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Fostering a Culture of Quality Research at a Young Institution: Insights from Kyambogo University

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Abstract

The study explored the trends and quality of research output of academic staff at Kyambogo University, Uganda for the period 2003 to 2020. Using desk research content analysis, the findings showed 199 (47%) out of 425 staff had published 440 articles of which 266 (60%) were credible. The three most productive Faculties were: Science 110, Education, 106, and Arts and Social Sciences with 90 publications. The most prolific author produced 35 articles 6 of which were the first author. This productivity was attributed to factors commended for leveraging the identified niche in science, education, and humanities. The study is instrumental in advancing strategies that could foster a culture of quality research through deliberate policy actions.

Keywords: Researcher's productivity, Prolific author, Quality research, Credible publishing, Research output.

1. Introduction

Universities include research alongside teaching and learning in their mandate. Within this mandate, universities support research and require academic staff to publish for the reputation, and prestige of both the authors and the universities and for career advancement (Hesli & Lee, 2011). Besides solving societal problems, the research outputs of universities contribute to the ranking and branding in the education marketplace. In addition, good quality research outputs contribute to improving the university's competitiveness and could attract industry for more research funding opportunities.

Kyambogo University was established in 2003 and is one of the youngest yet one of the largest public universities in Uganda. A merger of three educational institutions, the university was established to promote and advance knowledge and development of hands-on skills in science, technology, and education. The niche made the university unique and able to produce graduates who are contributing to diverse fields transforming society. The student enrollment is 33,000 undertaking programs from Certificates to Doctorates. The Doctoral programs are offered at three faculties; Education, Science, Arts and Social Sciences. The University's 425 academic staff at different professional levels are responsible for delivering over 152 programs (Kyambogo University, 2020). As part of the requirement, the university's academic staff regularly publishes for career advancement, individual and

institutional reputation, and prestige (Hesli & Lee, 2011). The justification for the period 2003 to 2020 of study is premised on the transformative change that started in 2020. The University Council undertook a comprehensive review of organisational structures. This resulted in the creation of new Faculties, Schools, and Departments. Initiated change and focus from technical to research University; established the office of Deputy Vice Chancellor in charge of research and engagement; abolished most of the Certificate and Diploma programs and established a school of Graduate Studies to coordinate Masters and Ph.D. programs (Kyambogo University, 2020). The University put in place several initiatives to promote research and investment in addition to increasing funding over the past five years. Unfortunately, since its establishment, there has been no baseline study to establish value for money in terms of research productivity. This came on the back of the university's quest to transition from technical teaching to being research-led in addition to restructuring to ensure the effective delivery of the teaching/research programs based on the existing strength. This necessitated exploring the university's research quality and productivity for the past two decades as evidence for further strategic planning. In addition to informing evidence-based policy and decision-making at the management and operational level of the university concerning research support services.

In this paper, the researchers applied qualitative methods using desk research content analysis to examine scholarly works to identify the themes and the trends of the research productivity of the academic staff at Kyambogo University. The coverage of the study was limited to journal articles, books, and book chapters sourced from accessible databases: Emerald, Ebscohost, Taylor and Francis, and Google Scholar.

The study aimed to explore the trends of research output of academic staff at Kyambogo University, Uganda for the period 2003 to 2020.

The objectives of the study were:

- To analyse research productivity of academic staff for the years 2003 to 2020 at Kyambogo University.
- To identify the most prolific authors at Kyambogo University.
- To determine the factors responsible for current levels of productivity and proficiency at Kyambogo University.

2. Literature Review

The amount of publications any researcher has in peer-reviewed journals serves as a proxy for their level of research productivity. In the cutthroat global higher education environment, publication in prestigious, refereed journals written in English has become a crucial path to academic achievement (Altbach, 2014). This type of study is referred to as "bibliometrics" by Nicholas and Ritchie (1978) and Hertzel (2018), a word used to evaluate the productivity of academics in which the qualities of the articles published are viewed as a quantitative measure of the research output (Manley, 2011). Bibliometrics examines the number of publications in a given field. It examines the volume of articles published over time or the number of articles written by specific researchers in various subfields of the subject (Stevens, as cited in Hertzel, 1987). Furthermore, Hertzel (1987) noted that the bibliometric approach depends on collecting books, articles, and other writings in the area, as well as counting works that have been abstracted and published in specialized journals. Therefore, bibliometric studies are widely used to inform political, economic, social, and technological policies and decisions that impact the flow of information, financing for research, and patterns of information use inside, between, and outside of institutions and nations.

Research productivity

Understanding researchers' productivity is crucial for decisions about hiring, promotion, compensation, professional recognition, workload, resource allocation, and university overall rankings (Sife and Lwoga, 2014). However, research of this kind has, among other things, addressed issues related to collection creation, knowledge management, and research funding evaluation. However, due to the poor research productivity of academic personnel in developing nations, few bibliometric studies have focused on research production at the university-wide level (Wamala and Ssembatya 2013). The lack of such studies could also be attributed to the lack of resources needed to assess publications from older, well-respected, dynamic universities. Aina and Mabawonku (1997), Aina and Mooko (1999), Alemna and Badu (1994), Alemna (2001, 1996), Kadiri (2001), and Mabawonku (2001) are studies that have been conducted on the output of Library and Information Science (LIS), mostly by scholars from West Africa. Studies about LIS-related research have been conducted in Southern and Eastern Africa. The main sources for the citation analyses and research publication statistics were peer-reviewed works published in both domestic and foreign LIS journals. Among the academics cited were Ocholla et al. (2013), Sife & Lwoga (2014), and Sitienei and Ocholla (2010).

Similar studies have also been conducted in medical and health science to track research related to the prevalence of diseases and the skills gap required to address them. Studies carried out at the institutional level included: Rotich & Onyancha, (2017) at Moi University and Nakanjako et al. (2017) at Makerere University. The studies focused on the research output of the respective Health Colleges. Assessment of productivity for health-related subjects included: HIV (Uthman, 2010), Quality Management (Sivankalai & Yemane, 2017), comparing HIV research productivity in Kenya and Uganda (Onyancha & Ocholla, 2004) and research productivity of post-graduate students for the period 1996 to 2016 at Makerere University College of Health Science (Obuku et al., 2017). Yet, there is no prior study analysing the quality and trends of research productivity of academic staff at a University in the region, a gap this study attempted to fill.

Research is a core function of a University which is anticipated to generate knowledge crucial for mitigating societal challenges. Universities as higher education institutions are integral to building healthier, happier, wealthier, and prosperous societies. As such universities equip researchers and graduates with the skills needed to create jobs and drive innovation and prosperity through cutting-edge research and knowledge generation. The Association of Common Wealth Universities (ACU) strategy 2019/2025 required Universities to focus on transforming lives, strengthening democracies, bolstering economies, nurturing curiosity and invention, and finding solutions to the greatest challenges of our time. Universities should provide chances for lifelong learning and education for everyone, without leaving anybody behind, given their role as citadels for inclusive and equitable high-quality education. The fourth Sustainable Development Goal of the UN, which targets inclusive and equitable quality education and encourages opportunities for lifelong learning for all, is in line with this (United Nations Development Program, 2016).

Therefore, assessing the research quality and output of researchers and institutions has become a critical issue and a basis for funding, visibility, and prestige (Cabezas-Clavijo and Torres-Salinas, 2021). In addition, assessment helps in identifying areas of competitive advantage based on the competencies of researchers, the research infrastructure, and the available research support services. It is crucial in supporting evidence-based decision-making about investing in research and optimising the research resources and value for

money. It is therefore pertinent for young universities to undertake such studies to align the strategies to actual practices within the institutional frameworks.

Human capital development was highlighted by Uganda's National Development Plan III (NPA, 2020), derived from Vision 2040 (NPA, 2007) as one of the basics that needed to be enhanced to hasten the nation's transition and reap the benefits of the demographic dividend. To "raise average household incomes and improve the quality of life of Ugandans," the NDP III focuses on "sustainable industrialization for inclusive growth, employment, and sustainable wealth creation" between 2020/2021 and 2024/2025. Through their research, universities are expected to produce human resources that are well-educated, enlightened, and in good health. Therefore, universities should make investments in human resources to help them become competent knowledge generators that will support the nation's transformative objectives.

Kyambogo University's research agenda developed in 2018 is aligned with both the UN sustainable development and the national development strategic goals. The University prioritized research funding and instituted a competitive research grant of US$ 268,458 from the financial year 2019/2020 to date. However, since its establishment, no study has been conducted to evaluate the value for money and assess the state of the research support infrastructure. This has further been necessitated by complaints of low absorption rate for funds; and demand for the university to charter a new direction with emphasis on research-led for impactful visibility and competitiveness in the education marketplace. Consequently, it became apparent that establishing the baseline for research productivity from the time the university was established would provide crucial information related to the strengths and weaknesses of the existing research support systems. It could then be used as a basis for enriching decisions to enhance high-quality research productivity among academic staff at the university. This could further contribute to improving the university's global/regional and country ranking as well as aligning the university's research activities for better visibility and positioning (The World Universities Insights Limited, 2020).

Year-wise distribution of publications

Year-wise distributions are one of the stated objectives in many bibliometrics studies, though there is minimal discussion about it. Graphical indications of the number of articles published every year within the span of the study period are presented. In addition, it shows the highest and least productive years of the period under review (Thanuskodi, 2010; Ali et al., 2020). The year-wise distribution identifies the variations in productivity between the science and humanities-based disciplines (Wanner et al., 1981). In most cases, the number of publications is disaggregated into different forms including articles, book chapters, and books and book reviews. However, there is also a growing trend of identifying the number of authors per article (Naveed et al., 2021). Banerjee and Basu, (2021) also used the year-wise distribution to calculate the annual growth rate of publications on disaster awareness in biomedical literature revealing the most and least productive years for the period under review. The annual publications reflect how active a given discipline is and how much scientific attention is received. It is also indicative of gradual increases, decreases, and progressive growth in the literature of a given discipline. The year-wise distribution can also be used to give insight into the most productive regions of the world, countries, institutions, and even languages. Nonetheless, the underlying factors for either increase/decrease or progressive growth are never explored. Most studies are based on data extractions from Scopus and Web of Science which are considered exhaustive with published scholarly materials (Banerjee and Basu, 2021). Nonetheless, no attempt to evaluate the quality and trends of research productivity

using databases such as Emerald, Ebscohost, Taylor and Francis, and Google Scholar has been carried out. This study fills this gap since the university subscribes to these databases except Google Scholar (open source) which is considered highly popular among the university academic community.

Researchers' productivity

The research productivity analysis gives an overview of the prominent authors, sources, institutions, and countries (Sheikh et al., 2021). Prolific authors are indicative of authors' productivity ranked based on the total number of publications per year or for the period under study in a given discipline (Ali et al., 2020). Prolific authorship could be based on the number of citations received within a specified period. According to Donthu et al. (2021), bibliometric analysis is a useful method for determining prolific authors as well as their collaborative patterns. This was further affirmed by Wei et al. (2022) noting the ability of bibliometric studies to indicate the level of co-authorship termed as author networks. Here comparisons are made based on the number of authors to give insights about the productivity of members as single or multiple authors. Farhat, et al. (2023) further assert that bibliometric studies identify intellectual structures of the particular domain in existing literature, areas of specialisation of researchers, and regions.

It's noted that research from low-developing countries shows high productivity in health-related fields (Uthman et al., 2015; Nakanjako et al., 2017). The reasons for this high productivity include the availability of funds and the high prevalence of diseases of global impact requiring effective international responses to save humanity. Further analysis indicated that in the early 80s and 90s, most research and therefore funding focused on understanding HIV/AIDS, and in the 2010s, Ebola and SARs (Pouris & Ho, 2016). However, in the recent 2020s focus has further shifted to COVID-19 and related studies continue to be addressed by researchers due to the availability of funding (Li et al., 2020). Though the availability of funding is a key factor in determining the authors' proficiency, this should be accompanied by ideal research infrastructure and support services.

Factors affecting the researchers' productivity

Bibliometric studies are commended for tracking changes in the research productivity of disciplines, institutions, and individual researchers (Siddique, et al., 2021; Yadav and Lenka, 2021 and Wilson, et al., 2022). Yet a limited number of studies explore the drivers for high productivity within specific disciplines, institutions, and individuals. There is also limited discussion of the underlying factors for notable increases in research productivity and proficiency. Earlier studies focused on individual researchers rather than the effects of the Departments or institutional research infrastructure and the supportive environment. Productivity is based on multidimensional factors that require a deeper understanding. Noble and Kecojevic, (2015) identified one contributing factor to research productivity as higher academic qualifications of researchers. It was adduced that the number of publications increased with an increase in one's academic level or rank. Thus, Professors had a higher number of publications than academic staff of lower ranks.

Dundar and Lewis, (1998) earlier studied a wide range of factors affecting individual research productivity. The factors were divided into individual and institutional attributes. The individual factors were: innate abilities (IQ, age, gender, and personality) and personal environmental factors (quality and culture of graduate training and employment Department). Structure and leadership, program size, technology and computer facility availability, work

policies, library support services, and the number of students enrolled in research programs were the institutional/departmental qualities (Heslie and Lee, 2011). A strong correlation existed between age, experience, and seniority in terms of academic rank offering a cumulative advantage and higher levels of research productivity. The culture of the department/faculty/school was also an important determinant of the research performance of individuals. Institutional attributes were: larger faculties/departments have a higher affinity for research productivity than the small ones, strong organizational control, financial incentives, and employing graduate fellows were contributing to higher research productivity. However, the teaching load negatively affected the research productivity in the study. The factors identified by this study are closely related to Kyambogo University. It is therefore important to establish if they had the same bearing on research productivity and proficiency for the period under review.

3. Methods

Data for the study was sourced from: Google Scholar, Emerald, Ebscohost, Taylor and Francis, and Kyambogo University Scholars' Space. These were the databases the university was subscribing to through the consortium of Uganda University Libraries and were popular with the academic staff. Data sourced for inclusion in this study was based on two specific criteria the journal article, book, or book chapter. The author should have acknowledged being a staff of the University and the scholarly work having been published from January 2003 to December 2020. The University was established by statutory instrument No. 37 of 2003. Its mandate is to become a centre of academic and professional excellence in advancing and promoting knowledge and skills in science, technology, and education. In the year 2020, the university charted a new direction from technical to research-led. The University Council approved the new structure that established the position of Vice Chancellor responsible for research and engagement and the School of Graduate Studies. In addition to the creation of new Faculties, schools, and departments based on earlier experiences and competencies.

The aggregated data used for this study is available at http//:10.5281/zenodo.6759305 under creative common attribution 4. The exclusion criteria provided the limitations of the study. This included researchers whose scholarly works were not journal articles, books, or book chapters; works that were not indexed in the selected databases and researchers who had not acknowledged Kyambogo University.

4. Findings and Discussion

A total of 199 academic staff out of 425 had 440 publications for the period 2003 to 2020. Of these 136 (68%) were male and 36 (32%) were female and 192 (96.5%) held a Ph.D. The research productivity is further analysed as shown in Table 1.

Table 1: Research productivity of Academic staff

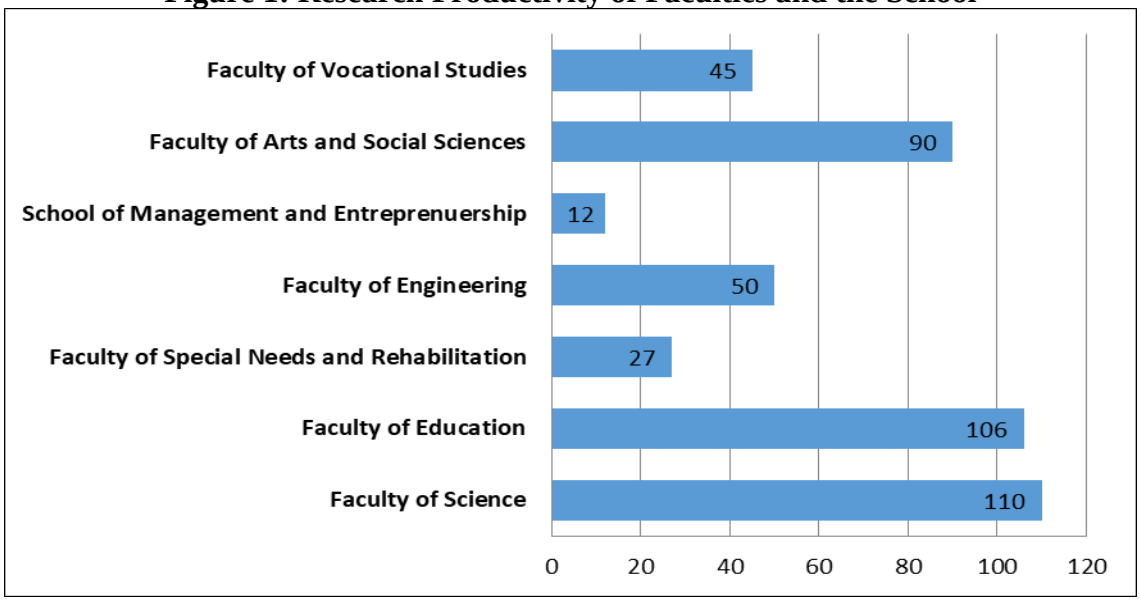
S.N.	Faculty/School	Number of Academic Staff	Number of Academic Staff with publications	Total Number of Publications	Number of Staff with PhD
1	Faculty of Arts and Social Sciences	130	35	90	50
2	Faculty of Education	47	38	106	24

3	Faculty of Engineering	56	22	50	17
4	Faculty of Science	76	55	110	54
5	Faculty of Special Needs and Rehabilitation	32	14	27	14
6	Faculty of Vocational Studies	45	22	45	22
7	School of Management and Entrepreneurship	39	3	12	11
	Total	**425**	**199**	**440**	**192**

***Note*:** The table shows the research productivity of the academic staff at the Faculties/Schools showing the number of academic staff, number of academic staff with publications, total number of publications, and number of academic staff holding a Ph.D. The findings were derived from the data collected for the study.

The Faculties of; Science, Education, and Arts and Social Sciences had the highest number of publications in that order. This was attributed to among other factors; having the highest number of staff with PhDs and PhD programs. However, few Ph.D. holders had published which was in tandem with the Pareto tendency where 20% of the staff contributes 80% of the publications (Noble & Kecojevic, 2015). The Faculties of; Engineering, Special Needs & Rehabilitation, and the School of Management and Entrepreneurship, had fewer publications due to the low number of staff with PhDs and the absence of the Ph.D. programs. The total research productivity for faculty/school was further analysed as presented in Figure 1.

Figure 1: Research Productivity of Faculties and the School

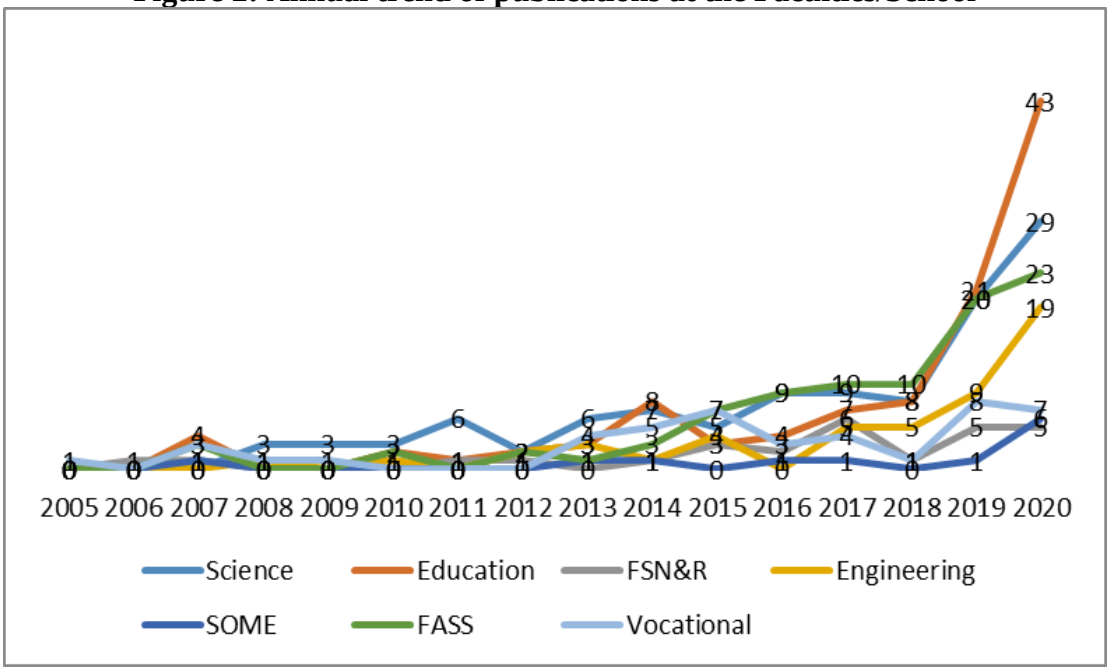


Note: The Bar chart shows the total number of publications by Faculty/Schools for the period of the study. It is based on the analysis of the data collected for the study.

Year-wise distribution of publications by Faculties/schools

The annual publication distribution for the Faculties/Schools at the university for the period 2003 to 2020 was analysed. Further analysis of the research productivity on an annual basis for the period of study is indicated in Figure 2.

Figure 2: Annual trend of publications at the Faculties/School



Note**:** The research productivity of each Faculty/School for the period of the study was derived from the analysis of the data collected for the study.

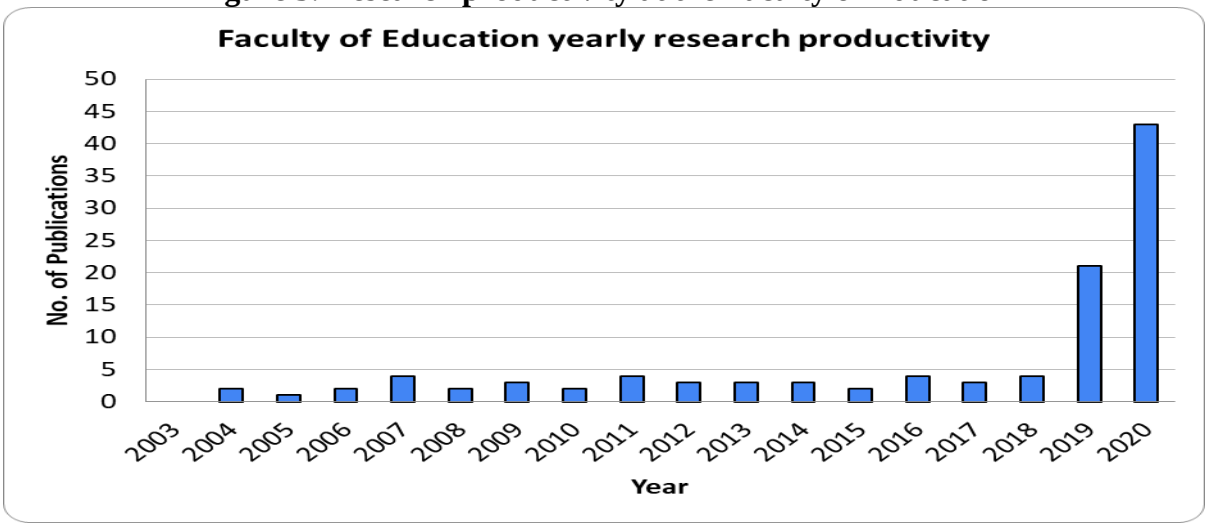
Although the university was established in March 2003, academic staff began publishing around 2005. The university was more oriented towards technical skills and research had little or no emphasis during the formative years. However, as a norm for academicians, publications seemed scattered in the different Faculties/Schools until 2012. Publications became frequent in 2013 when all Faculties/Schools produced publications. Several factors could be attributed to this visible change in the publication trends. The University formally established the criterion for academic staff promotion which emphasized currency of publications in credible journals for promotion consideration. In addition, the University instituted a requirement to vet all scholarly materials submitted for credibility, relevance, and contribution to the field of knowledge in which the applicant is applying for promotion.

The Faculty of Science started publishing in 2007 with 3 publications. Thereafter the number of articles varied throughout the period with seven publications in 2015, nine publications in 2016, and ten publications in both 2017 and 2018. The Faculty produced twenty publications in 2019 and twenty-three publications in 2020 which was the highest number of publications in a single year. Overall the Faculty had the highest number of publications 110 (25%) out of all the publications produced by the university in the period of the study.

Further analysis of productivity based on individual Faculties/Schools is shown in Figure 3. The Faculty of Education started publishing in 2007 with 4 publications. However, there was a break in publications until 2010 when publications became consistent. The Faculty had 2 publications in 2010, 21 publications in 2019, and doubled the number to 43 publications in 2020 the highest number of publications in a single year at any Faculty/School at the University. This was partially attributed to the lockdown of the whole country earlier in March 2020. This accorded researchers opportunities to concentrate on the research work as there was no other academic engagement facilitated by virtual activities for which the Faculty was the pioneer with a school of Online Distance Education Learning (ODel). However, the Faculty overall produced 106 (24%) of the total number of publications. This is the second most productive Faculty/School for the period under review attributed to the Doctoral

program currently conducted at the Faculty, the strong mentorship/mentee publishing relationship, and the desire to be competitive and a pacesetter since Education is a niche of the University.

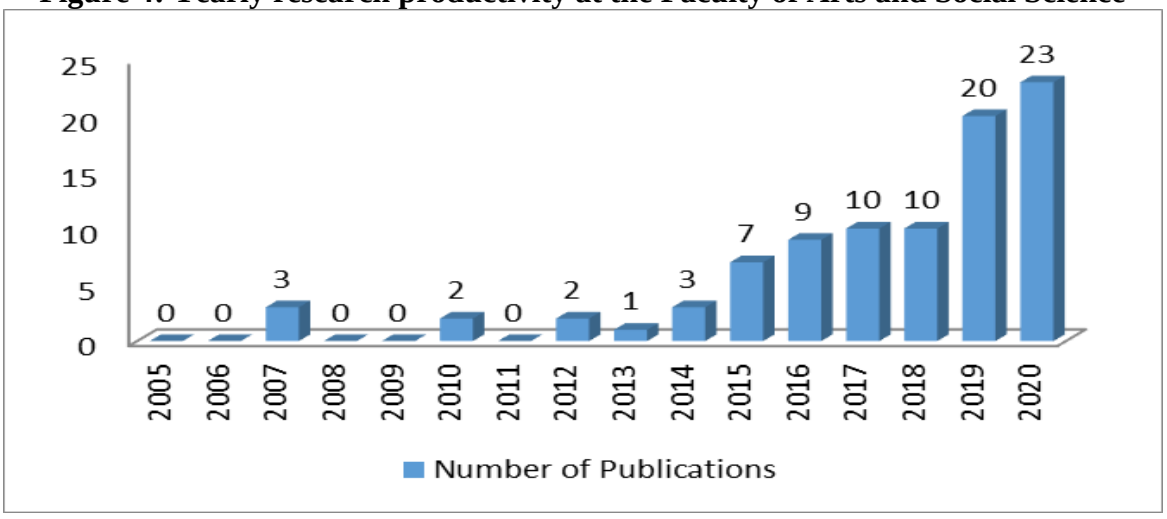
Figure 3: **Research productivity at the Faculty of Education**



Note: Yearly research productivity at the Faculty of Education for the period of the study derived from the data collected.

Analysis of annual research productivity at the Faculty of Arts and Social Sciences is shown in Figure 4.

Figure 4: Yearly research productivity at the Faculty of Arts and Social Science



Note: Yearly research productivity at the Faculty of Arts and Social Sciences is derived from the data collected for the study.

The Faculty of Arts and Social Sciences initial publications were in 2007 with 3 articles. However, consistent publishing began in 2012 with 2 publications and 10 publications in both 2017 and 2018. The number doubled in 2019 to 20 publications and peaked in 2020 with 23 publications which marked the most productive year at the Faculty. In total, the Faculty produced 90 (20%) publications in the period under review. Overall, the most productive year was 2020 with 131 publications of which 43 were from the Faculty of Education. The second productive year was 2019 with 83 publications with 20 publications by the Faculty of Education. The least productive was; the School of Management and Entrepreneurship with

12 (3%) followed by the Faculty of Special Needs and Rehabilitation with 27 (6%) publications for the period under review.

Notably minimal research productivity spanned a period of 10 years period from 2003 to 2013. This could be attributed to limited emphasis on research during the formative years of the university. The University focused on technical hands-on practice with a niche in teacher education, engineering, and special needs education. The University merged with institutions that were at various levels of development; had a few number of staff with PhDs and had no Ph.D. program. Most of the academic staff didn't have the qualifications required by a statutory authority set by the Uganda National Council of Higher Education and a few staff were engaging in research as a novelty.

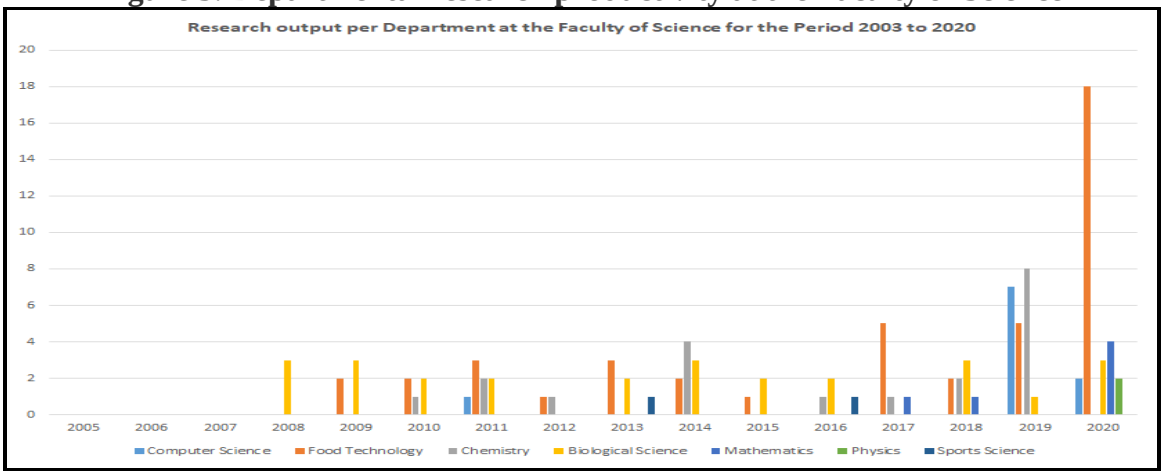
Additionally, scholars have urged that academic staff productivity is influenced by both personal and environmental factors. Personal factors include a preference to teach in more than one university, family-related issues, and the availability of research-supportive services (Hesli & Lee, 2011; Heng et al., 2020). Other limitations were; that academic staff prefer using the private time for business and communal activities rather than research as publishing is considered rigorous. The factors are indicative of academic staff without a research culture.

The increased number of publications from 2013 could be attributed to the approval of the Human Resources Manual in 2014 by the University Council. The manual guided the recruitment and promotion of academic staff based on current credible publications. The exponential increase in publications in 2018 and years thereafter was also attributed to the government's enhancement of salaries for academic and science staff in public universities. In addition, the mandatory promotion of academic staff to higher positions motivated members to publish to be considered or even compete for the existing positions. The increment in publications particularly in 2020 could also be largely attributed to the closure of the university due to the COVID-19 pandemic. This accorded academic staff time to write and publish as the world adopted virtual working as a new normal.

The year-wise distribution of the most prolific Departments

The study further analysed the three most productive Faculties/Schools; Science, Education, and Arts and Social Science based on the departments. The annual productivity of Departments at the Faculty of Science is presented in Figure 5.

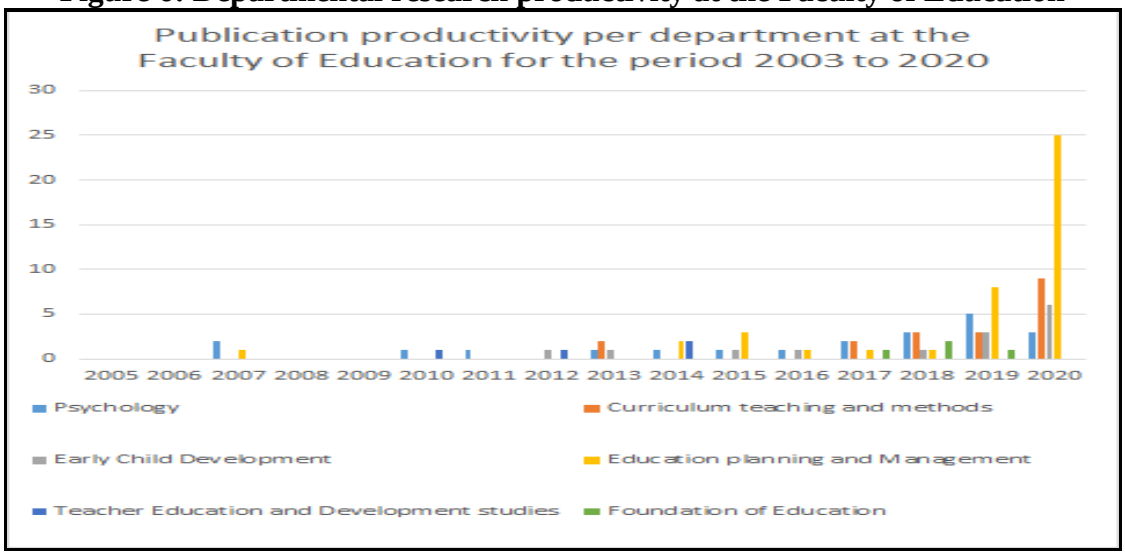
Figure 5: Departmental research productivity at the Faculty of Science



Note: The annual productivity of Departments at the Faculty of Sciences was derived from the data collected for the study

The Faculty of Science had seven Departments which included: Computer Science, Food Technology, Chemistry, Biological Science, Mathematics, Physics, and Sports Science. Based on the analysis in the bar chart above, The Department of Food Technology was the most productive with 44 Publications in the period under review. This was also the highest number of publications by any academic Department at the university. The Department began publishing in 2009 with 2 publications and peaked in 2020 with 18 publications. The second most productive Department was Biological Science which began publishing in 2008 and consistently published at least one article annually with a maximum of three articles per year in 2014, 2018, and 2020. Overall the Department published 26 articles; the second-highest number of publications. The third most productive was the Department of Chemistry with 20 articles and began publishing in 2011. The Food Technology Department was the most productive in the year 2020 with a total of 16 articles published in a single year. This is attributed to the Ph.D. program where the academic staff published with the students and several articles were published under collaboration.

Figure 6: Departmental research productivity at the Faculty of Education



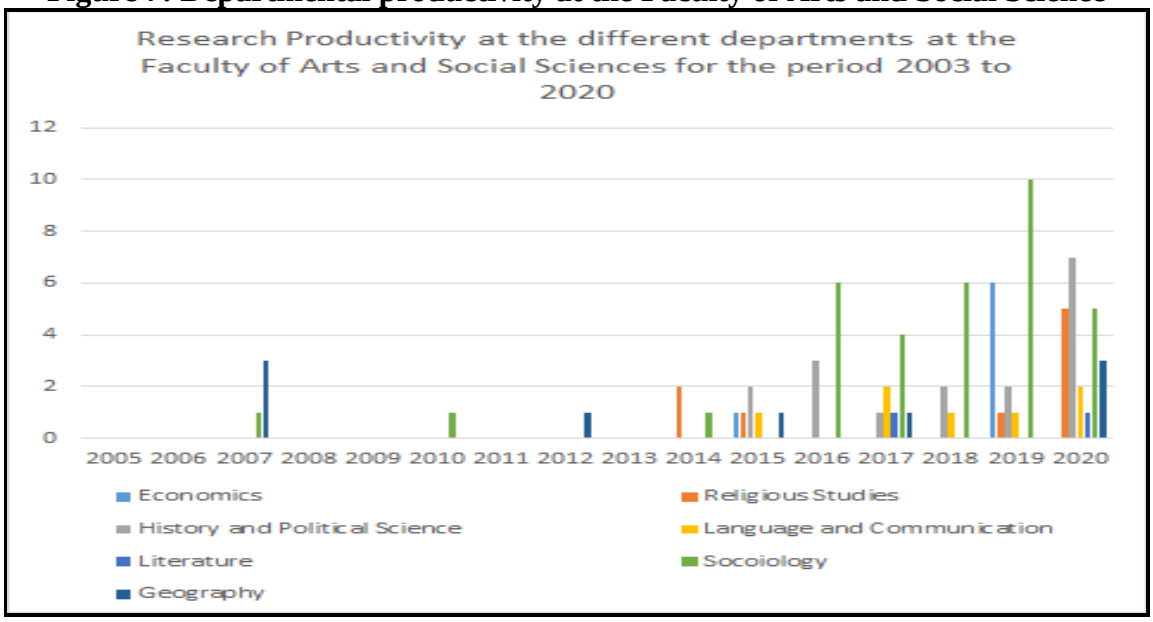
Note: Annual research productivity of Departments at the Faculty of Education was derived from the data collected for the study

The Faculty of Education had six Departments which were: Psychology, Curriculum Teaching and Methods, Education Planning and Management, Foundation of Education, Early Child Development, and Teacher Education and Development Studies. The annual productivity of Departments at the Faculty of Education is shown in Figure 6.

The Department of Education Planning and Management was the most productive with 42 publications for the period under review. This was followed by Psychology with 21 publications and the third was Curriculum Teaching and Methods with 19 publications. The least productive were the Foundation of Education and Teacher Education and Development Studies with 4 publications each. The Ph.D. program started at the Faculty in 2016 was attributed to the high productivity at the Department of Education Planning and Management.

The Faculty of Arts and Social Science has seven Departments including Economics, Literature, Geography and Social Studies, Sociology and Social Administration, Religious Studies, Language and Communication and History, and Political Science. The Annual research productivity at the Departments of the Faculty of Arts and Social Sciences is indicated in Figure 7.

Figure 7: Departmental productivity at the Faculty of Arts and Social Science



Note: The annual research productivity of Departments at the Faculty of Arts and Social Sciences was derived from the data collected for the study.

Although the Faculty produced 90 publications for the period under review, the most productive Department was Sociology and Social Administration with 46 (64%) publications. This was followed by Geography and Social Studies with 9 (12%) articles. History and Political Science produced 6 (8%) publications, Religious Studies and Philosophy 20 (16%), and Geography and Social Studies 18 (14.7%) publications. The least productive were: the Departments of Music and Performing Arts 1 (3%) followed by both the Departments of Languages and Communication and Economics and Statistics with 5 (4%) publications each.

Most prolific authors at Kyambogo University for the period 2003 to 2020

The most prolific authors were based on credible articles. It was found that out of the 440 publications, 429 were articles and 11 book chapters. Out of the 429 articles, 227 were credible while 202 were predatory. The analysis of the prolific author was based on 238 credible publications (227 articles and 11 book chapters).

The most prolific author at Kyambogo University was Dr. James Mugisha with 35 publications having joined the university in 2017. He was the first author of six out of the 35 publications and is based in the Department of Sociology and Social Administration, Faculty of Arts and Social Sciences. Most of his work is in the fields of mental health, cardiorespiratory fitness, and sedentary diseases, among other subjects tackled. The second prolific author was Associate Prof. James Kagaari with 16 publications and was the first author of 8 out of the 16 publications. The author is from the Department of Foundation Education and Educational Psychology at the Faculty of Education. His publications mostly covered: performance management, organisational behaviors and culture, and entrepreneurial networking. Surprisingly, prolific authors are publishing on health-related topics even though the university is not oriented toward health science programs.

Further analysis of research productivity by gender at the Departments by the first two leading authors is presented in Table 2.

Table 2: Gender-based research productivity at the Faculties/Schools

Faculty/ School	Department	Gender	Number of publications
FASS	Sociology	Male	35
	Sociology	Male	10
Education	Psychology	Male	16
	Curriculum	Female	8
FSNR	ACE	Male	5
	ACE	Female	4
Science	Food Science Tech.	Male	5
	Biological	Female	3
Engineering	Civil	Male	5
	Civil	Male	3
School of Management Entrepreneurship	Business Admin	Male	4
	Accounting & Finance	Male	2
Vocational	Human Nutrition	Male	2
	Human Nutrition	Female	2

Note: The research productivity at Faculties/Schools based on gender was derived from the data collected for the study

The Faculty of Arts and Social Sciences, Department of Sociology and Social Administration produced the most prolific author. This was followed by the Faculty of Education from the Department of Foundation of Education and Education Psychology. The third was from the Faculty of Education, Department of Curriculum Studies which also produced a female most prolific author Sr Dr. Gorreti Kaawa with 8 publications. Overall the productivity of women is less than that of men which confirmed earlier studies elsewhere on the subject (Evans and Bucy 2010; Heslie and Lee, 2011; Loan and Husain, 2017).

Gender disparities have detrimental effects and make it more difficult for women to access education opportunities (Iqbal, et al, 2022). According to Loan and Hussain, (2017), most nations, are experiencing a low proportion of women holding PhDs, which means that they are less likely to be hired by universities. In recruitment and promotion, female assessors were also likely to decrease the chances of female applicants while raising those of male applicants. This makes women occupy low ranks or rather administrative positions in most universities. Women continue to be at lower ranks at universities as pointed out by Danell & Hiern, (2012). Despite the many government policies and proclamations promoting girl child education since the 1995 Beijing World Women Conference, women are still underrepresented in upper academic positions, and men outnumber women in formal positions of power. Female researchers also tend to have slower careers and finish up in lower positions on average. Thus, implementing and enforcing government policy on gender should be emphasized to attain equity and gender parity in favor of women, particularly at public universities.

Insights into the most researched discipline were also required as a snapshot into the University's community impact. This was also necessary to show the relationship between the researchers' productivity and the university niche for the period under review. It was accomplished by using data sourced from Clarivate (Web of Science, 2022). Clarivate is the

independent world's most trusted publisher citation database. The analysis of the twenty-one research disciplines at Kyambogo University is shown in Table 3.

Table 3: The twenty-one most researched disciplines

S.No.	Web of Science Categories	Record Count	% out of 292
1	Psychiatry	38	13.014
2	Public and Environmental Occupational Health	36	12.329
3	Nutrition and Dietetics	19	6.507
4	Food Science Technology	17	5.822
5	Environmental Sciences	14	4.795
6	Psychology Multidisciplinary	12	4.110
7	Tropical Medicine	12	4.110
8	Educational Research	11	3.767
9	Medicine General Internal	11	3.767
10	Rehabilitation	10	3.425
11	Clinical Neurology	9	3.082
12	Multidisciplinary Sciences	9	3.082
13	Plant Sciences	9	3.082
14	Health Policy Services	7	2.397
15	Economics	6	2.055
16	Health Care Sciences Services	6	2.055
17	Paediatrics	6	2.055
18	Water Resources	6	2.055
19	Ecology	5	1.712
20	Microbiology	5	1.712
21	Social Sciences Interdisciplinary	5	1.712

Note: The twenty-one search terms were derived from the data mined from the Web of Science Database for the period of the study.

The most researched disciplines were; Psychiatry with 38 record counts, Public and Environment Occupational Health with 36 record counts, and Nutrition and Dietetics with 19 record counts. All these top researched disciplines are in health sciences which contribute to the United Nations' Sustainable Development Goals number three addressing '*ensure healthy lives and promote well-being for all at all ages*'. The evidence as derived from the table above shows discrepancies between the university's niche and its researchers' productivity. There is therefore need to re-align the niche to the research competencies and productivity. It is hoped that the newly adopted university structure be repositioned to capitalise on the existing strength. This could ensure that the niche is in tandem with the researchers' competencies.

Factors responsible for current levels of productivity and proficiency

The Ph.D. professional attainment has been identified as a predictor of productivity viewed both as a reward and schedule reinforcement. Individuals with PhDs and having published are recognized and promoted to a higher rank within the university structure than those without. It is also a requirement that the Ph.D. holder in the academic field publishes

regularly in the area of specialisation. This could be accomplished through the use of existing collaborative research networks attained in the course of pursuing a PhD. (Hesli & Lee, 2011). Faculties/Schools with PhD programs running have a higher affinity for publishing than those without. Departments should therefore be encouraged to start a PhD. Programs if they are to improve the ability to publish. Higher productivity in Science than in Humanities particularly in developing nations was also noted. This could be attributed to the availability of funding opportunities in science rather than in humanities which attracts researchers. The University's deliberate policy of promoting qualifying academic staff to the next rank based on quality publication is an incentive that has kept researchers awake and working to be among the beneficiaries. The government improvement in the salaries for academic and science staff has been contributing to publishing as members are now actively engaged to reach the required level of professionalism. The University's competitive research grant for the academic staff provided the required resources. This could support the local staff to participate in research and one of the requirements for the recipients was publishing the findings in recognised journals. There is also improvement in availability and access to research support resources including the introduction of reading carrels for graduate students in the university library; subscription to electronic databases to access up-to-date journals; information literacy training and other library-related research support services. Lastly, the employment of graduate fellows has reduced the workload on the academic staff offering an opportunity for them to engage in research.

5. Conclusion and Recommendations

Research productivity: Out of 425 Academic staff, 199 had published 440 publications of which 429 were articles and 11 book chapters. The year wise distribution showed the; Faculty of Science as the most productive with 110 publications and the Department of Food Technology as the most prolific with 44 publications. Sixty percent (60%) of credible publications indicate that researchers continue to fall prey to predatory publishing (Xia et al. 2015). Researchers are under pressure to increase the number of publications for promotion, recognition, and acceptance in the academic communities which makes them susceptible to deceptive publishers (Buitrago and Perez, 2023). This is also attributed to limited competencies in identifying predatory journals (Atiso, et al., 2019). It is therefore recommended that the University Library should take serious interest, and design and initiate training programs that could raise awareness about credible publishing among academic staff. This may be implemented by defining the traits of predatory publishers and journals, building a list of deceptive publishers and journals, and developing checklists to identify such publishers (Beall, 2012; Cukier et al., 2020; Strinzel et al., 2019).

It was also established that several authors had published in pay journals where they could not access the resources themselves due to the prevalent restrictions. Articles that reflect local content by local authors but are not accessible in full require urgent mitigation measures. In some instances, even the pre-print could not be accessed and only an abstract could be made available to the university's institutional repository (Kyambogo University, 2022). This was attributed to the absence of institutional policy guidelines on research and publication a gap that requires redress. It's recommended that the university policies should emphasize open access for all its proprietary sponsored research output. The policy should make it mandatory for affiliated staff to self-archive their works in the institutional repository (KyUSpace) a requirement that should be addressed even during negotiations for publishing where open access is not an option.

Most prolific authors: The most prolific authors were Dr. James Mugisha with 35 publications and the second was Associate Prof. James Kagali with 16 publications. Sr. Dr. Gorreti Kaawa with 8 publications was the most prolific female author for the period under review. It is recommended that the University should deliberate and establish an action plan to uplift women academic staff. This should be through establishing initiatives that address the historical, cultural, and religious connotations and biases that hinder women from progressing to higher academic positions within the university structures. The body of research on gender differences in research productivity suggests that gender disparities exist across all fields and nations. The findings unequivocally show that, in comparison, women are less productive researchers than men. There are numerous reasons for the low women's research productivity including age, marriage, having children, and handling household chores. Women are also underrepresented in higher education, have lower academic standing, and receive less funding for their research.

The researchers' productivity based on gender at Kyambogo University is in favor of men for the period under review. This came against the backdrop of the Government of Uganda's affirmative action where additional marks are awarded to female students to join universities and even more marks for enrolling in Science, Technology, Engineering, and Mathematics (STEM) related courses. This is contributing to the increasing number of female students and staff at universities. Despite the growing number of women academicians, participation in research and publication is still low. There is therefore need for deliberate strategic decisions to address the existing challenges faced by female academic staff. The university had claimed a niche in education, special needs training, and technology. Unfortunately, research visibility in technology was at its lowest during this period. The university should invest in its niche areas to uplift productivity for improved visibility and to maintain the niche claimed. The findings also indicated the University's research productivity is oriented toward health science, despite having no Faculty/School in the discipline. It should therefore work in favor of the university to introduce a substantive program in health science-related courses to exploit the existing potential.

Factors: The determinants of one's productivity and proficiency were based on several factors; holding a PhD, the number of staff with Ph.Ds., and running a PhD program at the Department or Faculty/School. This is further enhanced by the existence of collaborative networks and funding opportunities for researchers particularly aligned to Science, Technology, Engineering, and Mathematics (STEM). These were further supplemented with the presence of active research supportive services including mentorship opportunities, reliable access to internet and information resources, and access to competent individuals with diverse supportive skills to researchers and regular short courses on research and publishing from the established scholar. Collaborative authorship was highly commended for Departments/Faculties/Schools and even beyond the university. The Department of Sociology and Social Administration exhibited the highest number of collaborative and multiple authorships than any other Department at the University. It was recommended that the university should invest in creating an amiable environment that supports collaborative writing not only within the Departments but also encourages inter and multi-disciplinary research between Departments, Faculties/Schools, and other Universities. This is envisaged to enrich the study environment and generate new knowledge and competitive research that could solve real problems. It should also be prudent to optimise research resource usage. The Ph.D. programs have also been acknowledged as essential for improving research productivity. Thus the different Faculties and Schools should work towards developing and introducing Ph.D. programs. The pressure on academic staff to improve research productivity is hindered by the workload related to teaching and student supervision. It is therefore

commended that academic staff with proof of research work should be considered for reduced teaching and student supervision workload. Lastly, the university should focus on the factors that have a positive effect on researchers' productivity for enhancing. This is bound to result in an overall impact and increased research productivity with benefits to researchers, the community, and the university.

Implications for further research

Our study didn't cover the citation levels of the research output of the university for the period under review. This was due to the amount of work, and the limited time and resources availed for the current study. Citation is indicative of research use and the authors recommend further study on the extent of use as well as knowledge translation into the local policy environment.

Limitations of the study

The study sourced data from Google Scholar, Ebscohost, Emerald, and Taylor and Francis Databases only. Publications that had the author/s mentioning their affiliation to Kyambogo University were considered, and the authors' prolificacy was based on credible articles only.

Originality of the article

This is the first study to give insight into the research trends and productivity at Kyambogo University. The paper provides useful recommendations to improve research productivity at the university and could be beneficial to other institutions with similar settings.

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Declaration of conflict of interest

The authors declare no conflict of interest in this entire work and presented the finding as analysed.

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