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Resource mobilisation and allocation priorities on knowledge production in universities in Uganda: an empirical study

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ABSTRACT

Knowledge production is recognised as one of the core functions of a university, but its effective implementation has eluded many African universities, particularly those in Uganda. This paper analyses whether this situation is explained by these universities' resource mobilisation and allocation priorities. Using a mixed research design, data was collected from purposively selected respondents and from interviews with top management officials of Universities. In addition, a structured questionnaire to faculty members who were conveniently selected from four of the largest universities in Uganda was used. Data was analysed using qualitative and quantitative methods of analysis. Results indicate that the selected universities' resource mobilisation and allocation do not give knowledge production the priority it deserves. The priorities focus more on meeting the demands of the teaching, administrative and instructional infrastructure development functions. The research function is largely left out based on a view that it can generate its own resources not only through faculties and departments winning funded research projects and using university-industry collaborations but also through research students and faculty members sponsoring their research projects. This view however, does not always hold. Consequently, the paper concludes by urging top management of Uganda's universities that if they are to produce the knowledge expected of them, they have to give the research function the priority it deserves when mobilising and allocating resources.

Keywords: Financial, Human, Material resources, Higher education - Research - Uganda

Introduction

Knowledge production which refers to the creation of new information, innovations, applications and skills that can be used to guide or do human work in a better way (Carayannis & Campbell, 2019); is a key function of Universities. While the origin of this process is attributed to the early Greek philosophers such as Socrates, Plato, but primarily to Aristotle who asserted that producing knowledge enhances human productivity and civilisation (Gurukkal, 2019, 2020). Resent developments in the contemporary area has re-energised renewed debates in contemporary times. Knowledge production has thus moved side by side the evolution of a University.

Literature suggests that knowledge production became the core aim of research activities conducted at university level in 1088 when the University of Bologna was established in Italy as the first ever university in Europe (Bleiklie & Walter, 2005; Akbaritabar *et al.*, 2018). Other universities that were established afterwards in Europe, America, Asia, Australia and Africa embraced this process as a core function they started to pursue through research (Bleiklie & Walter, 2005; Kwiek, 2016; Phuong *et al.*, 2017; Heng *et al.*, 2020). Many universities such as Johns Hopkins University, Stanford University and Oxbridge are called research universities to underscore the fact that they emphasise knowledge production more than even teaching (Owen-Smith, 2018; Reichert, 2019; MacLeod & Urquiola, 2020). Unfortunately, many universities in the global south or Africa are struggling to produce the knowledge expected from them (Heng *et al.*, 2020). This is particularly the situation facing most of the universities in Uganda (Kyaligonza *et al.*, 2015).

In Uganda, knowledge production at the university level began at Makerere University, which started as a humble Technical College in 1922 (MacGregor, 2015). This University engaged in knowledge production through research up to the early 1980s when other universities began to be established following privatisation and liberalisation of higher education imposed through the structural adjustment programmes recommended by the World Bank and International Monetary Fund (Mugizi, 2018). Over 40 private universities and over 10 public universities have since been established (Alemiga & Kibukamusoke, 2019; Rwothumio *et al.*, 2020, 2021). Most of these universities are however, not producing the knowledge expected from them to propel industry innovation as well as Uganda's national development agenda. A study by Obuku *et al.* (2017) indicates that the little knowledge the universities generate in one discipline is specific and highly theoretical that its policy and practical relevance is very low.

Different factors have been identified to explain why Uganda's universities are not able to generate the practical knowledge expected of them to contribute effectively to business and national development. These include use of the British model of education whose outcomes are negligibly relevant within the context of the local development realities of Uganda (Nabayego, 2016; Serunkuma, 2019) and low funding (Kyaligonza *et al.*, 2015) and overreliance on Mode 1 of knowledge production (Obuku *et al.*, 2017) Others include government interference, corruption, weak internal governance (Asiimwe & Steyn, 2013), inappropriate higher education policies (Ecuru, 2011; Bazilio, 2019), and low research motivation among faculty members (Yawe, 2010; Daisy, (2019). A scrutiny of these factors reveals that they do not include resource mobilisation and allocation priorities.

Yet such priorities determine the required financial, human and material resources and how they are mobilised and allocated to facilitate an organization's activities (Achamkulangare, 2014; Wambua, 2017). In so doing, they play a role in influencing the extent to which an organisation like a university conducts research, thereby producing the knowledge expected from it (Wakoli & Kitainge, 2019; Agyepong *et al.*, 2021). These priorities therefore constitute a variable that can be examined and the factors influencing it when a university does not produce the knowledge expected from it. The purpose of this paper is to examine the resource mobilization and allocation priorities and how they influence knowledge production in Ugandan universities.

Theoretical and Conceptual Framework.

Theoretical review

This paper is underpinned by two theories. The first is the resource mobilisation theory, particularly its economic variant that was advocated by John D. McCarthy and Mayer Zald during the decades of 1960s and 1970s that were marked by intensified social movements, and published in 1977 (Crossman, 2020). This theory is adopted to guide analysis into the different resources needed by universities and which it should mobilise to facilitate knowledge production. This theory however, does not look into how the mobilised resources should be allocated to facilitate knowledge production optimally. This therefore complemented by the theory of resource allocation to cover this gap.

The economic variant of the resource mobilisation theory advances a view that all social movement organisations (SMOs) require and depend on resources to conduct their activities and achieve their goals (Golhasani & Hosseinirad, 2017). It views SMO as any human collectively or group established to pursue goals leading to social change, where social change is any improvement or new behaviour promoted to make people's way of life better (Crossman, 2020). In this study, the SMO is operationalised as a university, and the goal is conceptualised as knowledge production. According to Ojwang'awuor (2015), the resource mobilisation theory defines resources as all the tangible and intangible assets a SMO needs to do its work and achieve its goals. It recognises the resources as moral resources, which include solidarity, legitimacy and philanthropy extended to an SMO; cultural resources that include universal knowledge about the tasks to do to achieve set goals; social resources that consist of social networks for spreading relevant messages such as meetings, flyers, media, and volunteers, to mention but a few. The other resources this theory recognises include material resources, which include both financial (money) and physical capital such as office space, equipment, and supplies; human resources that consist of labour, experience, skills and expertise (McCarthy & Zald, 2001). In short, the resources this theory specifies include moral, human, financial, material, informational, social networks, collaborations, ideological and structure (Ortiz & Tripathi, 2017). In this paper however, only resources a university needs to engage in knowledge production are analysed in terms of how they are prioritised and how the prioritisation influences this production. As noted earlier, this theory does not delve into resource allocation, which is why is supplemented by the resource allocation theory.

The resource allocation theory was proposed by Joseph L. Bower in 1970 to explain how resources are apportioned within an organisation. This theory asserts that resource allocation begins with a cognitive trigger, which may be a performance gap, a necessity or opportunity that compels decision makers to appreciate that resources need to be invested in solving the problem or harnessing it (Bower, 2018). This appreciation is followed by impetus that involves forces that govern decision makers to decide whether or not to actually apportion and invest the resources into solving the gap, need or harnessing the opportunity based on evaluating and prioritising its importance relative to other competing demands (Bower, 2017; Vieregger *et al.*, 2017). The impetus is then followed by budgeting actions involving evaluating benefits, impact and selection between competing demands to prioritise them and allocate resources accordingly (Busenbark *et al.*, 2017). Most prioritised demands are allocated more resources than the less or non-prioritised demands, with the latter receiving no allocations sometimes (Maritan & Lee, 2017). In this study, this theory is used to guide the analysis of how knowledge production is prioritised relative to other functions of a university in terms of resource allocation.

Conceptual review

Knowledge Production

This process has attracted several scholars to understand how universities engage in it. Among these scholars are Major and Palmer (2006) who used Mode 1 to explain knowledge production by universities. According to these scholars, universities that use Mode 1 concentrate on generating discipline-specific and abstract knowledge that has only academic value, which takes the form of research dissertations, theses, papers, essays, articles published in peer-reviewed journals, book chapters or published textbooks. The value of this knowledge is in form of enabling either research students to produce new knowledge expected of them to graduate or faculty members to gain research expertise and professional growth through conducting research, publication of findings and supervision of research students (Carayannis *et al.*, 2016). The produced knowledge is considered theoretical because it tends to have little or no practical as far as solving real problems, creating practical innovations, skills and applications are concerned (Stamati *et al.*, 2018). Knowledge production under Mode 1 requires different resources to be accomplished. These include human resources (research students, research faculty, research supervisors), financial (research funds), material (research equipment and facilities), and networks (especially with other universities, research institutes, research funders, book and journal publishers) (Carayannis *et al.*, 2016). This paper is intended to examine how these resources are given priority when mobilising and allocating those needed by a university.

It should be noted that Mode 1 has been criticised for being overly concerned with production of knowledge that has little or no practical value (Stamati *et al.*, 2018). The criticism led Gibbons *et al.* (2010) to develop Mode 2 that focuses on production of practical knowledge based on applied research guided by theoretical models. Under Mode 2, practical knowledge is produced through research conducted by short-lived interdisciplinary, transdisciplinary or multi-disciplinary teams. The knowledge is practical because it is produced to solve real problems identified in daily life, business organizations or national development programs (Bleiklie & Walter, 2005). The produced knowledge can enable individuals, organizations or nations to address their entrepreneurial, business and national progress needs (Veit *et al.*, 2017). By its very nature, Mode 2 requires resources like those needed to facilitate Mode l; but it additionally needs collaborative resources in form of university-industry cooperation or partnership (Rybnicek & Königsgruber, 2019; Awasthy *et al.*, 2020). Mode 2 has also come under attack. Critics say that the knowledge it produces is for solving specific needs for specified users. For instance, the knowledge a university produces through collaboration with a business company is used by that company only. It does not benefit any other potential user (Awasthy *et al.*, 2020). This way, Mode 2 fails to produce knowledge needed to solve the needs of different users and is therefore, not competitive – the knowledge is not demanded by different users to create competition among its producers (Ivascu *et al.*, 2016).

The preceding criticism led to the development Mode 3, which according to Boehm (2015), combines Mode 1 and Mode 2 to assert that knowledge satisfies market needs only when it is relevant to more than one end-user and therefore, produced through a system of high engagement between producers (universities) and end-users. This system is formed through understanding end-users' knowledge needs and establishing collaborations between them and universities. Mode 3 recognises industry players, government agents, and community actors such as nongovernmental organizations, civil society, community-based organizations, as well as individuals such as entrepreneurs (Boehm, 2015).

The collaborations are formed in a way which allows partners to combine basic research (Mode 1) and applied research (Mode 2) to develop practical knowledge that can be entrepreneurial at a micro level, enhance organisational innovation at a meso level, foster national development at a macro level, or promote business internationalization at a global level (Carayannis & Campbell, 2019). Therefore, Mode 3 generates knowledge that empowers all societal actors to become entrepreneurs, improve and globalise their businesses, and contribute effectively to national development. Effective use of Mode 3 requires giving it priority when mobilising and allocating university resources. This paper investigates how this is done in Uganda's universities.

Generally, previous research indicates that knowledge production requires more resources as it advances from Mode 1 through Mode 2 to Mode 3. It therefore suggests that for universities to shift from production of theoretical to practical knowledge production, their research function needs to be more prioritised as far as mobilising and allocating necessary resources is concerned. The question answered in this paper is about the extent of this prioritisation in Uganda's universities.

Resource mobilization

Resource mobilization is a broad concept that connotes all way by which all types of resources an organisation such as a university needs to facilitate the attainment of set objectives and goals are identified and raised (Kipchumba *et al.*, 2013; Bhattacharjee & Kabra, 2014). These resources span over a wide spectrum including human labour, talents, competences (knowledge, skills and experience); economic goods like money, materials, equipment; accessible information, and energy (electricity); structure; gainful collaborations and supply relationships established with resource providers such as banks, other educational institutions, government agencies, civil society, donors, business community, and others (Ojwang'awuor (2015; Golhasani & Hosseinirad, 2017; Ortiz & Tripathi, 2017; Crossman, 2020). Much of the previous research on higher educational institutions like universities has however, largely focused on mobilisation of financial resources (Webber, 2017; World Bank, 2019; OECD, 2020), with a few studies examining mobilisation of university-industry collaborations (Ankrah *et al.*, 2015; Ivascu *et al.*, 2016; Awasthy *et al.*, 2020), and human resources (Kamel, 2016; Bilal *et al.*, 2019; Jadhav, 2019; Silander & Stigmar, 2019; Zeleza, 2020). This research explains that universities mobilise necessary human resources through pre-service training, retention and postgraduate training as well as hiring professors and research experts (Kamel, 2016; Bilal *et al.*, 2019; Jadhav, 2019). It also indicates that these institutions mobilise the required financial resources through raising tuition, fees, loan finance, applying for donor grants, endowments, internal income generating projects, subventions, and winning research projects through encouraging their faculty to write competitive research proposals (Webber, 2017; World Bank, 2019; OECD, 2020). This research further shows that university functions to which priority is given when mobilising resources are implemented better than those to which less priority is given (Awasthy *et al.*, 2020; Zeleza, 2020). However, it has all fallen short of delving into analysing priority given to knowledge production when mobilising these resources. This leaves the question of how knowledge production is prioritised when mobilising resources that a university needs to implement its functions, which is answered in this paper within the context of Ugandan universities.

Resource allocation

This concept connotes a strategic management practice that involves apportionment of expected and available human, financial, material and other resources to the different functions, categories of activities or

even specific undertakings planned to enable an organisation such as a university to achieve its set objectives (Liefner, 2003). The concept involves deciding where to assign which resources and in what quantity to ensure that an organisation's core functions are optimally implemented within the limitations of the available resources (Mah'd, 2014). Specifically, this concept is about assigning the right people to perform the planned activities and allotting financial and material resources required to facilitate the execution of these activities and delivery of expected outputs within the scheduled time (Wang, 2019). Prior research indicates that resources are allocated through budgeting decisions taken in such a way that more resources are apportioned to prioritised functions and activities while less or no resources are allotted to non-prioritised areas (Ibukun *et al.*, 2012). This way, less prioritised functions and activities are resource-constrained, which makes them minimally executed or not implemented at all while those that more prioritised receive more resources that improve their implementation (Broeker *et al.*, 2021). Resource allocation priorities can therefore be investigated when production of practical knowledge, a core objective of any university, is at its lowest. This is needed at most of the universities in Uganda, since they are grappling with this very situation as different studies have shown (see for instance Kyaligonza *et al.*, 2015; Obuku *et al.*, 2017)

Methodology

This study was designed as a cross-sectional survey involving mixed methods. this research design was employed because of its ability to facilitate analysis of first-hand qualitative and quantitative data collected at once (Abdelbasset *et al.*, 2019; Thomas, 2020). The sample consisted of top university administrators who were purposively selected from two largest public and two largest private universities in Uganda to provide qualitative interview data as key informants. It also consisted of faculty members selected from the same universities using convenience sampling to facilitate selection of those who could be accessible during the partial opening of the universities which had been caused by COVID-19. Faculty members were selected to provide quantitative data using a structured questionnaire which had valid and reliable items (its validity and reliability indices were .875 and .899, respectively). The sample size was determined using Sloven's formula stated below:

$$n = \frac{N}{[1 + N(e)^2]}$$

Where n was the sample size, N was the size of the target population, which, from Annual Management Reports of the four selected universities was 85,830, which included 85,800 faculty members and 30 top administrators; e was the standard error allowed in sample selection, implying that respondents were selected at the 95% confidence level. Therefore, e = 5% or 0.05.

Therefore, n = 85,830 ÷ [1 + 85,830 (0.05)2] ≈ 398

The expected sample size was equally divided into two categories of 199 respondents who were to be selected from public universities and 199 expected from private universities. However, owing to the World Health Organisation's measures against the spread of COVID-19, all the universities were partially closed at the time of data collection. Consequently, the expected sample size was not realised. The actual sample consisted of 207 of whom 109 were faculty members and four top administrators from public universities and 98 were faculty members and four top administrators from private universities. The qualitative interview data collected from the top administrators was analysed using thematic analysis enriched by relevant data excerpts. Quantitative questionnaire data was analysed descriptive and linear regression analysis.

Findings

The aim of this study was to examine the resource mobilization and allocation priorities and how they influence knowledge production in Ugandan universities. This aim was met by asking respondents to explain how their universities prioritised the mobilisation and allocation of resources required to implement their research or knowledge production function. When this question was posed to the interviewed top administrators, the main theme developed from thematic analysis of their responses was that the mobilising of resources for research was the least prioritised. There was consensus that mobilising resources for research is not prioritised as much as raising those which the universities needed to implement their teaching and administrative functions because these latter functions attracted much more critical stakeholder interest and attention. This theme was revealed by different responses the most revealing of which was as follows:

> We are aware that knowledge production is one of the core functions of a university, but teaching is also essential and actually the main function for teaching universities like ours, and one with the most critical stakeholder interest and demands. All students demand learning as their critical interest. Faculty members demand emoluments and instructional materials as their indispensable interests. More importantly, the teaching function is difficult to implement effectively without the administrative function playing its supervisory role. Therefore, our resource mobilisation strategy focuses more on raising the resources we need to support the teaching and administrative functions; the research function is considered later. By the way, even Government prioritises teaching and administration when financing our budget. Money proposed to support the research function is inadequately provided. This is the vote that usually records the hugest funding gap (Interview held with University Bursar, 15 January 2021).

In support, another top administrator indicated that their general resource mobilisation strategy prioritised knowledge production less compared to teaching, administration and even instructional infrastructure development. This administrator expressed a view that giving the research function less priority was because it was expected to generate its own resources. This view was substantiated by explaining that all research students were expected to meet the cost of their research. In addition, all faculty members were expected to improve their research expertise through self-driven conducting of academic research. They were further encouraged to win funded research projects by writing competitive research proposals responding to calls for sponsored research, and sell innovative and valuable research ideas to business companies in way that could persuade these organisations to invest in university-industry research collaborations:

> We don't pay much attention to mobilising resources for research or knowledge production because we expect it to generate its own resources. Students are expected to pay for their research and for the research supervision they get from the university. Faculty members are encouraged to be self-driven in conducting research to improve their research expertise. They are also encouraged to compete for funded research projects and to develop research proposals that can add value to business companies and which these companies can therefore sponsor through university-industry collaborations. But teaching, administration and educational infrastructure have to be mobilised for (Interview with university VC, 19 January 2021).

Furthermore, one of the top administrators argued that knowledge production was a so expensive function that if prioritised, it would need all the resources mobilised and even require more that would be difficult to raise given the resource-constrained conditions within which their universities operated. This respondent

supported this view by explaining that the resources that knowledge production needed included faculty members such as professors and expert researchers and a lot of their time to engage in research. It also needed research facilities and equipment in addition to huge financial resources to facilitate its implementation. Therefore, its prioritisation would make the universities fail to mobilise the resources needed to implement the other core functions of teaching and administration, since it would take much of the time that faculty members would need to teach and much of the financial resources that would have been used to motivate them to teach and to finance administration needed to supervise them. The respondent added that it is for this reason that universities have to choose to specialise either as research or teaching universities, with those implementing both functions being adequately resourced:

> Giving priority to raising resources for knowledge production is suicidal to a teaching university like ours. Teaching requires supervision and both need resources, but research requires much more resources. Focusing on knowledge production first is very likely to exhaust all the resources we can raise, thereby leaving other functions with no resources needed to implement them. This is why a university chooses to specialise either in teaching or knowledge production. Very few universities prioritise both knowledge production and teaching, and these are the institutions that are well-resourced in terms of teaching and research resources (Interview with Vice Chancellor, 20 January 2021).

The views expressed by the top administrators did not differ from those revealed by faculty members. When the latter were given a number of questionnaire items and asked to use a 5-point Likert scale of responses running from strongly disagree (1) through disagree (2), not sure (3) and agree (4) to strongly agree (5) to assess how their universities prioritised mobilising resources for knowledge production. Respondents who disagreed and strongly disagreed indicated that this mobilisation was not prioritised. Those who were not sure pointed to a mixed view. Respondents who agreed indicated that it was inadequately prioritised while those who strongly agreed suggested that it was strongly enough priority. Descriptive analysis of their assessment led to results shown in Table 1.

Table 1: Faculty assessment of prioritising mobilisation of resources for knowledge production.

Indicators of prioritising mobilisation of resources for knowledge production	Faculty assessment of each indicator (N = 207)			
	Min	Max	Mean	Std.
Our university gives priority to raising funds needed to facilitate applied research for production of knowledge needed in the market.	1	4	1.92	.877
Our university prioritises establishing research partnerships with other universities as a way of enhancing its knowledge production capacity	1	3	1.53	.434
Our university gives priority to sponsoring research training intended to improve faculty members' knowledge production competences	1	4	1.88	.444
Our university prioritises hiring research experts needed to boost its knowledge production capacity	1	3	1.68	.567
Our university gives priority to establishing research collaborations with business companies to enhance its capacity for knowledge production	1	3	1.65	.673
Our university prioritises mobilising equipment needed to support knowledge production through research	1	4	1.56	.778
In our university, raising resources needed to produce any new knowledge is left to those conducting the research or their sponsors	4	5	4.88	.212
Overall average assessment	1	5	2.16	.569

The findings in Table 1 indicate how faculty members assessed the manner in which mobilisation of resources for knowledge production was prioritised in their universities. The minimum and maximum values show that there were faculty members who strongly disagreed (Min = 1) and those who strongly agreed (Max = 5) to the various indicators of this prioritisation. Those who strongly agreed indicated that the mobilisation of the resources was highly prioritised while those who strongly disagreed opposed this view. The magnitudes of the mean values were close to '2', except one corresponding to "In our university, raising resources needed to produce any new knowledge is left to those conducting the research or their sponsors" (Mean = 4.88), which was close to '5'. Being close to '2' reveals that on average, faculty members disagreed that their universities prioritised mobilisation of resources that were necessary to facilitate knowledge production. These results suggest that the universities did not prioritise mobilisation of these resources. All the standard deviations in Table 1 were less than '1', suggesting that there was low dispersion in the sample. In other words, the assessment of this prioritisation, which faculty members provided as individuals did not deviate much from their average assessment as a whole sample. This suggests that no priority was given to mobilising resources for knowledge production in all the selected universities.

Turning to the priority given to knowledge production during resource allocation, thematic analysis of the interview responses provided by top administrators revealed 'least prioritised' as one of the emerging themes. This theme suggests that knowledge production was not given priority far as apportioning the mobilised resources was concerned. Top administrators argued that if research did not generate its own resources, no other resources would be made available to facilitate it because those mobilised were even not enough to adequately facilitate teaching and its supervision as the main functions of the universities. One of the administrators was more articulate in revealing this theme when he stated:

> It is hard to imagine allocating the limited budgetary resources we mobilise to research when they are not even enough to meet the university's teaching and administrative requirements. The resources are in fact not even sufficient to pay our faculty satisfactorily and to facilitate them with teaching facilities they need to facilitate students – our main source of funding – to learn as they expect (Interview with University Bursar, 20 January 2021).

In addition, the research function was not prioritised as far as allocating human resources was concerned. Top administrators explained that since theirs were teaching universities, they were more concerned with allocation of faculty members to teaching of academic programmes to knowledge production. These respondents indicated that having enough faculty members to teach all the offered academic programmes was better than having enough researchers as the former was critical to guaranteeing students' receiving of learning services that would make them realise value for their money (tuition and fees) compared to when priority was given the research component.

> Our students are a priority to us because they determine our existence. It is better to allocate them the human resources they need to be taught to realise value for their tuition and fees than to apportion the resources to the research function. Having enough faculty members allocated to the teaching of all the academic programs we offer is more important to us because we are a teaching university (Interview with University Secretary, 20 January 2021).

Furthermore, most of the interviewed top administrators indicated that they prioritised the development of educational infrastructure more than the research function as far as resource allocation was concerned.

This was attributed to the fact that their universities were still developing. The universities needed to establish enough educational capacity as teaching institutions. They needed more well-furnished classrooms, more well-stocked libraries and laboratories, and more extracurricular and recreational facilities that enrolled students needed to have a healthy mind in a healthy body, and which were also necessary to attract more students. Putting all these facilities in place left these top officials with no option but to prioritise it more than the research function, which, despite its knowledge production importance, would require even much more resources to operationalise:

> We are aware of the role a university plays as a knowledge producer through its research function. however, ours emphasises the teaching function more than the research function. it is also a developing university. Therefore, when allocating resources, more priority is given to developing its educational infrastructure: we need more well-furnished classrooms, more well-stocked libraries and laboratories, and more sports and games grounds. While resources we need to put up all this capacity are huge and different, those needed to invest in the research function to its operational level are 10 times more enormous. So, our prioritisation as a teaching university as justifiable (Interview with University Planning Director, 20 January 2021).

The findings obtained from faculty members were consistent with those provided by the top administrators. Asked to use the same scale of responses to assess how their universities prioritised allocation of resources to knowledge production, descriptive analysis of the assessment provided by the selected faculty members produced results shown in Table 2.

Table 2: Faculty assessment of prioritising resource allocation to knowledge production.

Indicators of prioritising knowledge production in resource allocation	Faculty assessment of each indicator (N = 207)			
	Min	Max	Mean	Std.
Our university gives priority to the research function when allocating its budget to its different activities.	1	4	1.55	.807
Our university prioritises the research function when assigning faculty members to perform its different activities	1	4	1.66	.734
Our university gives priority to stocking equipment and facilities for implementing its research function when allocating its mobilised resources.	1	4	1.48	.944
Our university prioritises allocation of resources needed to hire research experts needed to boost its knowledge production capacity	1	3	1.68	.567
Overall average assessment	1	4	1.59	.763

Using the same interpretative logic applied to results in Table 1, the minimum and maximum values show that there were faculty members who strongly disagreed (Min = 1) and those who agreed (Max = 4) to the indicators of prioritising knowledge production when allocating budgeted and mobilised resources. The faculty members who strongly disagreed indicated that allocation of these resources did not give priority to research and hence, knowledge production. Those who agreed showed that it was it was given moderate priority. The magnitudes of the mean values were all close to '2', suggesting that on average, faculty members disagreed that the research function was given priority during of allocation of budgeted and mobilised resources. The standard deviations were all less than '1', suggesting that there was low dispersion in the sample. This implies that the way faculty members disagreed as individuals did not digress much from their average disagreement as a whole sample. Accordingly, results indicate that the selected universities did not prioritise knowledge production during allocation of resources.

Further investigation was conducted to establish the level of knowledge production in the selected universities as a basis for analysing how it was affected by the universities resource mobilisation and allocation priorities. This involved asking faculty members to assess this level using the same Likert scale of responses. Findings from descriptive analysis of the assessment are presented in Table 3.

Table 3: Faculty assessment of level of knowledge production.

Indicators of knowledge production level	Faculty assessment of each indicator (N = 207)			
	Min	Max	Mean	Std.
Our students are required to conduct research regardless of their academic program on which they are enrolled.	1	5	3.53	.817
Our students are encouraged to conduct research that must contribute new knowledge	1	5	3.64	.714
As a faculty member, I am satisfied with the amount of academic research I have been able to accomplish.	1	5	3.61	.914
As a faculty member, I am contended with the amount applied research I have conducted for different business companies.	1	5	3.55	.517
As a faculty member, I am satisfied with the amount of practical knowledge I have contributed to improve the productivity of people whose work are in line with my specialisation.	1	5	3.59	.455
Overall average assessment	1	5	3.58	.683

From Table 3, the minimum and maximum values show that there were faculty members who strongly disagreed (Min = 1) and those who strongly agreed (Max = 5) to the indicators of the level of knowledge production. Those who strongly disagreed indicated that their universities did not produce any knowledge while those who strongly agreed showed that their universities posted a high level of knowledge production. All the mean values, including the overall value of 3.58 were however, close to '4', suggesting that on average, faculty members agreed, thereby revealing a low level of knowledge production in their universities. The standard deviations were all less than '1', pointing to low dispersion in the sample. Therefore, faculty members showed that the level of knowledge production was low in their respective universities.

After establishing the level of knowledge production in the selected universities, the arithmetic technique of the data transformation method of SPSS was applied to consult global variables from the responses to the items administered to faculty members to measure each of variable. The assessed prioritisation of mobilisation of resources needed to facilitate knowledge production was named Resource Mobilisation Prioritisation, that of prioritising allocation of these resources was named Resource Allocation Prioritisation, and level of knowledge production was named Knowledge Production). Thereafter, linear regression analysis was conducted with the first two as the independent/predictor variables and Knowledge Production as the dependent/predicted variable. Results are presented in Table 4.

Table 4: Linear regression statistics between Prioritisation in Resource Mobilisation, Allocation and knowledge production.

Predictor	Statistics predicted on the dependent variable: Knowledge Production										
	Unstandardised Coefficients		Standardised Coefficients								
	B	Std. Error	Beta	t	Sig.	R	R^2	Adjusted R^2	F	Sig	Error of estimate
(Constant)	-3.241	2.408		-1.346	.197	.597	.356	.275	4.420	.030	1.978
Prioritisation of Resource Mobilisation	1.338	.554	.519	2.414	.028						
Prioritisation of Resource Allocation	1.890	.759	.535	2.488	.024						

The statistics in Table 4 indicate that prioritisation of resource mobilisation and allocation predicted knowledge production by significant a 27.5% (Adjusted R^2 = .275, F = 4.420, Sig. = .030 < 0.05). This prediction implies that close to 28% of the knowledge produced by the selected universities depended on how mobilisation and allocation of the resources required to do so were prioritised. The beta coefficients were positive, suggesting that the degree of priority given to these two processes determined the proportion of the generated knowledge positively. The corresponding t-values were significant for both predictors, indicating that each of them affected the generated knowledge significantly. The magnitudes of the beta coefficients suggest that prioritising allocation of resources required to facilitate knowledge production had a relatively stronger effect (Beta = .535, t = 2.488, Sig. = .024 < .05) compared to that of prioritising their mobilisation (Beta = .519, t = 2.414, Sig. = .028 < .05). These coefficients suggest that any improvement in prioritising mobilisation and allocation of resources for knowledge production translates into significant improvement in the level of generated knowledge, more so when the improvement is in allocation of these resources.

Discussion

The results indicate that the way Ugandan universities prioritise mobilisation and allocation of resources required to facilitate knowledge production has a significantly positive effect on the amount of new knowledge generated by these institutions (Table 4). These results imply that knowledge production increases in these universities when more priority is given to mobilising and allocating resources required to facilitate it. Therefore, the findings support the observations made by Awasthy *et al.* (2020) and Zeleza (2020) that when a university gives priority to mobilising resources required to facilitate a function or activity, its implementation is better than that of the function or activity to which less priority is given when mobilising the necessary resources. They also give credence to Broeker *et al.*'s (2021) observation that during resource allocation, less prioritised functions and activities are not allotted less or no resources which constrains their implementation, but those that more prioritised during allocation receive more resources that improve their implementation.

Unfortunately, qualitative results and those in Table 1 and Table 2 indicate that the mobilisation and allocation of resources needed to facilitate knowledge production were both not given priority. It is therefore not surprising that the level of knowledge production was low in all the selected universities (Table 3). Therefore, the results point to a need for all these universities to give more priority to the mobilisation and

allocation of resources for knowledge production, if its level is to improve. These results in Table 4 suggest that the level of knowledge production rises higher when priority is given more to allocating than mobilising resources for it. This suggests that while mobilising resources for knowledge production specifically is necessary, better outcomes are realised when the resources are allocated from the pool of the generally mobilised resources. Therefore, the view held by the top administrators of some of the selected universities that research or knowledge production should generate its own resources is not entirely supported by these results, and therefore, needs to be revisited. It can generate its own resources through winning funded research projects and university-industry collaborations, but these arrangements need to be enhanced by allocating it resources mobilised by a university from other sources.

Limitations

Due to difficulties encountered in accessing respondents because of the partial closure of universities as a social distancing measure for minimising the spread of COVID-19, the actual sample size was much lower than the statistically expected size. Only 207 respondents participated out of the expected minimum of 398 respondents. This limited the statistical representativeness of the sample. In addition, Uganda had over 10 public- and over 40 private-universities, but the study was based on four of them of which two public and two private universities. Having four out of over 50 universities limits the generalizability of the findings.

Conclusion and Recommendations

The study indicates that the way mobilisation and allocation of resources required to facilitate knowledge are prioritised is a significant determinant of the level of knowledge produced by universities in Uganda. Therefore, not prioritising mobilisation and allocation of these resources explains why knowledge production is low in these universities. There is therefore need for these universities to give priority to mobilising and allocating resources to their knowledge production function instead of expecting this function to generate its own resources.

The top management of Uganda's universities should prioritise mobilising and allocating resources required to facilitate knowledge production. More emphasis should be put on allocating these resources from the central pool than expecting to mobilise them using the research function itself. The top management officials who hold a view that knowledge production is a self-resource generating and therefore self-sponsoring function should replace it with another perspective that combines both the use of this function to generate its own resources while also allocating it more resources from the central pool to the mobilised faculty members, financial, material and other necessary resources.

A replicate of this study should be conducted based on a sample size that is statistically representative of all the universities in Uganda to provide a generalizable understanding of how prioritisation resource mobilisation and allocation affects their level of knowledge production.

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