committed and continued efforts by the university management to provide adequate organisational support through policies, management practices, systems and structures, funding, and a rich university research infrastructure, would reliably lead to enhanced Research Productivity among lecturers in the university.

### 4.3 Summary of findings

The study sought to evaluate the effect of organisational support on lecturers' research productivity in public universities, a case of Kyambogo University. A summary of the results is given below.

#### 4.3.1 Descriptive Results

The level of organisational support for research productivity given to lecturers was generally low (mean = 2.825 and SD = 0.258), with Research management as the weakest felt form of support given for research productivity (mean = 2.332, SD = 0.677). Research productivity among lecturers was also low (mean = 2.827, SD = 0.693), with book authorship as the lowest form of research productivity (mean = 1.982, SD = 0.689).

### **4.3.2 Inferential results**

Structural Equation Modelling was used to test the hypotheses by establishing the strength and direction of the relationship between the variables. A summary of the results is given below.

#### **4.3.2.1 Research Policy and Research Productivity**

Structural Equation Model results indicated that the research policy has a significant positive effect on research productivity ( $\beta = .219$ ,  $P = .023$ ).

#### **4.3.2.2 Research Management and Research Productivity**

Research Management was found to have no direct significant effect on lecturers' research productivity ( $\beta = .027$ ,  $P = .803$ ).

#### **4.3.2.3 Research Funding and Research Productivity**

Research funding was found to have no direct significant relationship with research productivity ( $\beta = .113$ ,  $P = .253$ ).

#### **4.3.2.4 Research Infrastructure and Research productivity**

Results indicated that Research Infrastructure has a positive and significant effect on lecturers' Research Productivity ( $\beta = .280$ ,  $P = .016$ ). Research Infrastructure therefore had the highest significant effect on research productivity.

Overall effect of Organisational Support on Research Productivity. When all the organisational support dimensions were aggregated and correlated to the Research productivity variable, results indicated a positive significant effect ( $\beta = .523$ ,  $p = 0.000$ ).

#### **4.4 Chapter Conclusion**

This chapter presented the study findings based on the study objectives and their corresponding tested hypotheses and research questions. All the studied organisational support factors for research productivity were fairly low, with the lowest being research management. Research productivity among the university lecturers was also found to be low, with the lowest form being book authorship. This implies that the university has to improve on research support factors to increase the lecturers' research performance. The research infrastructure emerged as the strongest predictor of research productivity followed by the research policy. The findings imply that research Infrastructure is the most important Organisational Support variable to enhance research productivity. As such, all the other forms of organisational support must contribute to a better research infrastructure if research productivity is to be promoted in the University.



## **CHAPTER FIVE**

### **DISCUSSION, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter presents a discussion of the results from the analysis, followed by the conclusion and thereafter ends with recommendations for improvements. It also gives areas for future research.

The study sought to evaluate the effect of organizational support on lecturers' research productivity at Kyambogo University, with hope to establish practical solutions directed at improving research productivity. In particular, the study intended to analyse the level of organizational support for lecturers' research activities, and the level of lecturers' research productivity in the university. The study also sought to establish the effect of the university research policy, research management, research funding and the research infrastructure on research productivity among lecturers at Kyambogo University. The discussion of results was aligned to the theoretical underpinnings and empirical findings in the extant literature. It was centred on the study objectives, the attendant questions and hypotheses to make concrete conclusions and recommendations.

#### **5.2 Discussion of findings**

This section presents the discussion of findings based on two research questions and the four hypotheses derived from the study objectives.

### **5.2.1 Level of organisational support for research productivity**

The first study objective sought to establish the level of organisational support for lecturers' research productivity in the university, research question one thus stated; "What is the level of organisational support provided to lecturers in Kyambogo University for their research activities?" was developed. In line with its conceptualisation, organisational support was analysed in form of policy support, management support, funding support and infrastructural support.

#### **5.2.1.1 Policy Support**

While quantitative results showed a moderate level of support from the university's research policy, qualitative findings indicated a low level of support. For example, qualitative results showed that there were no institutional guidelines by faculties on the journals for lecturers to publish their research findings when it came to policy guidelines to journals for article publications. This exposes young lecturers without extensive publication experience to publishing in predatory journals, which lowers the quality of their research output in terms of visibility and citation impact. This is due to the fact that academic publications with low citation counts make it difficult for lecturers' scholarly works to be readily and extensively cited on a global scale, hence low visibility.

Apart from the potential impact of scholarly works, the likelihood of timely acceptance of articles also affects research productivity. The timeline from article submission to publication is also a critical factor that can affect the productivity rates of lecturers. Long timelags between submission and publication may demotivate lecturers from undertaking research projects when their works can not be published on a timely basis, this raises the need for policy guidelines on

recommended journals for publication. This finding aligns with the research conducted by Kwanya (2018), which was reviewed in Chapter 2. According to Kwanya's study, the low publication and visibility of Kenya's academics was also caused by the absence of peer-reviewed journals that university academic departments preferred and recommended for their members to publish in.

The policy requirement on the formation of research teams within and between academic departments and the securing of partnerships and collaborations both within and outside the university was found to be insufficient in relation to the research collaboration protocol, according to both qualitative and quantitative findings. Internal research collaborations aim to increase the number of skilled researchers within academic units by offering training and mentorship, particularly to junior lecturers. Research collaborations between departments and faculties also support multidisciplinary research, which gives participating lecturers a variety of research skills and boosts their output. In addition to fostering research training, mentorship, and scholarly visibility, external university research collaborations also bring with them funding opportunities for better research infrastructure, such as computer sets, internet connectivity, research laboratory and field equipment, and improved library services within the university. Therefore, in order to maximize productivity, any effective university research policy should sufficiently encourage research collaboration in all of its manifestations.

In order to support direct research manpower assistance in the form of research assistants, the university's research policy was also examined. The policy does not support the hiring of permanent or part-time research assistants to assist lecturers in their research activities, such as searching the literature, gathering data, and entering data into computers, according to both qualitative and quantitative findings. In an ideal world, academic staff wouldn't waste their

valuable time gathering data on the ground or entering data into computers. As part of their training in research, research assistants—who are primarily graduate students—would be assigned these responsibilities. Such policy support Guidelines would enhance the research output of lecturers.

### **5.2.1.2 Research management**

Every university should put in place effective research administrative arrangements, with units and practices to enhance its research function through training and mentoring researchers, monitoring and tracking research progress, securing research funding opportunities and recognising and rewarding active researchers. With regard to research training and mentoring as a managerial function. The university's research management was found to be weak, as revealed by qualitative findings from interviews. Many departments lacked senior staff members who could guide and mentor junior staff members in research activities meant to develop a strong pool of active and experienced researchers in accordance with the goals of the university's research and innovations policy. Findings also revealed a lack of research mentoring programmes at departments and faculty levels in form of workshops and seminars on new approaches to research intended to reduce the article rejection rates by reputable journals. Additionally, results showed that there are no annual goals for research performance regarding training and output from departments, faculties, and individual academics.

The lack of research-supportive tracking and monitoring systems for lecturers' research performance was also indicated by qualitative findings. The findings showed that department heads were not provided with any guidance on monitoring research performance within their departments, nor were there any records of lecturers' research performance. Additionally, departments, faculties, the graduate school, and the Quality Assurance directorate were not

evaluating the research output of lecturers. Results indicated that research performance evaluation in the university is only done through the general annual performance appraisal tool which is not specifically designed for the research function. As a result, academic staff members are not automatically and quickly promoted in recognition of their exceptional research performance. It remains the responsibility of individual lecturers to submit their research output for consideration for promotion.

The results also showed that there were no research management units at the deputy vice chancellor level, such as the research and innovations office, to oversee research projects, manage research teams, partnerships, and collaborations, and plan training sessions and conferences. A research grants management office to secure and manage research grants, and to coordinate training in grants winning proposal writing skills. The university also lacks the research ethical review committee and university journal, which would facilitate the publication of research findings by lecturers and the clearance of their research ethics, respectively. The general perspective from the interview participants therefore was that absence of effective research management practices and structures could be a major contributing factor to the low research productivity in the university.

The aforementioned results are consistent with previous research by Beerkens (2013), who found that intentional attempts to professionalize research management led to a notable increase in research output among academics in Australian public universities. These efforts involved the appointment of high-level academic and administrative staff at the equivalent of deputy vice-chancellor level, whose primary duty was to supervise research activities. The findings were also in support of those from Fayera et al (2017) who reported that Lack of recognition for research performance through accelerated promotion and lack of institutional research journals were

major barriers to high- level research performance in Ethiopian universities. Similar earlier findings supported by this study were reported by Okendo (2018) who found the absence of research management systems, structures, and supportive practices as the major constraints to research productivity in

Tanzania. The results of the study concur with those of the Kenya Commission for University Education (2013), which determined that the main obstacles to research productivity in Kenyan universities were inadequate management, supervision, monitoring, and evaluation of university research programs.

#### **5.2.1.2 Research Funding**

Extensive literature has found funding to be a primary institutional support aspect for research productivity. According to the study's findings, the university still receives little funding for research and is plagued by sporadic delays, application rejections, and fund deductions. Although interview participants who were senior university administrators indicated that the competitive research grants scheme and some other external sources have increased research funding opportunities in the university, the research budget is still too small. For instance, in the financial year of 2017/2018, the university allocated 1% of its budget to research, consultancy and publication in contrast to 41% to teaching and training and 39% to administration and support services (KYU Budget

Book, 2017/2018). Although the budgeted allocations increased to 3% in the financial year 2020/2021(KYU approved Budget estimates, 2020/2021), the actual allocations usually fall below estimates. This observation conforms to earlier findings reviewed in chapter two. For instance,

Makerere and Mbarara Universities self-assessment and Strategic Plan reviews (2013/2014 - 2017/2018) reported that research funding has remained at 1% or less.

As a result, Kyambogo's funding for individual lecturers is still insufficient to cover all research-related costs, such as hiring research assistants and buying equipment, but the university also lacks the ability to apply for large research grants, particularly in the scientific fields. The aforementioned issue of insufficient senior personnel to guide and mentor fellow scholars in crafting grant-winning research project proposals may be the reason for this. Another reason could be the lack of research management units, such as the research grants office, which would help faculty members prepare winning grant applications and serve as a hub for research in the university (Beerens, 2013). The findings also showed that there are obstacles in processing and obtaining the university's meager funding. These range from delays of approval by the research grants and publications committees, the perceived lack of transparency, biased and subjective mistreatment of proposals and funding applications by departmental and faculty colleagues on the committees.

It should be noted that most publication outlets give a grace period of 14 days between article acceptance and payment of publication fees. But the university funding approval process takes months. Therefore, by the time funding is approved and authorized, the payment period will have elapsed and when the lecturer uses personal funds to pay in anticipation of a refund, such requests are not honoured. Study respondents thus feel that release of publication fees should be almost automatic to avoid delays once a lecturer produces authentic proof of article acceptance.

Participants also complained about the highly subjective handling of competitive research grants, claiming that in most cases it rests on individual opinions on who should receive funding. This perception indicates that there could be a similar problem of inadequate training in scholarly

writing to enable lecturers write quality proposals in order to reduce the high proposal rejection rates according to the findings. Such a finding was corroborated with interview results from the accounts department which reported receiving very few approved requests for which to release research funding. Even findings from the University budget estimates (2020/2021) revealed that in the financial year 2019/2020, the entire university with seven academic units had only seven staff members awarded competitive research funding and that out of them, only two were from humanities. The findings were corroborated by document analysis findings regarding research grants, that revealed that overall, 25 academics benefitted from research grants in the university for the academic year 2018/2019. While the number dropped to 14 academics in the year 2019/2020. Such a finding implies that a lot more needs to be done in training, mentoring, and motivating academic staff in research skills especially in grant-winning proposal writing. Qualitative findings thus imply that most academic staff conduct research and publish on their own without much financial support from the university, which affirms the earlier revealed feeling that the research function in the university is not yet institutionalised but rather too individualised.

#### **5.2.1.4 Research Infrastructure**

Qualitative findings indicated that the research infrastructure in Kyambogo University is still inadequate. For instance, all interview participants with no exception agreed that the university is still challenged in availing lecturers with furnished office space conducive for research activities, more so as the university is growing and recruiting more academic staff. Findings also indicated that although some office space has been availed on the newly constructed building blocks such as the central teaching facility, most of these offices lack furniture. Most lecturers improvise by encroaching on students' chairs and tables made of hard wood plane and plastic materials. It



should also be borne in mind that many offices in the university were originally built as stores and residential bedrooms but were later converted into offices. As such, they do not have appropriate aeration, ventilation and power connectivity devices like sockets.

Regarding the provision of computer sets with printers for research, findings revealed that lecturers are not provided with university computers for university activities apart from the heads of departments and examination co-ordinators. For the remaining academic staff, unless the expense on computers is captured and catered for under the individual research grants approved, lecturers have to fork deep into their pockets to buy their own computer sets needed to conduct the university research function.

Concerning laboratories, findings indicated that some new laboratories have been set up on the new building complexes for the faculty of sciences. However, they were not well equipped to support high-level research. The old laboratory equipment in most faculties and departments needs to be overhauled and replaced with modern equipment to meet the current research demands. Unfortunately, the competitive research grants provided by the university do not cover laboratory and field equipment. About electronic resources, the study established that the university library subscribes to many international journals including data bases like research Africa to ensure access to online publications by both students and staff. However, findings also established that the subscription to online research resources is still too low. The university subscribes 3000 US dollars annually through the University Libraries Consortium for all its online information resources subscriptions. Consequently, most of the recent online articles and e-books from publication outlets remain locked and only accessed through intermediary channels like the Document Delivery Services (DDS) which is time consuming and inconveniencing to the library user.

Currently, the University depends on only the students' annual library fees of 20,000 shillings from which it raises about 900 million shillings and the library receives about 700 million for all its requirements and operations. There is therefore an urgent need for the university to increase library services funding beyond student's annual subscription fees to enable the library subscribe to better packages that can enable its users to access the most recent and other restricted information resources from a variety of outlets that cannot be accessed through the current arrangement.

It was also established that most library resources can only be accessed on university campus premises. Findings revealed that plans to install virtual remote access to library information resources using software packages like remotex that enable library users to access its services from wherever they are have not yet materialized. This calls for increased funding to expedite the procurement of the necessary electronic information infrastructure needed to support the university research function.

Regarding internet connectivity, the study established that internet connectivity is still a problem in the university. Some of the spots where lecturers' offices are located are not connected to WIFI network. Others have unstable and slow internet connection, while those with strong and relatively fast connectivity are also affected by intermittent power outages. The poor internet connectivity implies that online searching for relevant information becomes costly and time consuming to academic staff. It also implies that lecturers cannot easily participate in scholarly electronic discussions in seminars and conferences in addition to online supervision of students' research work. This in the end bears a negative effect on their research productivity and finally on the overall university research function. The situation therefore calls for increased investment

in the university's electronic research infrastructure as a critical factor in enhancing the university's research function.

### **5.2.3 Level of Research productivity at Kyambogo University**

The second objective of the study was to assess Kyambogo University's productivity in research. Thus, "What is the level of research productivity in Kyambogo University?" was the second research question. In the last five years (2015-2019), research productivity was defined as the number of articles published, books written, conference presentations, and graduate student supervision by lecturers. The university's low level of research productivity was revealed by descriptive data, interview results, and document analysis results. The university's research culture is still weak, as suggested by the low productivity of research. There are still many academic departments without officially recognized research teams that would bring together graduate students and lecturers to work on collaborative research projects.

The results corroborate the claim that the university's research function is still overly individualized and that institutional productivity support strategies are lacking. The low productivity could be the result of the absence of research management units like the Research and Innovations Office, the Grants Management Office and the Institutional Review Board that would monitor and track research progress in the university, look out for research grants and for collaboration and partnerships opportunities for lecturers and students. The absence of such supportive units leaves lecturers largely on their own conducting research on an individual basis with minimal institutionalised support hence the low productivity.

It is also important to note that, aside from the repository housed under the library services department, Kyambogo University lacks a centralized data bank on the productivity of its

lecturers and students in terms of research. It is not a requirement for research outputs to be deposited in the university repository, and many lecturers feel there is no need to do so when they have received no assistance at all throughout the research and publication process. They view it as a predatory habit of a university trying to reap where it has not sown. In the absence of a research and innovations office at the level of the Deputy Vice Chancellor, The Quality Assurance Directorate should at least develop a university research databank as a one stop point where all research productivity data can be obtained and from where supportive mechanisms for promoting research productivity can be incubated in the meantime.

The university's least productive research indicator, according to reports, is book authorship. This might be explained by the length of time required to write a book, the high price of writing and publishing a book, and the difficult process of book marketing. Many lecturers prefer to overlook book authorships in favour of the simpler to achieve article publications and conference paper presentations because there is a lack of formal university support, such as the University Press, to help with publishing costs and assist lecturers in marketing their books. Therefore, as part of the university's research function, the management should think about implementing structured book publication support with incentives to encourage lecturers increase their books and book chapters authorship.

Concerning graduate students' supervision, results indicated that this mainly happens at masters' degree level but not at Ph D level. This is because many departments have not yet instituted Ph D study programmes. This could be one of the reasons why out of the seven academic units in the university by the time the study was conducted, four of them had not supervised a Ph D student to completion. The lack of enough Ph D holding academic staff in the departments is partly to blame for this state of affairs. Some departments do not have senior lecturers and Associate

Professors to spearhead Ph D programmes in line with the National Council for Higher Education (NCHE) requirements. The low research productivity can be partly blamed for the slow progression of academic staff along the professional rank hierarchy since research performance is a key criterion for staff promotions. On the other hand, graduate students' supervision, especially at Ph D level is a critical indicator of lecturers' research engagement and productivity. Research productivity therefore affects the institution of Ph D programmes in the University, which in turn determine the level of graduate students' supervision, a key indicator of academic research productivity.

The unattractive incentives attached to graduate students' supervision were also cited as a demotivating factor on the part of lecturers from their research supervision function. Currently, Kyambogo University pays three hundred thousand and two hundred thousand Uganda shillings (300,000 & 200,000) to the first supervisor and second supervisor respectively for supervising a master's and Ph D student's research to completion. This low pay is received at the end, upon completion of the study programme which may take between three to five years to accomplish. It therefore makes more sense for individual lecturers to concentrate on teaching extra-load hours from which they generate immediate income as opposed to waiting for three to five years to receive such little and delayed supervision allowance. The university management should therefore seriously consider instituting research supporting policies, infrastructure, management units with systems and practices aimed at creating a favourable research environment for increased productivity if the university is to shake off its background trappings of a merger of three teaching institutions to become a modern university embracing research as its core function.

#### **5.2.4 Research policy and research productivity**

From the third objective which was to evaluate the effect of the University Research policy on lecturers' research productivity, hypothesis one to the effect that there was a statistically significant effect of research policy on lecturers' research productivity in Kyambogo University was developed. The research policy referred to the availability of a supportive University research policy that prioritises lecturers' research as a core university function by providing for a high quality research training environment, research themes, clear tracking of research progress, hiring of research assistants, and formation of research teams, promoting research collaborations and recognition of individual lecturers for their research output among others.

Structural Equation modelling analysis was used to determine the magnitude and direction of the relationship. Test results for hypothesis H1 show that lecturers' research productivity is significantly predicted by a supportive research policy. These results corroborate those of earlier researches (Okendo, 2018; Ryan & Daly, 2018; Sondari et al, 2017; Starovoytova, 2017b; KCUE, 2013; Latif, 2015; Ghabban et al, 2019; Heng et al, 2020; Shahbazi et al, 2015) that discovered a statistically significant positive correlation between research productivity and university research policies.

The Kyambogo University research and innovations policy (2014) aims to enhance the research culture, expand research capacity, and augment the university's contribution to knowledge generation and innovations for national development. It outlines guiding principles, which include, but are not limited to, fostering an environment that is conducive to research and innovations, establishing an efficient and successful framework for research management, providing sufficient resources for research and innovations, and offering incentives and rewards for research and innovations (KYU Research & Innovations Policy, 2014).

In conclusion, the goal of the research policy is to offer a framework that is conducive to the advancement of the university's research function. But the policy's poor implementation has made achieving these kinds of policy goals an impossible dream. This observation is consistent with that made by Latif (2015), whose study is reviewed in chapter two. Latif's study found that Saudi academics published more scholarly works as a result of their government's intentional efforts to refocus national development policy from oil to building the kingdom as a competitive, advanced knowledge-based economy in science and technology. In addition, all of its universities implemented a supportive research policy to encourage basic and applied research for the aforementioned purpose. A similar approach needs to be applied to promote research at Kyambogo university.

Although research policy was found to be a strong indicator of organisational support, it was not strongly felt as a dimension of organisational support. Remarkably, conversations with responders showed that while some lecturers knew the university had a research and innovations policy, others were unfamiliar with its specifics. This result was consistent with the report on the gaps found by the Research and Innovations policy review (2020), which found that, six years after the policy's approval, there was still little knowledge of its existence. This suggests that one reason for the university's low research productivity is that the research policy has not been widely known and promoted among lecturers as a helpful framework for planning, directing, and organizing research activities in the university.

These results were in line with those of Starovoytova (2017b), whose investigation discovered that one of the institutional impediments to the successful performance of research by Moi University's engineering school academics in Kenya was the absence of institutional policies on research and publication.

The results also corroborated those of a previous study published in 2013 by the Kenya Commission for University Education, which found that a significant barrier to research productivity in Kenya was the misalignment of university research policies with the objectives and goals of the country's development.

The Organizational Support Theory (OST) presumptions that informed the study are further supported by the study's findings. According to the theory, an employee's performance results are directly correlated with their perceptions of the organization's level of support (Eder & Eisenberger, 2008; Eisenberger et al, 1997). To that end, a supportive research policy must entail provisions that are felt to support lecturers' research activities such as organizing research training sessions, the hiring of research assistants, and providing themes for conducting research. Despite being low, these supportive policy aspects are still part of the strategies for accomplishing the policy's goals, such as goal three, which highlights the need of identifying and mentoring future researchers by enhancing staff and student capacity to write projects and proposals for research (KYU Research & Innovations Policy, 2014). The discrepancy between the policy's stated intent and lecturers' perceptions of its supportiveness may be due to the previously mentioned lack of policy awareness as well as inefficient policy implementation techniques. As a result, there may be a sense of low policy support, which in turn leads to low research productivity. Such a stance is also consistent with the findings of Okendo (2018), who specifically noted the lack of institutional policies regarding research productivity and sensible policy guidelines to seriously constrain research performance in Tanzania.

The results of the study also support some of the assumptions of the Organizational Support Theory (OST), which served as the study's foundation. Organizational rewards and job conditions, such as compensation, bonuses, promotions, and favourable deployments, are among



the precursors of the organizational support theory. Thus, a supportive research policy should include a way to recognize and promote active researchers automatically, deploy lecturers based on their areas of research expertise, and initiate accelerated promotion for highly active researchers at the university. The majority of lecturers believe that the policy fails to provide active researchers with incentives for increased productivity, such as accelerated promotions and deployments. In order to support, encourage, identify, and reward active researchers for increased productivity, the policy would need to provide for the monitoring and tracking of lecturers' research progress from departments through faculties, the graduate school, the quality assurance department, and the human resources department. Regrettably, the policy says nothing about this kind of managerial assistance, which helps to explain why lecturers feel the research policy does not go far enough in assisting the university's research function.

Such findings are also in support of those from Ryan and Daly (2018), whose work identified a lack of supportive policies to promote and incentivise quality research as a major barrier to innovation and knowledge creation in the United Arab Emirates. The findings thus emphasise the need to create organisational conditions that can facilitate and appropriately reward intensive research in line with the dictates of the Organisational Support Theory. The improvement of organisational conditions requires re-examining the research and innovations policy, workload policies, Human

Resource policies, salaries and benefits policy, and research support structures. The improvements in organizational policies should be considered at both the national and institutional levels to attract, retain and further train high-quality researchers in Higher Education Institutions Kyambogo inclusive.

Another policy finding that was revealed by the study was the lack of policy implementation guidelines. The policy implementation manual would guide academic departments on various research aspects such as the choice of research journal outlets for dissemination of findings. The publication and citation counts are respectively the most frequently used quantitative and qualitative measures of research output. Consequently, there is a need for clear policy guidelines on journal selection for dissemination of research output in the university. However, both qualitative and quantitative findings imply that there are no clear policy guidelines for lecturers on the journals in which to publish their research findings, and that as a result, many lecturers are duped to publish in predatory journals as it's left to individual lecturers to use their knowledge, experience and ambition to make decisions. As a result, when they submit their articles for promotional vetting processes, they get turned down, which further de-motivates them from the research function.

The study findings agreed with earlier findings as reviewed in chapter two. For instance, the findings confirmed those of Sondari et al (2017), whose study results indicated that the university research policy and its systems were too complicated and making it difficult for researchers to accomplish their activities, hence leading to low research productivity in a public university in Indonesia. The above observations thus render support to the need for developing policy implementation guidelines to enable faculties and departments further formulate institutional research guidelines in regard to areas like the dissemination of research findings among others.

All institutional management operations are subsumed under the institutional policy frameworks that direct and encourage worker performance and aid the organization in fulfilling its founding goals. The research policy's lack of strong support necessitates that university management take

immediate action to close any gaps in the policy and encourage academic staff to become aware of it. They should also develop guidelines for implementation and carry out ongoing monitoring, evaluations, and reviews of the policy's implementation to ensure continuous improvement. All of these steps will help to foster research in the university. This observation is corroborated by research from a number of scholars, including Ghabban et al. (2019), as reviewed in chapter two, who found that academic staff considered university policy regarding research to be the most significant research enhancing factor. In Saudi universities.

According to Heng et al. (2020), the most frequently mentioned institutional factors impacting academic research productivity in universities located in the global south were research policies and institutional orientation. According to Shahbazi et al. (2015), there exists a robust positive correlation between university policies and the improvement of research performance in Higher Education Institutions across four Asian countries, namely China, Taiwan, Malaysia, and Japan. Therefore, in summary, the majority of key informants and lecturers believed that the policy had significant gaps that prevented it from effectively supporting the role of university research. The primary reasons for the respondents' and participants' widely held belief that the research policy was insufficient to support high-level research productivity in the university were its failure to support formal research collaborations, hiring of research assistants, recognition and rewarding of research output, and provision of implementation guidelines on issues like research dissemination and research management units and support structures.

### **5.2.5 Research Management and Research productivity**

From the fourth objective which was to investigate the effect of the university research management to lecturers' research productivity, hypothesis two to the effect that there was a statistically significant relationship between research management and research productivity in

Kyambogo University was developed. Research management was indicated by having well established research management units to coordinate, organise, supervise and oversee research activities, processes and programmes in the university. These included the research and innovations unit, research ethical review committee, university journal, research grants management offices. Other indicators included research training and mentoring, instituting research management processes like developing themes for lecturers to conduct research, research monitoring, Instituting research teams, securing and enhancing research partnerships and collaborations, guidance on research publication, and organising dissemination conferences among others.

Descriptive results indicated that research management was the weakest perceived form of support for research productivity in the university. Likewise, Structural Equation Modelling analysis results from testing hypothesis H2 indicated that research management is not a significant predictor of lecturers' research productivity. This is ordinarily surprising bearing in mind that effective and efficient management practices are a critical requirement for organisational performance (Boom et al., 2008; Van Reenen, 2011; Beerkens, 2013). The absence of a direct relationship could be a result of the low rating of research management practices as a form of support given by the university to its lecturers. The findings imply that the absence of supportive management practices does not stop lecturers from conducting research activities on an individual basis. Such a perception could also augment the feeling that the research function in the university is still too individualised but not yet institutionalised.

The quantitative results confirm some earlier findings that found no positive relationships between research management and research productivity as reviewed in chapter two of this study. For instance, regarding the need for the university to provide research assistants to

lecturers, the findings agree with those from Jung (2012) who found a contradiction between natural sciences on one hand and social and behavioral sciences on the other hand where the use of graduate students as research assistants increased lecturers research productivity in the natural sciences but not in the social and behavioral sciences. Concerning workload allocations and research productivity, the findings tend to lend credence to those of Wood (1990) and Jung (2012) who reported in separate studies that though heavy teaching loads tend to distract lecturers from the research function, they don't necessarily lead to low research outputs in all cases. The findings on workloads and research productivity also seem to lend credence to Feldon et al (2011) and Johnson (2013) who posited that teaching and research especially at post graduate level are intricately linked and interdependent where the teaching staff become better researchers.

The quantitative findings however deviate from major findings in earlier studies as reviewed in chapter two. For instance, the results are different from those of Beerkens (2013), who found that increasing research productivity through the creation of structures and systems for research management intensifies research activities. This confirms the positive relationship between research management practices, systems, and structures with research productivity. The deviation could confirm that although having well established structures like the research and innovations unit in the university was a critical indicator of research management that would support their research efforts, most lecturers felt that its absence has not stopped individuals from conducting research on their individual basis but rather makes the university fail to provide the necessary infrastructure needed to promote research as an institutionalised function. This further confirms the lecturers held perception that the research and publication function in the university is still only an individual lecturer's business to pursue for personal professional growth benefits

as opposed to an institutionalised approach. This perspective also lends credence to earlier findings reviewed in chapter two from Kyaligonza et al (2015) who revealed that due to inadequate funding, most lecturers in public universities only conducted research for academic interest to be awarded higher degrees or to merit promotions.

The absence of a direct relationship between research management practices like the hiring and provision of research assistants who could be hired from the graduate students at masters and Ph D levels to support lecturers' research activities are in contrast with earlier findings cited in chapter two. For instance, Mody et al (2018) reported that availing research assistants to faculty members had a positive impact on their research productivity in the US institutions. The findings also deviate from earlier findings from Alghanim and Althamali (2011), McGill and Settle (2012), Kyvik and Aksnes (2015), Vabo et al. (2016) and Nafukho et al. (2019) who in varying circumstances established without exception that providing research assistants was positively associated with increased research output. The deviation in findings could further augment the lecturers' perception that the research function is still only an individual lecturer's endeavor that must be conducted even with minimal or no supportive university management systems, structures and practices.

Facilitating the establishment and functioning of internal departmental, interdepartmental, and faculty research teams and collaborations is another university research management practice. These teams enhance peer support, provide opportunities for research training, and allow senior, experienced staff to mentor junior staff members in research activities. The teams also promote inter-disciplinary synergies among lecturers, leading to increased research self-efficacy and consequently increased output. However, the insignificant effect of such research management practices from quantitative findings imply that even without formal research teams and

collaboration arrangements within the university, lecturers continue undertaking research activities on an individual basis. The study findings were therefore at variance with those reviewed in chapter two. For instance, the results differ from those of Nguyen et al. (2016), who discovered that peer support, particularly for younger and less experienced academics, was provided by research collaboration between colleagues at the department and faculty levels. This support not only helped to create a supportive research culture for increased research outputs, but also improved research skills and efficacy.

The findings were in contrast to the study findings reported by Vabo et al (2016), whose study established that formalized research groups had a positive effect on research training and consequently on the quality of individual research output. Similar findings in contrast of the study results were also reported and by Kwiek (2018) who found that collaborations of all kinds resulted in increased research productivity among European academics. The findings also deviated from those of Putri and Sofyandi (2019) who found that collaborations within and among universities could greatly increase research productivity in Indonesia, as well as those from Khalil and Khalil (2019), who reported that the absence of colleagues interested in joint research and lack of research networking opportunities were the major barriers to research efficacy.

In addition to internal research teams and collaborations within universities, it is also believed that external and inter-university collaborations whether with state enterprises, businesses, nongovernmental organizations, or industry play a crucial role in advancing university research. These kinds of partnerships bring together scholars from various contexts and backgrounds, creating opportunities for research training as well as interdisciplinary synergies. They also help to increase university research funding, which is greatly needed in developing nations, Uganda is

not an exception. The absence of a direct relationship between such collaboration management practices and systems on one hand research productivity on the other hand lends credence on earlier findings as reviewed in chapter two. The findings in particular agree with Bently (2011) who found an insignificant effect of international research collaborations on research productivity in Australian Universities. The findings also tend to support those from Abramo et al (2014) whose study revealed that having high-intensity interdisciplinary collaborations does not increase research productivity in Italian universities.

However, the absence of a direct relationship between research external collaborations as a management practice and research productivity could also be a result of having very few or no external formally arranged university collaborations in some academic departments, that lecturers do not greatly feel that the absence of such support stops them from undertaking research on an individual basis. That could be the reason why such findings tend to deviate from earlier findings as reviewed in chapter two. For instance, the findings contradict those from Abas et al, (2018), who reported that University, Government and Industry research collaborations play a dominant role in the process of knowledge generation and commercialization. The study findings also deviate from those of Ghabban et al (2019), who found international collaborations to be an important factor in enhancing research productivity in the Middle East countries. The findings are also in contrast with those of Garner et al (2018), who revealed that participating in interdisciplinary research boosted research productivity across academic ranks, gender and organisations in the US, and Jameel and Ahmad (2020) who found that collaborations whether national or international had a positive significant impact on university research productivity in Iraq.



By indicating no direct effect between research management on research productivity, the above findings also challenge the proposition of the Organisational Support Theory which implies that low supervisory support through the absence of supportive management practices systems and structures reduces the employees' perceived organisational support which in turn reduces employee performance in this case lecturers' research productivity. The findings thus imply that much as employees may perceive supervisory support through management practices, systems and structures to be low or even absent, they can push on with individual performance and remain productive like in research output for the sake of achieving their individual goals like professional career advancement for lecturers through research and publication, hence management not being an important factor in explaining individual research productivity.

#### **5.2.6 Research Funding and research productivity**

The fifth objective was to examine the effect of funding on research productivity, hypothesis three to the effect that there was a statistically significant effect of funding on lecturers' research productivity in Kyambogo University was developed. Research funding was indicated by meeting individual lecturers' research expenses during data collection, article publication and book authorships. It also included sponsorships for conference presentations, monetary rewards for publishing, authoring books and for other forms of quality research output, and allowances for graduate students' supervision.

Quantitative findings still revealed no significant direct relationship between research funding and research productivity. The lecturers' perspective was therefore that the provision of funding to meet lecturers' publication and authorship costs, presentation costs and financial rewards does not automatically affect their research productivity. The findings would rather be surprising since

funding has been widely documented to motivate lecturers' research performance. However, bearing in mind that lecturers are operating under conditions of low funding that do not meet most of their research and publication costs, late release of funds, late payment for research supervision allowances and no financial rewards for publication and books authorship, the general feeling seems to be that the absence of all these forms of funding does not stop or significantly affect their individual research productivity. Such findings are in support of earlier findings as reviewed in chapter two. For instance, Doh et al (2008), reported that not all forms of research productivity were equally influenced by funding across academic areas in Korean Universities. Similarly, Abouchedid and Abdelnour (2015), also found an insignificant correlation between the research budgets allocated to faculties and their research outputs in six Arab countries. Likewise, Hiire et al (2020) reported a negative and insignificant relationship between funding and academic research productivity among academics from Ugandan private universities.

Typically, one would assume that funding availability would allow for the development of management systems, such as the hiring of research assistants to support lecturers, the hiring of more teaching staff to lessen the workload assigned to lecturers, and the planning of conferences and exhibitions for the dissemination of research. In addition, funding would make it possible to establish research management units that support lecturers in their research endeavors, such as the research and innovations office, research grants office, research ethical committee, and research journal. Although lack of funding might not prevent individual lecturers from conducting research, it might impede the development of an institutionalized strategy for improving university publishing and research functions. Therefore, the study's results run counter to some previous findings as reviewed in chapter two by Khalil and Khalil (2019), who

noted that tight budgets made it difficult for lecturers at Kuwait University to conduct research, attend conferences, and obtain research grants. There were also more restrictions on how the meager funds were allocated to lecturers' research projects. The results also differ from those of Putri and Sofyandi (2019), who found that more research publications in Indonesia were produced as a result of the university's enhanced funding capacity to give lecturers opportunities to attend conferences and research seminars.

It is also assumed that funding will allow the university to maintain and upgrade its infrastructure for supporting research, including better internet access, e-library services that allow users to subscribe to online databases, virtual libraries that can be accessed from off-campus, and equipment for field and lab research, among other things. The absence of a significant relationship between funding and research productivity in this study could result from the fact that the study concentrated on funding for individual lecturer's research costs as opposed to funding for improving research management and for the university research infrastructure, hence the contradiction with some previous scholars like Nguyen et al (2016), who alluded to academic staff research productivity in Vietnam Universities being limited by insufficient funding to provide research materials and equipment in addition to failure to meet academics' publication fees. The research findings also differ from the assumptions of the Organizational Support Theory, which guided the study and whose antecedents include financial rewards for graduate students' supervision allowances and financial rewards for publishing articles and books. In the instance of this study, these are anticipated to result in improved employee performance through higher research productivity.

### **5.2.7 Research Infrastructure and research productivity**

The sixth objective was to assess the effect of research infrastructure on research productivity, hypothesis four to the effect that there was a statistically significant effect of research infrastructure on lecturers' research productivity in Kyambogo University was developed.

Research

infrastructure was indicated by the physical infrastructure in form of functional laboratories with equipment, field research equipment, office space with appropriate furniture, furnished with computer sets and reliable power supply for conducting research. The research infrastructure was also indicated by electronic resources which included functional e-library services, internet connectivity, access to recent online publications, access to data collection and analysis software.

Structural model results indicated that the research infrastructure had the highest significant and positive effect on lecturers' research productivity. The findings are well supported by the opinions of key informants from interviews who also indicated that the university research infrastructure requires more investment to support quality high-level research. The study findings lend credence to those from earlier studies as reviewed in chapter two. For instance, the findings are in line with those from Kasule (2015), who reported that conducive office environment such as executive furniture, lighting, aeration, with computers and printers had a positive influence on employees' work attitudes and ultimately on their productivity in public universities, but particularly in Kyambogo University. The study also confirms the findings of Chandraseker (2011), who found that the physical work place environment in form of office space, furniture and furnishing in addition to storage materials had a profound influence on employee performance in public sector organisations.

Since research infrastructure proved to be the strongest correlate to research productivity, there is therefore urgent to invest more in modern laboratory and field equipment especially in the science and vocational faculties to support lectures conduct high-level functional research for the university. Such findings confirm earlier findings as reviewed in chapter two. The findings confirm those of Sondari (2017), who reported that the lack of laboratory facilities to support quality research was one of the major barriers to lecturers' research productivity in Indonesia. The findings are also in agreement with the Kenya Commission for University Education (2013), which reported that lack of research infrastructure in form of laboratories and equipment is the major constraints to university research productivity. The findings further illuminate those of Starovoytova (2017b) that lack of laboratory equipment and other related research infrastructure were major barriers to quality research among academics in the school of engineering in Moi University, Kenya. Study findings as well conform to those of Bentely (2014), Alrahlah (2016), Nguyen (2016) and Khalil and Khalil (2019) who in varying contexts all affirmed that there was a positive correlation between the level of satisfaction with the support the university accorded its academics in form of laboratories and research equipment and their research productivity.

The strong positive association between electronic library services and research productivity confirms the findings from previous studies as reviewed in chapter two. For instance, the study confirms findings of Yang (2017) who reported that digital library resources were a key factor in enhancing access to information from previous works, thereby increasing Taiwanese academics' research output. Study findings were also consistent with those of Feyera et al (2017) who found that the low access to electronic information sources was one of the most cited barriers to research productivity among Ethiopian academics. Study findings also agree with Ifijeh et al (2018) who concluded that increased use of academic library electronic resources led to a

corresponding increase in lecturers' research productivity in Nigerian universities. The findings also illuminate those of Yazon et al (2019) who reported that increased use of digital information technologies was positively related to faculty members' research performance in Philipines University. The findings were also in agreement with those of Ghabban et al (2019) who reported that the use of e-resources had a positive impact on scholarly publication of academics in Saudi Universities.

The positive association between internet connectivity and research productivity confirms findings from previous studies as reviewed in chapter two. For instance, the study findings were in support of those from Kyvik and Aksnes (2015) who found that the major reason for increased research output among Norwegian academics was the introduction of advanced computer software, electronic databases and improved access to the internet which reduced the time-effort needed to conduct research and write publications. The findings were also in agreement with those of Mamun and Rahman (2016), who established that internet use contributed positively to increasing research output among academics in Australian university. The findings were also consistent with those of Starovoytova (2017b) who found that lack of reliable and fast internet access in the academic staff offices was a major barrier to effective research among academics in Moi University in Kenya. The findings were also in support of those from Ogunlade and Onaanya (2018) who found that internet-related obstacles like slow connectivity were a major inhibitor to research productivity among academics in Nigerian Federal Universities. The study findings also lend credence to those of Ghabban et al (2019) who established that the increased bandwidth coverage that supports internet usage in Saudi Universities had assisted academic staff in sharing their knowledge whit colleagues both at home and abroad.

The study findings uphold the propositions of the Social-technical Systems Theory used to underpin the fourth objective of the study, that organisational productivity requires the balancing of the social sub-system in form of employee knowledge, skills and attitudes with technical subsystem in regard to provision of the right supporting tools, equipment and technology for effective organisational task accomplishment. The overall significant positive effect of organisational support on research productivity also confirms the systems theoretical assumption that overall system performance is an interplay of several sub-systems performance where each sub-system must function well to contribute towards the overall system performance. Hence the need to focus on all organisational support factors for their stronger collective effect on employee productivity. To that end, the effective functioning of the university infrastructural support services such as the library department to enable academics access research information, the ICT department to provide internet and other electronic ICT services, the Estates department to provide conducive office space, research and innovations unit, research grants management department and the research ethical review boards all contribute to the lecturers' research productivity which subsequently contributes towards the attainment of the University goals.

### **5.3 Conclusions**

The first research objective sought to establish the level of organisational support for research productivity in Kyambogo University. The study revealed that there were generally low levels of organisational support in the university. The lack of a supportive research and innovations policy together with its implementation guidelines were found to be one of the causes of the moderately low research policy support. Similarly, the low research training and mentoring, the absence of functional research management units such as the research and innovations office at the level of deputy Vice Chancellor, the lack of a research grants management office, the absence of a

university research Ethical Review Board/committee and the absence of research monitoring systems and units were deemed to be the major indicators of the low research management at Kyambogo university.

The lack of funding for book authorships, the low and delayed funding for lecturers' article publication costs, and the meager and delayed graduate research supervision allowances were identified as the main financial indicators of the university's low organizational support for research. Similarly, lack of modern library and field research equipment, lack of appropriate office space, the absence of university supplied computer sets and research software, the absence of virtual university library services that can be remotely accessed by lecturers, the low university subscription to major online information sources and the weak internet connectivity in the university were found to be the key indicators of the low research infrastructure support.

The second research objective sought to establish the level of research productivity in Kyambogo University. Study findings indicated low research productivity among lecturers in the university.

The low levels of article publication, the near absence of book publications and low levels of graduate Students' supervision with some departments having no Ph. D programmes for their lecturers to supervise students' graduate research were the key indicators of the low research productivity.

The third objective sought to establish the effect of the research policy on lecturers' research productivity. The study found that there was a statistically significant positive effect of the research policy on research productivity. This suggested that, because it harmonizes the aspects of infrastructure, funding, management, and human resource capacity that support lecturers'



research activities, a supportive and functional policy is a crucial organizational support factor for improving the university research function.

The fourth objective sought to investigate the effect of research management on lecturers' research productivity. The study found no significant positive effect of research management on research productivity. The absence of a statistically significant positive effect of research management on research productivity implies that even without supportive management systems, practices and structures, lecturers continue to conduct research and publish findings on their individual basis.

The fifth objective sought to examine the effect of funding on lecturers' research productivity. The study found no significant positive effect of research funding on research productivity. The absence of a significant positive effect of research funding on research productivity implied that much as funding has been widely documented to be a critical support factor for research performance, it should not mainly be geared towards meeting individual lecturers' research expenses, but allocated towards implementing the research policy provisions and towards providing a supportive infrastructure for research as the main predictors of research productivity in the university.

The sixth objective sought to assess the effect of the research infrastructure on research productivity. The study found a statistically significant positive relationship between research infrastructure and research productivity. Besides, the research infrastructure was found to be the strongest organisational correlate of research productivity in the university. This implies that all the other organisational support factors such as a supportive research policy, funding and research management structures and units in the university should be focused more on improving

the research infrastructure for the university to increase its research productivity and consequently be able to raise its national and international ranking, standing and prestige with all the accruing benefits. Overall, organisational support had a more significant positive effect on research productivity than its individual dimensions. This implies that all organisational research supporting factors should be enhanced in a holistic arrangement since their combined effect is stronger than their individual effect on research productivity.

## **5.4 Recommendations**

In line with the findings and conclusions made, the study suggests the following recommendations.

### **5.4.1 There is need to improve organizational support in all its aspects**

Organisational support for research productivity was found to be generally low. The study therefore recommends to the university management to critically consider improving organisational support factors through conducting regular research training and mentoring programmes for academic staff in scholarly writing, grant-winning proposal writing, data analysis and publication journal selections. This requires the hiring of senior and research experienced academic staff into the university to spearhead such training programmes.

More support should also be geared towards the establishment of university research management units such as the Research and Innovations Office at the level of Deputy Vice Chancellor to fully supervise all research activities in the university. There is also need for a Research Grants and Collaborations management Office to coordinate and train lecturers in grants proposal writing, look out for and manage research grants and collaborations to increase research funding, improve on research skills training and mentorship, and help to improve on the

research infrastructure in the university. Due to the strong effect of the aggregated organisational support factors on research productivity, the study recommended a holistic systems approach in promoting all research supporting factors.

#### **5.4.2 There is need to emphasise the need for research productivity along with incentives**

Research productivity was also found to be low in the university, with the lowest form being book authorship. To that end, the University management should develop a “carrot and stick” approach with annual research expectations from academic faculties. These should cascade downwards to departments and finally to departmental research teams and individual lecturers, with annual targets on publications, book authorships and graduate students’ supervision. The measures should have attached incentives to faculties, departments and finally down to individual lecturers for meeting set targets. Such incentives should include financial rewards, attendance to research conferences and mechanisms for speedy and accelerated promotions based on spectacular research performance.

#### **5.4.3 There is need to review the research policy guidelines and also create policy awareness**

The research policy was found to have a statistically significant relationship with research productivity. Perceptions of a supportive policy framework are thus instrumental in predicting lecturers’ research performance. In order to increase the perception of the policy’s supportiveness towards the research function, the study advises university management to create a comprehensively supportive Research and Innovations policy, develop guidelines for its implementation, and raise awareness of the policy among academic staff and management through departmental, faculty, and quality assurance-based workshops, seminars, and online debates. The current policy needs to be critically reviewed in order to make its provisions

equitable and encouraging of lecturers' research endeavors. To improve university lecturers' perceptions of organizational support for their research performance, the administration of the university should also vigorously implement the policy.

#### **5.4.4 The university management should develop research management units**

Study findings showed that research management was the lowest form of organisational support for research productivity in the university. The insignificant direct relationship between research management and research productivity could therefore be largely attributed to the absence of effective research management units, systems and structures as revealed from the qualitative findings. The university management should therefore institute research management units starting with the research and innovations office at the level of Deputy Vice-Chancellor to organize, coordinate and control managerial support to the university research function. Under that office, there should be a research grants and collaborations management office to secure and manage research grants and collaborations with external research funding agencies, and also to offer training and other forms of support in writing grants winning research proposals. Still under the same office, there should be an institutional Research Ethical Board/ Committee to speed up research clearance issues among academic staff. The university management should also plan to institute its own writing centre, journal and press to support journal publication and book authorship among its staff members.

#### **5.4.5 There is need to increase funding for lecturers' research activities**

The availability of adequate funding is assumed to play a critical support role in the effective implementation of the university functions with research being no exception. However, the study found that there was low funding for research activities. The study therefore recommends that

the university management should secure and commit more funds towards the improvement of the university research infrastructure, mainly the physical and electronic research supporting resources since the improved research infrastructure was found to greatly enhance lecturers' research productivity.

#### **5.4.6 Aggressive lobbying for research collaborations**

The research infrastructure was found to be the strongest organisational support correlate for research productivity. To that end, the university management needs to improve the research supporting infrastructure right from laboratories and field equipment, to functional offices with proper ventilation, utility installations and with furniture conducive for conducting university work research inclusive. The university also needs to invest in a more reliable, strong and faster Wireless internet connectivity that can be accessed by academic staff from their offices for easy access to digital electronic information resources. University management also needs to invest in improving the virtual library services that can be accessed remotely on and off-campus by university researchers. This should go alongside the widening of online resources subscription packages to major online publishers, and subscribing to research data collection, analysis, citation and referencing software. However, all the above measures require funds. The university therefore should aggressively lobby for partnerships and collaborations through which funding can be secured, from both national and international organisations. This will help to secure bigger funding for improving the university's research infrastructure and consequently improve the university research productivity.

## **5.5 Contributions of the study**

### **5.5.1 Theoretical contribution**

Generally, the study upholds the propositions of the Organisational Support Theory which presupposes that employee work outcomes are directly related to their perceptions about the level of support they receive from their organization. This is evidenced by the positive and significant relationship between organisational support and research productivity, with an implication that the level of support offered to employees affects their performance. The study also confirms the assumptions of the Socio-Technical Systems theory which considers organisations as complex socio-technical systems in which the social components in form of employees and organisational structures must be well balanced with technical components in form of tools, physical resources and technology for tasks to be performed and goals accomplished. The study thus confirms the theoretical assumption that the right resources, tools and facilities must be instituted and assembled to interact with and support the knowledge, skills and values of employees to promote their performance. The study further upholds the assumptions of the systems theory, the parent theory of the social-technical systems theory, that proposes a holistic approach to organisational performance through effective sub-system performance

The study makes a modest contribution to the growing body of organisational support literature and debate that organizational productivity supporting policies and infrastructure are critical factors for improving organizational performance in general and university research productivity in universities in particular. The study also contributes to the debate that the research infrastructure is the most critical organisational factor for university research productivity. The study further contributes more knowledge on the concept of providing organizational support

factors in a holistic approach since their aggregate effect is stronger than their single/ individual dimension effect on research productivity. Future researchers will find the study findings useful in illuminating further debate on organisational support factors and employee performance in general and on the university research function in particular. The study will therefore serve as a source of reference for other research works in future intended to advance scholarship on research productivity. In so doing, the study will also be invaluable in bringing to the fore the organisational factors to consider in promoting employee performance in any organisation.

### **5.5.2 Practical contributions**

In order to support the university research function, the National Higher Education Sector, including the Directorate of Higher Educational and Training, National Council for Higher Education, and university managers, will use the study's recommendations and findings as a guide when developing research policies that encourage research mentorships and training as well as supportive research infrastructure. The study findings shall also guide the state educational policy makers and resource appropriation bodies like the institution of parliament and the Ministry of education and sports to allocate adequate funding towards the improvement of the university research support factors, particularly the university research infrastructure in public universities for improved research and innovations performance for national development. Study findings shall also be useful to nonstate research funding agencies through private sector-university partnerships to focus more of their funding to the university research infrastructure as the single most important organisational correlate for research productivity.

The findings shall also guide university managers to promote functional Human Resource Policies, ICT and financial management policies that attract and maintain experienced and prolific researchers in a bid to enhance their university research function. Study findings and

recommendations shall also guide university policy makers to allocate more funding towards the improvement of the research infrastructure through modernising library services, wireless internet connectivity, reliable power supply, modern offices, laboratory and field research facilities and computers to support the university research function.

By evaluating Research Productivity and the organisational factors that affect it, the study clearly provides institutional administrators with appropriate knowledge for improving research productivity with particular emphasis on improving the research infrastructure through university--industry partnerships as a crucial support requirement for increasing research output. This study therefore contributes to the development of the higher education sub-sector which plays a significant role in preparing the country's human resources needed to spur national development.

## **5.6 Limitations of the study**

Despite the pertinent nature and strong contribution of this study to the knowledge body of university research productivity management, it had limitations that need to be pointed out.

### **5.6.1 Conceptual limitations**

It should be noted that the concept of research productivity is broad. This renders the measuring of research performance always a contentious exercise. In view of this, the study therefore, considered a narrower quantitative conceptualization of research productivity in form of article publication, book authorship students' supervision and conference presentations counts. These were found to be more applicable to the context of Kyambogo University. However, the study can not fully generalize that the conclusions that emerged are typical of all the other forms of research productivity that were not analysed in this study. Never the less, the analysis of research



productivity from the selected aspects can be used to gain insights into the challenges that lecturers face while conducting the university research function.

### **5.6.2 Contextual limitations**

The study was also conducted in one public University among the many in Uganda. This does not create room for comparison of findings from other public universities to draw conclusions from a wider perspective. It may also suggest that the generalization of the findings to all public universities should be considered with some caution. However, the study can be used as a model for understanding the effect of organizational support on lecturers' research productivity at Kyambogo university.

### **5.7 Areas for further research**

Although the study adopted a mixed-methods approach, it largely applied the quantitative measures of research productivity through productivity counts. This limited the conceptualization of research productivity, by excluding the qualitative measures that promote research impact and scholarly visibility. It is thus recommended that future studies taking qualitative measures of research productivity are conducted using a purely qualitative conceptualization of research productivity.

The organizational factors influencing research productivity were the main focus of the study. However, organizational and individual employee factors like self-efficacy, ambition, interest, age, sex, family responsibilities, and motivation levels interact to determine productivity. Therefore, the study advises future researchers to specifically look into how different individual factors affect the productivity of their research.

This study was conducted in one public university. Future studies can also replicate this study in several public universities and in private universities in Uganda and in different countries to increase the generalizability of the findings. Furthermore, the study can be replicated across different sectors in order to identify potential differences in management policies, systems, structures, practices and employee performance.

### **5.8 Chapter review**

This chapter presented a discussion of the study findings. The study conclusions were drawn, and recommendations made, based on the conclusions. Study limitations were presented and areas for future research were suggested.

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## APPENDICES

### APPENDIX A

#### SELF-ADMINISTERED QUESTIONNAIRE FOR ACADEMIC STAFF AT KYAMBOGO UNIVERSITY ON ORGANISATIONAL SUPPORT AND RESEARCH PRODUCTIVITY

Dear                      Prof.                      /Assoc.                      Prof.                      /Dr.  
.....

I am carrying out a survey on “Organisational Support and Research Productivity among Lecturers in Ugandan Public Universities: A Case of Kyambogo University” in partial fulfillment of requirements for the award of a Doctor of Philosophy in Education Degree of Kyambogo University. It is against this background that you have been selected to participate in the research by completing the questionnaire. I therefore humbly request you to kindly respond to this questionnaire according to the instructions provided at the beginning of each section. The information sought is required for academic purposes. Therefore, it will be treated with the highest level of confidentiality.

Thank you.

Yours faithfully,

.....

**Moses Kanaabi 0772-611038/  
0758-611038 moseskanaabi@gmail.com**

### Section A: Background variables: Classification of Respondents

In this Section, you are kindly requested to provide factual information about yourself.

Kindly tick (√) the appropriate answer from the alternatives provided.

#### A1. Your Faculty/School

1	Education	2	Arts and social sciences
3	Engineering	4	Special Needs and Rehabilitation
5	Vocational Studies	6	Science
7	School of Management and entrepreneurship		

#### A2. Please indicate your age bracket

25 -29 years	30 – 39 years	40 – 49 years	50 – 59 years	60 – 69 years	Above 69 yrs
1	2	3	4	5	6

#### A3. Indicate your sex

Male	Female
1	2

#### A4. Your marital status:

Married	Single	Widowed	divorced
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1	2	3	4
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A5. Your academic rank in the University

Assistant Lecturer	Lecturer	Senior Lecturer	Associate Professor	Professor	Any other
1	2	3	4	5	6

A6. Your length of service at Kyambogo University

Less than one year	1 – 5 years	6 – 10 years	11 – 15 years	Over 15 years
1	2	3	4	5

A7. Number of years you have spent in your current rank

Less than 3 years	3 – 6 years	7 - 10 years	11 – 14 years	Above 14 years
1	2	3	4	5

A8. Other responsibility (ies)/ positions you hold in the University. Please specify

.....

A9. Number of years you have held your current responsibility (ies)/ position

Less than 3 years	3 – 6 years	7 - 10 years	11 – 14 years	Above 14 years
1	2	3	4	5

## Section B: Independent Variable: Organisational Support

The independent variable is conceptualized as Research policy, Research Management, Research funding and Research infrastructure. Kindly react to the statements given using the scale provided, by ticking (√) the best opinion using the scale where

<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Undecided</b>	<b>Agree</b>	<b>Strongly Agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

<b>B1</b>	<b>Research Policy</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	<b>The University Research Policy;</b>					
B1.1	Promotes the provision of a high-quality research training environment for its lecturers					
B1.2	Supports lecturers to prioritise research among their core activities					
B1.3	Provides for the hiring of research assistants to support lecturers' research activities.					
B1.4	Does not support the formation of inter-departmental Research teams (R )					
B1.5	Does not support the formation of inter-faculty/ School research teams (R )					
B1.6	Does not promote collaborative publishing of journal					

	articles among lecturers in a department (R)					
--	--	--	--	--	--	--

B1.7	Promotes collaborative publishing of journal articles among lecturers across departments					
B1.8	Does not encourage lecturers to collaborate and publish articles with researchers from other institutions/ universities (R)					
B1.9	Provides for recognition of Individual lecturers for promotion according to their research productivity					
<b>B2</b>	<b>Research Management</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	<b>This University;</b>					
B2.1	Has a well-established research and innovations unit					
B2.2	Has a developed research and innovations implementation manual to guide the implementation of the research policy					
B2.3	Has a functional University Research Grants and Publications Committee to support lecturers' research activities					
B2.4	Hires research assistants to support lecturers' research activities					
B2.5	Allocates teaching loads that leave lecturers with enough					



	time for research activities					
B2.6	Factors-in the time spent on research activities when computing lecturers'' workloads					
B2.7	Has formally established collaborations with other research organisations for lecturers'' research activities					
B2.8	Organises regular research dissemination conferences for its lecturers					
B2.9	Has its own functional journal for publication of lecturers'' research outputs					
<b>B3</b>	<b>Funding</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	<b>This University,</b>					
B3.1	Gives financial incentives to lecturers for their research publications					
B3.2	Promptly pays lecturers'' allowances for supervising graduate students (Masters and Ph. D) to completion					
B3.3	Does not meet lecturers'' books publication costs (R)					
B3.4	Does not give monetary rewards to lecturers for publishing books in their academic disciplines (R)					

B3.5	Does not give lecturers monetary rewards for publishing book chapters in their academic disciplines (R)					
<b>B4</b>	<b>Infrastructure</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	<b>The University;</b>					
B4.1	Provides modern field equipment for lecturers' research activities					
B4.2	Does not provide complete computer sets to meet lecturers' research needs(R)					
B4.3	Provides access to reliable internet connectivity in lecturers' offices for research activities.					
B4.4	Provides lecturers with computer software for research data collection.					
B4.5	Provides lecturers with computer software for research data analysis.					
B4.6	Provides lecturers with computer software for research citation and referencing					
B4.7	Does not provide lecturers with access to recent online publications for their research work(R)					

B4.8	Does not provide Functional e-Library services for lecturers“ research activities(R)					
B4.9	Provides lecturers with anti-plagiarism software for their research activities					

**Section C: Research Productivity** The dependent variable is conceptualized as journal article publications, book authorship, paper presentations and Graduate students' supervision

<p>For items C1.1 to C1.12, Kindly indicate the frequency of your research productivity in the last five years (2015 – 2019) by ticking the most appropriate opinion from the scale below. Kindly tick (√) the best opinion using the scale where</p>										
Never		Rarely		Sometimes		Always		Frequently		
1		2		3		4		5		
<b>C1</b>	<b>Individual lecturers' Research Productivity Frequency</b>					<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
C1.1	I publish my articles in peer-reviewed journals									
C1.2	I collaborate with members within my department to develop research publications									
C1.3	I author book chapters in my academic disciplines									
C1.4	I author books in my academic disciplines									
C1.5	I present papers in my faculty conferences									
C1.6	I present papers in national conferences									
C1.7	I present papers in international conferences									

C1.8	I participate in formal departmental research teams to prepare conference papers					
C1.9	I supervise masters' students to timely completion.					
C1.10	I supervise Ph.D students to timely completion					

**C2. For items C2.1 – C2.6, Please indicate your research productivity count for the last five years**

**(2015 – 2019) by ticking the appropriate scale for each dimension where;**

<b>Number of Publications</b>	<b>0</b>	<b>1 - 2</b>	<b>3 - 4</b>	<b>5 - 6</b>	<b>7 - 8</b>	<b>Above 8</b>
<b>Scale</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>

<b>C2</b>	<b>Individual lecturers' Research productivity count in the last five years (2015-2019) in terms of;</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
C2.1	Number of peer-reviewed journal articles published						
C2.2	Number of book chapters authored.						
C2.3	Number of conference papers presented						
C2.4	Number of Master's students supervised to completion.						
C2.5	Number of Ph. D. students supervised to completion.						

**APPENDIX B****INTERVIEW GUIDE FOR DEANS OF FACULTIES/SCHOOLS ON  
ORGANISATIONAL SUPPORT AND RESEARCH PRODUCTIVITY OF LECTURERS  
IN  
KYAMBOGO UNIVERSITY****Interviewee: Deans of Faculty/School**

1. Comment on the form of support the University provides to lecturers to improve their research productivity?
2. What form of support for research productivity do lecturers miss from the University, and why do they miss it?
3. Comment on the current status of the university research policy and its implementation in regard to;
  - Acquisition of partnerships and collaborations with external organisations to promote its lecturers' research productivity
  - Hiring of research assistants to help its lecturers conduct their research function
  - Appropriate teaching load allocations to leave lecturers with enough time for their research and publication function?
  - Guidelines on journals in which lecturers are required to publish their research articles
4. In your faculty, how do you track lecturers' research performance from conception, completion, submission, acceptance and publication?
5. Briefly elaborate on the availability of a functional Research Management structures in terms of;

- Research and Innovations unit
  - Research Ethical Review Committee
  - Departmental Research Grants and Publications Committee
  - Faculty Research Grants and Publications Committee
  - University Research Grants and Publications Committee
  - University Journal
6. Briefly comment on the availability of a university research supporting infrastructure for lecturers in terms of;
- ✦ Conducive furnished office space for lecturers to conduct their research activities
    - Computers given to lecturers to facilitate their research activities.
    - Laboratory and field equipment to facilitate lecturers' research activities
  - ✦ Reliable internet connectivity for research and publication function
  - ✦ Software for research activities
  - ✦ Subscription to major online publication outlets to access recent information
7. What is your view on the level of funding for research activities provided to lecturers in the university?
8. What is your comment on the process of procuring research funding from the university by individual lecturers?
9. How do you rate the level of research productivity in your faculty in terms of;
- Article publications
  - Authorship of books and book chapters

- Conference paper presentations
- Graduate (masters and Ph D) students' supervision

10. What challenges do lecturers in your faculty face while conducting their research function?

11. What advice would you give the top university management to increase the quantity and improve the quality of lecturers' research output?

## APPENDIX C

### INTERVIEW GUIDE FOR DIRECTOR OF QUALITY ASSURANCE ON ORGANISATIONAL SUPPORT AND RESEARCH PRODUCTIVITY AMONG LECTURERS IN KYAMBOGO UNIVERSITY

#### Interviewee: Director- Quality Assurance

1. Briefly elaborate on Kyambogo University's implementation of its research policy
2. Comment on the monitoring of lecturers' research flow in university departments
3. How does your directorate evaluate the quantity of lecturers' research output?
4. Briefly comment on how your directorate promotes the quality of research output among lecturers in Kyambogo University?
5. Comment on the availability of funding for Lecturers' Research productivity
6. What is your opinion about the research infrastructure available to lecturers for their research function?
7. Briefly comment on the level of research productivity among lecturers in Kyambogo University in terms of both Quality and Quantity
8. What organisational challenges do Kyambogo University Lecturers face while conducting their research and publication function?
9. What advice would you give to the University top management to increase, improve and promote Lecturers' Research output?



**APPENDIX D****INTERVIEW GUIDE FOR DIRECTOR – HUMAN RESOURCE MANAGEMENT****DIRECTORATE ON ORGANISATIONAL SUPPORT AND RESEARCH****PRODUCTIVITY AMONG LECTURERS IN KYAMBOGO UNIVERSITY****Interviewee Title: Director- Human Resource Management**

1. Briefly elaborate on the Kyambogo University policy criterion on the promotion of academic staff.
2. How does your Directorate monitor lecturers' research performance for possible promotion, and deployment opportunities?
3. How does your Directorate coordinate research performance management under its appraisal systems and processes in the university?
4. What is your opinion on the rate of career advancement among lecturers in Kyambogo University?
5. What is the current trend of research funding opportunities available for lecturers according to your directorate's management of wages and benefits?
6. What would you consider to be the organisational challenges faced by lecturers in carrying out their research function?

7. What advice would you give the university management to increase, improve and promote

lecturers' research productivity?

## **APPENDIX E**

### **INTERVIEW GUIDE FOR UNIVERSITY BURSAR ON ORGANISATIONAL SUPPORT AND RESEARCH PRODUCTIVITY AMONG LECTURERS IN KYAMBOGO UNIVERSITY**

#### **Interviewee Title: University Bursar**

1. What is the current trend of the University Budget allocations for funding Lecturers' research activities?
2. What is the budget vote for research meant to cover?
3. What percentage of the vote is allocated for;
  - Data collection and analysis costs
  - Journal article publication fees
  - Book publication costs
  - Rewards for journal publications
  - Rewards for book authorship
  - Conference paper presentation costs
  - Payment for supervision of graduate students' research

- Hiring research assistants
  - Internet subscriptions
  - Subscriptions to online publication resource outlets
4. What steps do Lecturers take to access University funding for research activities?
  5. What are the conditions/ requirements for Lecturers to access funding for research activities?
  6. Do you envisage any procedural challenges in accessing these funds as allocated in the budget?
  7. What advice would you give to the University management to improve funding for Lecturers' Research activities?

**APPENDIX F**  
**INTERVIEW GUIDE FOR UNIVERSITY LIBRARIAN ON ORGANISATIONAL**  
**SUPPORT AND RESEARCH PRODUCTIVITY AMONG LECTURERS IN**  
**KYAMBOGO UNIVERSITY**

**Interviewee Title: University Librarian**

1. What is the current trend of the University Budget allocations for funding Library and information services?
2. What is the budget vote for the library meant to cover?
3. what percentage of the vote is allocated for;
  - Internet connectivity subscriptions
  - Subscriptions to online publication outlets
4. In your opinion, are the above allocations adequate?
4. Do you envisage any procedural challenges in accessing these funds as allocated in the budget?
- 5 Comment on the functionality of the library services in supporting lecturers“ research function in terms of;
  - Access to major publication outlets
  - Access to recent online publications
  - Virtual Library services
8. What could be the missing library and information services vital for supporting the lecturers“ research function
9. What advice would you give to the University management to improve library and information services support for Lecturers“ Research activities?

**APPENDIX G****DOCUMENT ANALYSIS GUIDE FOR ORGANISATIONAL SUPPORT Topic: Effect of Organisational Support on Research Productivity among Lecturers in Kyambogo University**

The researcher analysed the following documents to ascertain the level of lecturers' research productivity and organisational support given to Lecturers for Research productivity for the last five years (from 2016 to 2020).

1. The Kyambogo University Research and Innovations policy document.
2. Kyambogo University Research and Innovations Policy Review Draft.
3. Records of research grants and other forms of funding availed to lecturers for research activities.
4. Records of lecturers research productivity in terms of article publication, book authorship, conference presentations and graduate students' supervision

**APPENDIX H****CRITERIA FOR MEASURING CONTENT VALIDITY OF THE QUESTIONNAIRE**

---

**1. Relevance****2. Clarity**

---

1 = not relevant

1= Not clear

2 = item needs some revision

2= Item needs some revision

3 = relevant but need minor revision

3= Clear but needs minor revision

4 = very relevant

4= Very clear

---

**APPENDIX I****CONSENT DOCUMENT**

Dear Sir/Madam,

This is to request you to voluntarily participate in this study as a respondent/participant by filling a data collection questionnaire/answering the oral interview questions from the researcher.

**Title of the study:** ORGANISATIONAL SUPPORT AND RESEARCH PRODUCTIVITY

AMONG LECTURERS IN UGANDAN PUBLIC UNIVERSITIES: A CASE OF KYAMBOGO

UNIVERSITY

**Investigator(s): KANAABI MOSES (17/14370/GDED/PE)**

Institution(s) KYAMBOGO UNIVERSITY

**Introduction**

The above study is to be conducted by Kanaabi Moses, a Ph.D candidate from Kyambogo

University in partial fulfillment of the requirements for the award of a degree of Philosophy in Education Management. The study is intended to establish the impact of organisational support on research productivity among lecturers in public universities with Kyambogo as a case study. The study has been approved by Gulu University Research Ethics Committee. This is a self- sponsored study by the researcher (Kanaabi

Moses), with a target population of one hundred twenty (120) participants. This informed consent explains the study to you, after which, any questions you may have are answered, and once you have decided to participate in the study, you will be asked to sign a consent, of which you will be given a copy to keep. **Purpose:**

The study seeks to evaluate the impact of organizational support on lecturers' research productivity in public Universities in Uganda, with reference to Kyambogo University. The findings of this study will help to guide among others University administrators and managers to provide relevant support to their lecturers in order to enable them carry out their core function of generating and disseminating new knowledge to society, for their Universities to achieve their vision, mission and objectives.

**Procedures:**

Your participation in this study will involve filling the questionnaire a copy of which has been attached, or answering oral interview questions following the interview guide attached (available in the proposal).

You have been chosen to participate in this study because you are directly responsible for research productivity in the university. The interview will last for approximately forty five (45) minutes while the Questionnaire may take approximately (30) minutes to fill.



**Risks/discomforts;**

There is no foreseeable risk of harm or discomfort that will arise from your participation in this study. The only risk or discomfort will be the inconvenience in terms of time spent during the interview/ filling the questionnaire **Benefits:**

The study findings will benefit University lecturers who will become the direct beneficiaries of effective organisational support from their Universities to conduct their core function of generating and disseminating new knowledge to society. Communities will also benefit from better effectively supported and conducted research-based outreach projects from universities to solve problems that affect people in those communities. You will get feedback on findings through a copy of the research report that will be freely provided to each academic faculty/school and to the two participating Directorates from which you will be able to access a copy.

**Confidentiality:**

Your identity will not be revealed to anyone as we shall only use codes to identify participants. Information obtained will only be accessible by the researcher. Soft copies of the data will be protected by password and hard copy files will be kept under lock and key. Confidential information will only be accessed by the researcher.

If you have any questions related to the study, as a research participant, you can contact the researcher, KANAABI MOSES on telephone number 0772 611038/0758611038 or via email on kanaabimoses@yahoo.com/moseskanaabi@gmail.com **Statement of voluntariness:**

Participation in the research study is voluntary/based on free will.

If you have any issues pertaining to your rights and participation in the study, please contact the

Chairperson, Gulu University Research Ethics Committee, Dr. Gerald Obai Tel: No., 0772305621; email: lekobai@yahoo.com/lekobai@gmail.com; or the Uganda National Council for Science and Technology, on plot 6 Kimera road, Ntinda, Kampala on Tel 0414705500.

### **Statement of consent**

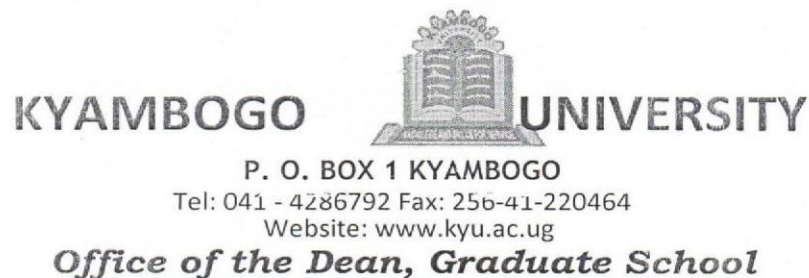
Mr. Kanaabi Moses (the researcher/investigator) has described to me what is going to be done, the risks, the benefits involved and my rights as a participant in this study. I understand that my decision to participate in this study will not affect me in any way. In the use of this information, my identity will be concealed. I understand that by signing this form, I do not waive any of my legal rights but merely indicate that I have been informed about the research study in which I am voluntarily agreeing to participate. A copy of this form will be provided to me.

Name .....Signature of participant.....Date  
.....

Name.....Signature of  
interviewer.....Date.....

## APPENDIX J

## GRADUATE SCHOOL RESEARCH APPROVAL LETTER



12<sup>th</sup> August 2019

The Chairperson,  
Gulu University Research Ethics Committee

Dear Sir/Madam

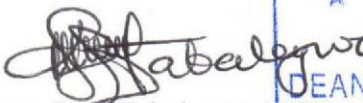
**Re: Approval of Mr. Kanaabi Moses' Research Proposal**

This is to inform you that the above named person is a PhD student at Kyambogo University pursuing a programme leading to the award of a PhD in Educational Management of Kyambogo University. He has submitted a Research proposal that has been approved at the Departmental and Faculty Higher Degrees Committees. During the 3<sup>rd</sup> session of the 51<sup>st</sup> Graduate Board, his request to full admission and subsequently start to collect data for his research was approved.

The purpose of this communication is therefore to request your Research Ethics Committee to consider his request as requirement to enable him conduct the research for his PhD.

Thank you.



Yours faithfully

  
Assoc. Prof. Nabalegwa M. Wambembe  
DEAN



## APPENDIX K


## ETHICAL REVIEW CLEARANCE LETTER

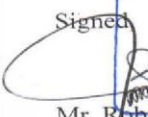
<p><b>GULU</b>  P.O. Box 166 Gulu Uganda  Website: <a href="http://www.gu.ac">www.gu.ac</a>  Email: <a href="mailto:guluuniversity.rec@gmail.com">guluuniversity.rec@gmail.com</a></p>		<p><b>UNIVERSITY</b>  Tel: +256-4714-32096  Fax: +256-4714-32913  Mob: +256772305621/776812147</p>
<p><b>RESEARCH ETHICS COMMITTEE</b></p>		
<p>October 11, 2019</p> <p style="text-align: center;"><b>APPROVAL NOTICE</b></p> <p>MR. MOSES KANAABI,  Kyambogo University,</p> <p><b>Re: <u>Application No. GUREC-092-19</u></b></p>		
<p><b>Type of review:</b>  <input checked="" type="checkbox"/> <b>Initial review</b>  <input type="checkbox"/> Amendment  <input type="checkbox"/> Continuing review  <input type="checkbox"/> Termination of study  <input type="checkbox"/> SAEs  <input type="checkbox"/> Other, Specify: _____</p>		
<p><b>Title of Proposal: “Organizational Support and Research Productivity among Lecturers in Ugandan Public Universities: A Case of Kyambogo University”</b></p> <p>I am pleased to inform you that at the 55<sup>th</sup> convened meeting on 22<sup>nd</sup> August 2019, the Gulu University Research Ethics Committee (<b>GUREC</b>) voted to approve the above referenced application.</p> <p>Approval of the research is for the period of <b>22<sup>nd</sup> August 2019 to 21<sup>st</sup> August 2020</b></p> <p>As Principal Investigator of the research, you are responsible for fulfilling the following requirements of approval:</p> <ol style="list-style-type: none"> <li>1. All co-investigators must be kept informed of the status of the research.</li> <li>2. Changes, amendments, and addenda to the protocol or the consent form must be submitted to the <b>GUREC</b> for re-review and approval <u>prior</u> to the activation of the changes. The <b>GUREC</b> application number assigned to the research should be cited in any correspondence.</li> </ol>		
		

3. Any unanticipated problems involving risks to participants must be promptly reported to the **GUREC**. New information that becomes available which could change the risk: benefit ratio must be submitted promptly for the **GUREC** review.
4. Only approved and stamped consent forms are to be used in the enrollment of participants. All consent forms signed by participants and/or witnesses should be retained on file. The **GUREC** may conduct audits of all study records, and consent documentation may be part of such audits.
5. Regulations require review of an approved study not less than once per 12-month period. Therefore, a continuing review application must be submitted to the **GUREC** eight (8) weeks prior to the above expiration **date of 21<sup>st</sup> August 2020** in order to continue the study beyond the approved period. Failure to submit a continuing review application in a timely manner may result in suspension or termination of the study, at which point new participants may not be enrolled and currently enrolled participants must be taken off the study.
6. You are required to register the research protocol with the Uganda National Council for Science and Technology (UNCST) for final clearance to undertake the study in Uganda.

The following documents have been approved in this application by the **GUREC**:

	<b>Document</b>	<b>Language</b>	<b>Version</b>	<b>Version Date</b>
1	Protocol	English	Version 2.0	11 <sup>th</sup> October 2019
2	Data Collection tools	English	Version 2.0	11 <sup>th</sup> October 2019
3	Informed consent documents	English	Version 2.0	11 <sup>th</sup> October 2019


  
 INSTITUTIONAL REVIEW COMMITTEE  
**APPROVED**  
 ★ 11 OCT 2019 ★  
 FACULTY OF MEDICINE  
 P. O. Box 166, Gulu

Signed   
 Mr. Robert Kiduma  
**For; Chairperson**  
**Gulu University Research Ethics Committee**

## APPENDIX L

## UGANDA NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY



**Uganda National Council for Science and Technology**  
*(Established by Act of Parliament of the Republic of Uganda)*

Our Ref: SS 5145

23<sup>rd</sup> December 2019

Mr. Moses Kanaabi  
 Principal Investigator  
 Kyambogo University  
 Kampala

Dear Mr. Kanaabi,

**Re: Research Approval: Organizational Support and Research Productivity among Lecturers in Ugandan Public Universities. A Case of Kyambogo University**

I am pleased to inform you that on **10/12/2019**, the Uganda National Council for Science and Technology (UNCST) approved the above referenced research project. The Approval of the research project is for the period of **10/12/2019** to **10/12/2021**.

Your research registration number with the UNCST is **SS 5145**. Please, cite this number in all your future correspondences with UNCST in respect of the above research project. As the Principal Investigator of the research project, you are responsible for fulfilling the following requirements of approval:

1. Keeping all co-investigators informed of the status of the research.
2. Submitting all changes, amendments, and addenda to the research protocol or the consent form (where applicable) to the designated Research Ethics Committee (REC) or Lead Agency for re-review and approval **prior** to the activation of the changes. UNCST must be notified of the approved changes within five working days.
3. For clinical trials, all serious adverse events must be reported promptly to the designated local REC for review with copies to the National Drug Authority and a notification to the UNCST.
4. Unanticipated problems involving risks to research participants or other must be reported promptly to the UNCST. New information that becomes available which could change the risk/benefit ratio must be submitted promptly for UNCST notification after review by the REC.

---

**LOCATION/CORRESPONDENCE**

Plot 6 Kimera Road, Ntinda  
 P. O. Box 6884  
 KAMPALA, UGANDA

**COMMUNICATION**

TEL: (256) 414 705500  
 FAX: (256) 414-234579  
 EMAIL: [info@uncst.go.ug](mailto:info@uncst.go.ug)  
 WEBSITE: <http://www.uncst.go.ug>

5. Only approved study procedures are to be implemented. The UNCST may conduct impromptu audits of all study records.
6. An annual progress report and approval letter of continuation from the REC must be submitted electronically to UNCST. Failure to do so may result in termination of the research project.

Please note that this approval includes all study related tools submitted as part of the application as shown below:

No.	Document Title	Language	Version Number	Version Date
1.	Research proposal	English	N/A	October 2019
2.	Informed consent documents	English	N/A	N/A
3.	Questionnaire	English	N/A	N/A
4.	Document analysis guides	English	N/A	N/A
5.	Interview guides	English	N/A	N/A



  
 UGANDA NATIONAL COUNCIL  
 FOR SCIENCE & TECHNOLOGY  
 BETH MUTUMBA  
 P.O. BOX 6884  
 KAMPALA - UGANDA  
 For: Executive/Secretary

**UGANDA NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY**

Copied: Chair, Gulu University, Research Ethics Committee

## APPENDIX M

## ADMINISTRATIVE CLEARANCE LETTER TO CONDUCT RESEARCH IN

## KYAMBOGO UNIVERSITY



P. O. BOX 1 KYAMBOGO  
 Tel: 041 -286237, 285001/2 Fax: 041 -220464, 222643  
 Email: [uskyu@kyu.ac.ug](mailto:uskyu@kyu.ac.ug)/[www.kyu.ac.ug](http://www.kyu.ac.ug)  
**Office of the University Secretary**

18<sup>th</sup> November, 2019

Mr. Kanaabi Moses  
 Students  
 Reg. No. 17/U/14370/GDED/PE  
 Kyambogo University

Dear Mr. Kanaabi Moses

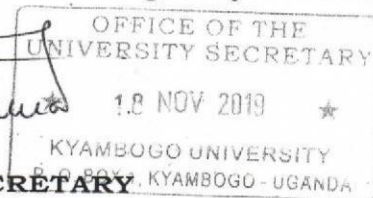
**RE: ADMINISTRATIVE CLEARANCE TO CONDUCT ACADEMIC RESEARCH AT KYAMBOGO UNIVERSITY**

Reference is made to your letter dated 8<sup>th</sup> November 2019, on the above, requesting for an administrative clearance to conduct research on: **“Organisational support and Research productivity among Lecturers in Public Universities at Kyambogo University”** a requirement by National Council for Science and Technology (UNCST).

This is to inform you that you have been cleared and granted permission to conduct the above research at the University. Liaise with the relevant officers to guide you on the way forward.

Charles Okello

**UNIVERSITY SECRETARY**

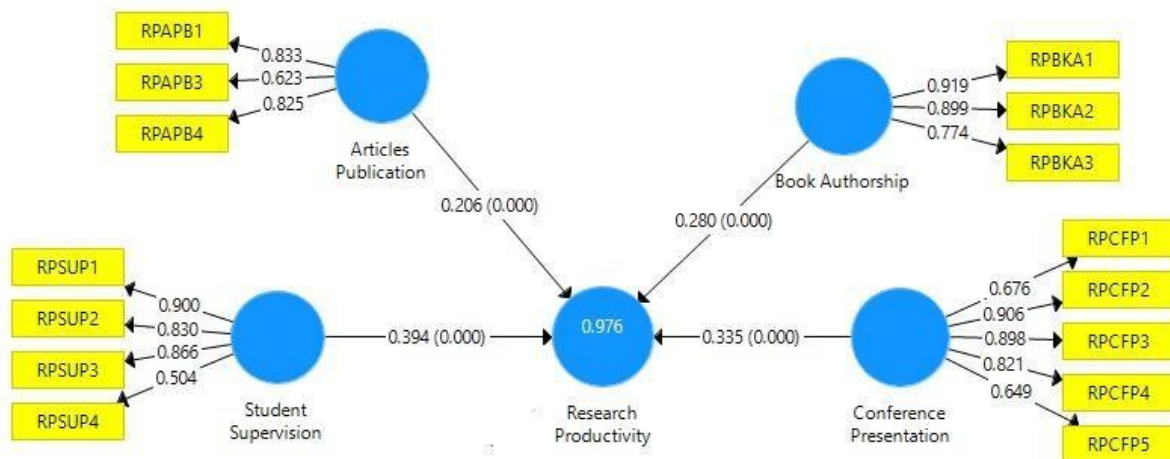
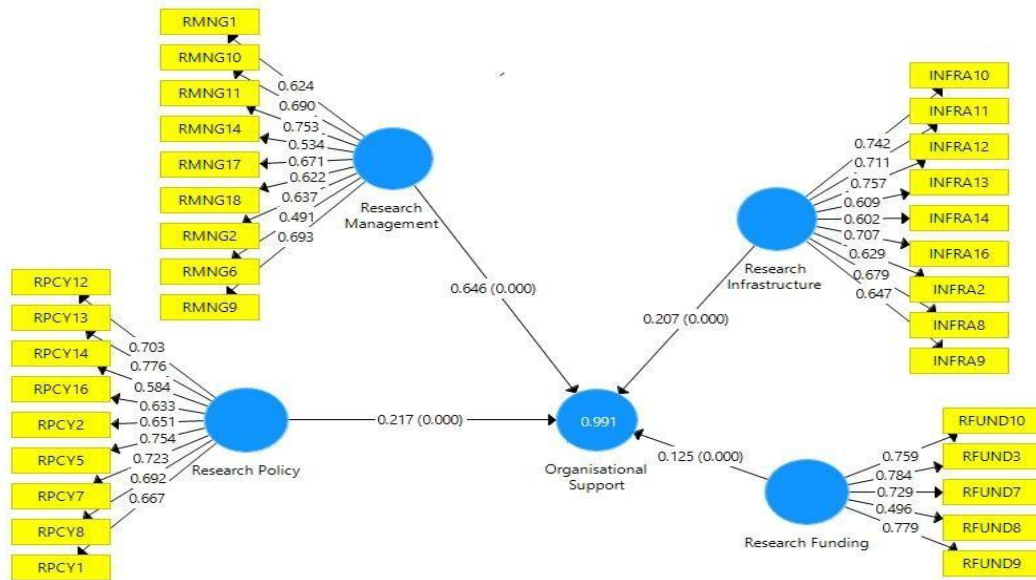


Copied to: Academic Registrar  
 Dean of Faculties  
 Heads of Departments  
 Dean of Students



APPENDIX N

MEASUREMENT MODELS FOR RELIABILITY OF THE STUDY VARIABLES



## APPENDIX O

## MEASUREMENT MODEL ESTIMATES TABLES

Table 3.4

The Measurement Model estimates for Organisational Support

	<b>Beta</b>	<b>Std.Error</b>	<b>T Statistics</b>	<b>P- Values</b>
Research Policy → Organisational Support	.217	.029	7.498	.000
Research Management → Organisational Support	.646	.043	14.848	.000
Research Funding → Organisational Support	.125	.032	3.871	.000
Research Infrastructure → Organisational Support	.207	.036	5.751	.000

**Source: Primary data**

Table 3.9

The Measurement Model estimates for the reliability and validity of Research Productivity

	<b>Beta</b>	<b>Std. Error</b>	<b>T Statistics</b>	<b>P Values</b>
Articles Publication → Research Productivity	.206	.042	4.937	.000
Book Authorship → Research Productivity	.280	.037	7.534	.000

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Conference Presentation	→	Research	.335	.061	5.508	.000
Productivity						
Student Supervision	→		.394	.051	7.792	.000
Research Productivity						

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**Source: Primary data**

## APPENDIX P

### EFFECT SIZE AND PREDICTION

**Table 3.5**

Effect Size and Prediction for Organisational Support

	<b>F square Value</b>	<b>R Square</b>	<b>R Adjusted</b>	<b>Square</b>
Research Policy	3.411	.991	.990	
Research Management	22.08			
Research Funding	1.278			
Research Infrastructure	2.225			

**Source: Primary data**

**Table 3.10** Effect Size and Prediction for Research Productivity

	<b>Research Productivity</b>	<b>R Square</b>	<b>R Square Adjusted</b>
Articles Publication	.890	.967	.964
Book Authorship	1.982		
Conference Presentation	1.401		
Student Supervision	3.624		

Source: Primary data