

CHAPTER 6

FACULTY PERCEPTIONS OF THE FACTORS THAT INFLUENCE RESEARCH PRODUCTIVITY AT MAKERERE UNIVERSITY

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Introduction

Many studies have been undertaken to examine the link between knowledge production, innovation and economic growth in the western world (Crompton 2002; Mokyr 2003). In addition, knowledge transfer through education is seen as a key determinant in innovation and in strengthening social welfare (Bindé & Matsuura 2005: 27) and reducing social inequality. This explains why the university is increasingly perceived not only as a source of intellectual progress, but also as a transversal problem-solver; that is, a ‘magic box’ that can produce solutions to the problems that challenge the world (Bloom et al. 2006). Whether it is true that universities can produce relevant solutions or not, the university’s traditional position as the prime knowledge institution in society makes it an obvious candidate to provide societal solutions to today’s grand challenges. The notion of a (global) knowledge economy compels us to look more closely at the assumptions with respect to knowledge production as a key driver for innovation and technology. It is important to learn from countries such as the United States, which has successfully built its academic research capacity within and outside the university, yielding many positive results, including a more innovative industrial sector and better technical skills in the workforce than any other nation in the world (Mazzucato 2013: 52).

Castells (2001) highlights the generation of new knowledge as one of the key functions of the university, alongside the formation and diffusion of ideology, the selection of a dominant elite, and the training of a skilled labour force. While there has been a long – and in many respects effective – interplay among the above functions in other parts of the world, especially Europe and North America, this has not been the case in Africa. Here, universities are historically rooted in a colonial past (ibid.: 212), implying that their main functions have consisted of ideology

formation (political agents for newly independent states) and the selection of dominant elites to fill the leadership vacuum following independence. Only more recently has the function of training the labour force for the public service emerged in a substantial way. The function of generating new knowledge has hardly developed, and where it has, it has been reserved for some senior academics in a few selected university faculties. As a consequence, the academic research intensity and productivity in sub-Saharan African universities lags considerably behind university academic research output in the rest of the world.

The importance of the potential contribution of academic research to African societies cannot be overstated. Research into themes such as health care, nutrition, sustainable energy, environmental protection, agricultural mechanisation, education, and industrial production can provide a much-needed knowledge foundation for social development, innovation and economic growth. This gives the university in Africa a unique position as the core knowledge institution. It is in this light that governments, donor agencies and private actors collaborate with universities to build stronger research capacity and productivity. Nonetheless, nearly all sub-Saharan African universities are struggling to improve their academic research productivity.

It is against this backdrop that in the study underlying this chapter, the factors that influence research productivity at Makerere University (MAK) in Uganda were explored. This study is a masters degree thesis project and an extension of the work done as part of the Higher Education Research and Advocacy Network in Africa (HERANA) project, which revealed that MAK's research output was negatively influenced by the limited number of academics with PhD degrees, as well as low PhD graduation rates and a poor incentive structure that did not stimulate scholarly publishing (Cloete et al. 2011).

Makerere University: A historical background

As is the case with other African flagship universities, MAK is a colonial legacy. It was established as a technical school in 1922 for the training of Ugandans in artisan roles such as carpentry, building, metal fabrication and mechanics. According to Musisi and Muwanga (2003: 7), in establishing the school, the British colonial government wanted to show the rest of the world that it cared about the educational needs of its colony. Two years after its establishment, the curriculum was expanded to offer vocational courses in nursing, teacher education, veterinary sciences, primary teaching and agriculture, the graduates of which had to satisfy the labour needs of the colonial and Buganda government. Sicherman (2008: 13) states that the implicit purpose of this was to create a 'controlling education' to forestall the dangers of an independence movement. By 1937, the institution had been elevated to the Higher College of East Africa, whose students came from as far afield as Zambia, Kenya and Tanzania.

After the Second World War, MAK became a university college with degrees awarded by the University of London. With the establishment of the regional University of East

Africa (Kenya, Tanzania and Uganda) in 1963, the special relationship with the University of London came to an end and the new institution could award its own degrees. On 1 July 1970, MAK became an independent national university of the Republic of Uganda, offering degree programmes at undergraduate and postgraduate levels. By that time, Uganda's neighbouring countries had attained their independence and needed to establish and invest in their own universities, which resulted in the closure of the joint regional university and the establishment of the University of Nairobi (Kenya) and the University of Dar es Salaam (Tanzania), alongside MAK.

Throughout the 1970s, Uganda experienced political turmoil that saw the then-famous university slide into academic gloom as a result of the ravaged infrastructure, and because talented academics were fleeing to Europe and North America. It was not until the early 1980s that MAK started to recover from the effects of the political instability and the university embarked on reforms to promote economic stability and liberalisation (Magara 2009: 70). These reforms came in the form of conditionalities from the World Bank: structural adjustment policies across Africa advocated a reduction in public spending on higher education and a shift of public funds to primary education. Mamdani (2007: 8) argues that these policies were deliberate decisions to devalue higher education as an object of public policy. For MAK, this translated into cost-sharing in the sense that the government reduced student allowances provided by the state and stimulated the enrolment of self-sponsored students. The mass entry of self-sponsored students took its toll not only on the infrastructure of the university, but also on the research activities of academic staff: with the increase in the teaching load, research became a distant endeavour for many MAK academics.

Research focus and analytical framework for the study

Research focus and key questions

As referred to in the introduction to this chapter, research has traditionally not been a core function in the practice of African universities (Castells 2001). However, in the global context of the knowledge society, a debate has emerged in many African countries, including Uganda, on each country's research capacity, infrastructure and output, and attempts have been made to strengthen the research function of at least the national flagship universities. In this an issue has been that most academic staff members of African universities have not been very research-active, which has impacted the gross research output levels. In the underlying study we seek to understand factors influencing university research productivity by focusing on the perceptions and experiences of individual academic staff members at one of the most prominent African research universities, that is, MAK.

The overall research problem explored in the study has been formulated as follows: What

are the main factors influencing research productivity at MAK? Based on the overall research problem, this study has addressed the following research questions:

1. What is meant by 'research productivity'?
2. How has research productivity developed over the last ten years at MAK?
3. How is research leadership and management organised at MAK, and what is the institution doing to stimulate research?
4. What are the main sources of funding for research at MAK?
5. How do the factors at the individual level influence research productivity at MAK?
6. How has the research culture influenced research productivity at MAK?

Operationalising 'research productivity'

Across the globe, higher education has witnessed significant reforms with respect to the way in which universities and colleges are governed, funded and organised. In Europe, 'new public management' has been argued to have had a far-reaching effect on higher education in this regard (Amaral et al. 2003), whereas in the United States, universities have become more market-driven (Geiger 2004). In both cases, the underlying ideologies advocate for greater competition among universities, professional management, output-funding and cost-sharing (Gornitzka & Maassen 2014). As such, research productivity is used as a performance indicator for university faculty in the United States and Europe. In addition, the number of scholarly publications of an institution is taken to be a key determinant of its position in global rankings and of its hiring practices and research funding.

The interpretations of what constitutes research productivity and how it can be measured varies between authors and universities. Perhaps the most widely-used definition is that provided by Cresswell (1985: 24), who describes research productivity as comprising research publications in scientific journals, academic books and conference proceedings; gathering and analysing original evidence; obtaining competitive research grants; carrying out editorial duties; obtaining patents and licenses; and producing monographs and papers presented at professional meetings. While some universities measure research productivity in terms of a wide array of outputs (such as text books, book chapters, research reports, conference proceedings and graduate student supervision), Hardré et al. (2011: 20) note that peer-reviewed articles are the most generalisable measure of research productivity across all academic fields.

For the purposes of this study, given that MAK was one of the universities included in the HERANA project, the investigation of research productivity at MAK incorporates the three major components that Cloete et al. (2011) focused on: namely, the publication of scholarly articles, conference proceedings, and the supervision of PhD students. While many studies that have examined research productivity in Africa have used an evaluative approach with an emphasis on bibliometrics (see, for example, Arencibia-Jorge et al. 2012; Boshoff 2009; Tijssen

2007 in Mouton 2008), this study, like the HERANA project, used an exploratory approach to study research performance (see Avital & Collopy 2001).

Analytical framework: Factors that impact on research productivity

In order to analyse research productivity at MAK, we have identified and drawn upon four major categories of factors that can be argued to affect research productivity. These factors include individual factors, organisational factors, funding and research culture and these are outlined in brief below.

Individual factors

The individual's role with respect to the research function cannot be overstated in the university setting. Various individual attributes have been found to be instrumental in stimulating the research behaviour of academics. A number of these, including a passion for or interest in the discipline, ambitions, self-esteem, age, career rank, academic qualifications, and a desire to collaborate with others, are related to academics' level of intrinsic motivation. Lechuga and Lechuga (2012) sum these up as 'self-determination' (i.e. autonomy, competence and relatedness) and Hardré et al. (2011) as 'self-efficacy' and 'self-determination'. Another motivation-related characteristic is the confidence of the academic to engage in research activities, which Kotrlik et al. (2002) found to be essential for research productivity. Other studies have dealt with different individual attributes, which have also been found to vary according to academic disciplines (hard or soft); for instance, Jung (2012) states that gender, years of experience, teaching time versus research time, level of multidisciplinary collaboration, research style and workload are of relevance.

In the context of MAK, the most quantifiable individual factor was the level of academic staff qualifications as an indicator for research output. By 2011, only 43% of the academic staff at MAK held PhD degrees. This implies that the remaining 57% represent a problem in the form of a research capability gap (Bunting et al. 2014: 18).

Organisational factors

The research function does not occur in an organisational vacuum. Historically, the university has brought together individual academics with different intellectual interests and ambitions. Clark (1998: 3) refers to the traditional department as the 'academic heartland' around which university disciplines and fields are built, and Cloete et al. (2011) refer to the 'academic core' of the university where knowledge is produced and academic degree programmes are offered. As a consequence, for examining research productivity it is of importance to include the organisational context of research activities undertaken within a university as one of the major factors.

A number of studies have argued that organisational factors have an important influence on research productivity (see, for example, Fairweather 1999; McGill & Settle 2012). Azad

and Seyyed (2007), for instance, list a vast number of organisational factors vital for research productivity, including the clarity of the institution's research expectations; the availability of student research assistance; financial incentives for conducting research; and access to internal and external research funds, to name but a few. Different institutional components ranging from financial incentives (allowances, salaries), to non-financial incentives (improved research management, modern infrastructure, promotions) have been employed by different universities to stimulate the research productivity of their academic staff members (Ubogu & Van den Heever 2014: 212). In the African context in particular, studies have examined the weak research management structure and the prevalence of a consultancy culture as impediments to research capacity in African universities (see, for example, Maassen 2012; Sawyerr 2004). In the HERANA study, Cloete et al. (2011) identified three major hindrances to research productivity at MAK, including the lack of funds and a proper incentive system; the absence of PhD mentorship programmes and incentives; and the competition for time between undertaking research and teaching in private universities.

Drawing from the organisational factors highlighted above, this study focused on institutional incentives for research (financial and non-financial); the availability of doctoral mentorship programmes; the level of institutional clarity on research; the use of refereed journals in research dissemination; and research leadership and management.

Funding

Universities require a financial basis to support their day-to-day activities. These range from remunerations of their staff and infrastructural development to direct research funding. The research function requires adequate funding for, amongst others, the extension of departmental libraries; stocking laboratories with equipment; subscriptions to major journals; salaries and staff allowances; funding for travel; and facilitation of seminars and workshops. With higher education becoming more competitive, universities require more capital investments to be able to compete successfully with other research universities. However, across the globe, the massification of higher education has forced governments to limit their investments in higher education. As a consequence, universities have had to diversify their income using private means in order to support their academic functions.

For universities in sub-Saharan Africa, the relative massification of the last decade has created a dilemma: whether to invest more in the academic function of teaching to maximise income through self-sponsored students, or to invest in knowledge production. In this regard, a Thomson Reuters report revealed a correlation between the level of gross domestic product (GDP) investment into research and the level of research output in Africa; in particular, countries with a higher GDP had a higher research output compared to countries with a lower GDP (Jonathan et al. 2010: 5). Over the period 2008–2012, many developed countries invested between 3–4% of their GDP in research and development (R&D) activities (European Commission 2014). By comparison, developing countries invest in general less than 1% of their GDP in R&D (Sanyal & Varghese 2006; UNESCO 2010). It could be argued that this low investment in research

is reflected in Africa's research output. According to a recent Scopus report (Huggett 2013), between 1996 and 2006, Africa's scientific research output increased from about 12 500 to over 52 000 academic articles, a limited increase from 1.2% to 2.3% share of the global production of academic articles (Schemm 2013: 11). In the case of Uganda, the level of investment in research is still wanting; in 2003 Uganda invested 0.74% of its GDP in R&D (Sanyal & Varghese 2006: 3). This percentage has decreased since 2003 to below 0.5%.¹

In the context of MAK, Cloete et al. (2011: 158) observed that the University had insufficient funds to build its research capacity as a result of the relative decrease in public funding of higher education over the last 20 years. Currently, MAK's research funding relies mainly on private donors and foreign development agencies; but, as Maassen (2012) has shown in his study of donor funding in sub-Saharan Africa, donor funding is an unsustainable means of funding research for a flagship university. In particular, Maassen points to the 'fragmentation' that results from donor-funded projects within universities and highlights that donor research priorities might not be in line with those of the institution and the country (ibid.: 248). Consequently, academics become more 'reporters to donors' than producers of research-based academic publications, since very few donor projects require scholarly output. In short, academics benefit financially from donor projects, and the lack of incentives to engage in scholarly research and produce academic outputs are amongst the factors responsible for the low research productivity at MAK.

Research culture

Research productivity is highly dependent on the belief and general orientation of faculty to advance in their discipline. Clark (1983: 72–73) stresses that in order to understand the productivity of universities, it is important not only to focus on the organisational structure, but also to include the organisational culture – that is, the non-rational or symbolic side of universities – as an important factor.

For the purposes of this study, research culture is assumed to be a sub-culture of the broader organisational culture (Maassen 1996). What then does research culture comprise? Hill (1999: 2) uses key terms to refer to research culture, such as observed behaviour regularities (the language and rituals, research group norms and research leadership focus); the philosophy guiding the organisation's research policies; and the climate or feeling that the organisation conveys on research. This is also recognisable in Salazar-Clemeña and Almonte-Alcosta's (2007: 4) understanding of research culture, which includes institutional research policies and agenda, departmental culture, budget for research, as well as policies and guidelines with respect to research benefits and incentives.

Although MAK's strategic plan emphasises the role of research and innovation, the evidence suggests that the institution has not transformed from being in essence a teaching university to a more research-orientated university (Makerere University 2008: 8). For instance, between

¹ See <http://www.uis.unesco.org/FactSheets/Documents/sti-rd-investment-en.pdf>.

1996 and 2006, the number of academic courses at MAK increased from 26 to 40 as a result of a policy that sought to create more ‘market-driven’, relevant and self-sustaining courses (Mamdani 2007: 35). On the other hand, by 2011, only 43% of MAK’s academic staff had a PhD qualification (Bunting et al. 2014). In the HERANA project, Cloete et al. (2011: 156, 158) indicated that although there was an increase in publication outputs from 73 in 2001 to 233 in 2007, the ratio of academic publications per staff was 0.20 which was, for example, far below the 0.50 target for South Africa’s research universities (MAK’s competitors).

Research design

The underlying study forms part of a master’s dissertation project focusing on the factors that influence research productivity at African universities. The study used MAK as its case university, since it is Uganda’s largest higher education institution and ‘flagship’ university, and produces about two thirds of Uganda’s academic research publications. Two MAK colleges were selected for the study: the College of Agricultural and Environment Science, and the College of Education and External Studies. This was for comparative and validity reasons: the study wanted to get a balanced view on research productivity from the perspective of both the social sciences and the natural sciences. This is based on the starting point that disciplinary differences have an important impact on research productivity (Becher 1989; Jung 2012).

Semi-structured interviews were conducted among academic staff from both colleges who had a PhD degree, as well as with their heads of department and with university research administration staff. Mainly open-ended questions were used in the interviews since these offer the freedom to respondents to answer on their own terms (Bryman 2012). An in-depth and critical data analysis was done through a three-phase coding process: that is, open-coding, axial coding and selective coding (Neuman 2000). The data was collected at MAK’s main campus in March 2014. Overall nine interviews were conducted: six with academic staff (three from each college involved), and three with administrators (namely, two heads of department in the two colleges involved and the research administrator of MAK).

Results and discussion

As mentioned earlier, this study sought to explore the different factors that influence research productivity at MAK through the experiences and perceptions of its academic staff. The findings of the study are presented according to the major components of the analytical framework, namely, individual factors, organisation factors, funding and research culture.

Individual factors

The findings indicate that the research function at MAK is both a varied and highly individualised exercise. MAK possesses both highly active and inactive academics in terms of research. Interviews conducted in the Agriculture and Environmental Science College, which is one of the MAK colleges with many donor-funded projects, attest to the notion of the role of individual determination and passion to engage in research. Of the academics who were interviewed, some expressed their interest in engaging in research projects with their students, while others explicitly indicated that their passion lay in teaching rather than research. This implies that even with access to research grants in the College, an academic's personal interest in and determination to engage in scholarly research is vital for the development of any research activities at MAK. Related to this, the findings also revealed that research-active academics were motivated by the desire to achieve a promotion or a financial reward. The need to achieve a specific goal is a vital driver for any academic; this can include undertaking research in order to broaden one's knowledge horizon or to ascend the career ladder. Strikingly, at MAK this individual research motivation factor has only weakly been translated into a collective research dimension.

The level of the academic qualifications of staff is a key determinant of the strength of the research capacity at a university. In particular, the doctoral level is the widely expected level for one to attain key skills of inquiry and other techniques required for research practice. In the context of MAK, the number of academic staff with PhD degrees was low in relation to the aspiration to sustain the research role in the university (Bunting et al. 2014). In part, the problem of the lack of the necessary academic qualifications needed for research can be understood as resulting from an institutional environment that places more emphasis on undergraduate teaching activities, than on building a core postgraduate or research environment.

Networking and collaboration with fellow researchers is a key ingredient of an active academic in the research function (Salazar-Clemeña & Almonte-Alcosta 2007). The progress and dynamics of the research function are always changing depending on, for example, the discipline, institution and country (Clark 1983). The findings of this study reveal that the few academics who publish actively at MAK have succeeded in creating networks with academics, especially those outside of the University. This is due to a number of factors, one of which is the 'uniting-factor': that is, having one or more externally funded projects. Academics reported that it was vital to create networks, especially with colleagues from other universities outside of the country, since this kind of research is generally funded by national and multinational agencies that require such networks as one of the conditions for funding. The other factor that led to academics networking with those abroad was the fact that they had obtained their postgraduate degrees from universities abroad. There are greater chances for an academic whose masters or doctoral degree has been obtained in Europe or North America to create academic networks in those countries, than for one whose education was obtained at MAK. It is also vital to note that the most 'networked' academics were in senior positions and many of them had the support of external sponsors (e.g. for attending seminars and conferences abroad).

Some academics pointed to the lack of institutional incentives to fund travel costs for seminars or conferences abroad, which limited their opportunities for international networking. One key aspect was raised by an academic respondent with respect to the nature of these networks and collaboration. In particular, the interviewee highlighted that most of these networks were akin to a contractual arrangement, which expired as soon as the parties involved had published and made a financial gain out of the project. In these cases, the network engagements had not been consistent and long-lasting.

Finally, the collaboration and networking of individuals across the departments was also a key issue that was hindered by the absence of key research group structures in the departments. This resulted in individual staff taking on personal research enterprises unless there was a donor-funded project to encourage him/her to liaise with colleagues in the department.

Organisational factors

Organisational factors particular to the research environments in most developing countries are not foreign to the MAK context. Castells (2001: 215) prefers to call organisational factors 'structural' and 'institutional' factors. In this, Castells highlights bottlenecks, such as the cumulative character of the process of uneven scientific developments; the unattractive environments in centres of excellence; low salaries and working conditions; and the limited resources dedicated to the university research function in developing countries. For the purpose of this study, the key indicators for organisational factors that have been utilised include institutional research policies; institutional support (both financial and non-financial) for research (including research infrastructure such as libraries, laboratories, and information and communication technology services); key journal subscriptions; adequate time available for research; and mentorship of PhD students.

When the MAK academics were asked if they were satisfied with *the level of institutional support* for research, their responses were varied. While most of them agreed that the time accorded to the research function was sufficient, since they only had to teach for a minimum of ten hours per week, they had reservations about the quality of the institutional infrastructure. In particular, all of them noted that their work as researchers was hindered by intermittent power cuts and slow internet connections. On the other hand, it has to be noted that the university has made key strides when it comes to library journal subscriptions, which academics reported had improved considerably over the last five years. The academics interviewed were also dissatisfied with the level of bureaucracy entailed in the procurement process in research projects; in particular, some projects were either behind schedule or had been interrupted by the university's procurement office, which was reported to be bureaucratic and unscrupulous. Overall the university's research support structures were regarded as insufficient and highly ineffective. Among other things, the failure to coordinate the support activities of various central administrative offices resulted in an environment that was not conducive to research work.

Another key issue had to do with *the level of clarity of institutional research policies*. Although the university's strategic plan clearly highlights that MAK is positioning itself as a research university, with the objectives of creating a supportive research environment and strengthening research capacity (Makerere University 2008: 8), this was not reflected in the reality of the academics' work environment. Research at MAK is managed under a central body, the Directorate of Research and Graduate Training, which was founded in 2010. This body oversees the graduate programmes in the university; gives publicity to research grant calls; negotiates with donor agencies; and is responsible for other research-related issues. Although this body had created a research policy and agenda for managing research at MAK, it had not decentralised its mandate to the departmental level. This had left the heads of department without any active authority when it came to research in their units. Furthermore, when heads of department were asked about their role regarding the research function, they revealed that their job was more of 'morale-boosters'; they had no mandate to oblige or even stimulate academic staff members in their departments to engage in research activities.

There were contradictions with regard to the university's objectives of moving towards becoming a research university and the policies relating to promotion among academics. For instance, the academics reported that at the time of recruitment, they were not informed that research was more important for their career progress than teaching. In addition, according to their appointment letters, the indicated prime role of the academic was that of lecturer (i.e. teaching). This explains why many academics immersed themselves in teaching during the primary years of their tenure rather than engaging in research. Moreover, the university had not instituted any research policy attached to job retention; rather, retaining an academic post depended on academics holding a PhD degree and attending to their teaching duties. In essence, the desire to obtain a promotion was the sole stimulant offered by the institution for the research function.

Mentorship and guidance of doctoral students is another organisational component attached to research at MAK. The role of doctoral students in supporting academics to publish and execute different projects cannot be overstated in research universities. However, in the context of MAK, various organisational challenges have contributed to the low PhD graduation rates. The study found that postgraduate studies were plagued by the failure of many doctoral students to fund their studies and to complete on time, and by the absence of mentorship programmes. The research administrators pointed out three major problems in relation to doctoral education at MAK: lack of institutional support, limited funding options, and supervision-related problems.

With regard to funding, at the time of the study, the university did not have an open funding scheme for doctoral students, apart from its staff who wished to pursue doctoral studies. It emerged that there were disciplinary variations with regarding to funding opportunities and completion times. In those colleges where PhD students had received scholarships (especially in the science disciplines), the students had not only been involved

within major projects, but had also completed their PhDs on time. On the other hand, in the humanities and social sciences, where there have been fewer scholarships, most students had to pay for their tuition fees out of their salaries. This implies that they had to divide their time between their studies and their paying jobs, which seriously prolonged the duration of their studies.

In terms of supervision, there were reports that the quality of supervision was affected by feedback delays and inconsistent follow-up. Furthermore, the problems related to supervision resulted from the lack of incentives towards supervision. On a positive note, the university had recently succeeded in enforcing two positive interventions regarding research capacity: firstly, requiring senior, tenured academics to supervise at least two PhD students as part of their academic duties and, secondly, requiring PhD students to publish at least three articles in reputable journals to qualify for graduation. At the time of writing, it was too early to comment on the effectiveness of these measures.

The use of refereed journals (internal and external) in research dissemination is a key determinant of an academic's career progress as far as research is concerned, since publishing in journals renders individual academics visible nationally or internationally. To a large extent, this determines networking opportunities and the impact one can make in one's field/discipline. In many sub-Saharan African universities, academics have faced a number of challenges when it comes to publishing in international academic journals, such as high subscription rates and limited circulation in Africa (Gray 2009: 10). In addition, Gray (ibid.: 7) points to the quandary that many African researchers are pursuing international journals as a single measure of performance, while neglecting alternative means of disseminating their research work. One of the consequences is that journals that are produced within African universities have suffered natural deaths after the completion of donor-funded projects, or have been inactive for long periods of time. In the MAK context, internal journals have lost their vibrancy owing to a lack of funding and to poor peer-review processes. As a result, most of the research-active academics have preferred to publish in international journals for fear that their works would be rejected by the university appointments committee when seeking promotions.

Another concern is that in the long run, some academics might lose interest in doing research since many of their works are rejected by highly competitive international journals and they have resorted to using internal journals, which are still struggling to survive. Some academics highlighted that most of the vibrant internal journals are funded under donor projects but that there is always a question of sustainability, especially after the project when most journals cease to exist. MAK's research structure plan does not include a scheme through which it funds its academics to publish in local journals as a way to boost their popularity and credibility among its staff. It can be argued that MAK has a role to play in strengthening the guidelines and procedures under which internal journals run, which should be consistent with the internationally accepted guidelines and procedures for academic journals.

Funding

Although funding can be considered to be a component of an organisation and thus an organisational factor, this study categorised funding as a separate factor owing to the specific role it plays in sub-Saharan Africa. As noted by Sanyal and Varghese (2006: 2), there is a high correlation between a country's level of investment in research and development and its scientific production. As discussed above, for all sub-Saharan African countries, the level of research funding is still considerably below the level invested in the OECD countries and is mainly provided by foreign donors (Maassen 2012).

Findings of this study reveal that MAK cannot adequately fund its research function. This is in line with Cloete et al. (2011: 158), who further add that the Ugandan Ministry of Education's funding towards research in universities was inconsistent and unpredictable. Interviews with MAK academics revealed that there were no direct funding or financial incentives towards research activities. According to the university administrators, the university occasionally offered internal grants for research activities but MAK's academic staff were reluctant to apply for these since the application process had not been clearly stipulated. The university's resources earmarked for research had been channelled towards funding its academic staff's doctoral studies which in itself is an effort towards building research capacity.

With inadequate income for direct research funding, the academics have relied mainly on donor funding to support their research projects through organisations such as the Swedish International Development Cooperation Agency, the Norwegian Agency for Development Cooperation, the United States Agency for International Development, and the Carnegie Corporation of New York (Makerere University 2013: 73). However, despite the key role played by foreign donors in building a research-active environment at MAK, donors usually have their own thematic priorities, which are often different from those of individual academics. In essence, the donors have determined the landscape of what research should look like at MAK. The downside of this is the ever-changing thematic interests and priorities of donor agencies that differ from institutional and national priorities. A number of the academics reported that on many occasions, they had found themselves leaning towards donor research interests, such as climate change, resilience and productivity enhancement. While each of these topics is of great importance in the national context of MAK, the emphasis put on them hindered the growth of individual academics since they had no funding or capacity to specialise in their own research pathways. Another challenge that was encountered regarding donor-funding was its distribution across different disciplines. In particular, donor funding at MAK has concentrated largely in science-orientated areas such as HIV/Aids, malaria, water, and information and communication technologies (ibid.: 72). This has left academics in the humanities and social sciences with less or no research support.

The dependence on donor funding for research places MAK in a precarious position since donor support depends largely on the health of diplomatic relationships between different

countries. In this regard, some academics raised the issue of the potential of their funding proposals being rejected by donor agencies on the grounds of Uganda's recent stance on homosexuality; in particular, some key development partners had either withdrawn or cut the amount of aid that they had been giving to Uganda in the area of higher education, most of which had been for research capacity-building.² Relatedly, although MAK's Directorate of Research and Graduate Training carries out a number of staff training programmes in the area of research grant proposal-writing, to enable faculty members to write better and more competitive proposals, there was still a belief that external grants were too competitive, which discouraged some staff from pursuing them. All in all there is a need for the university to devise means of diversifying income to fund research, with or without external support.

Finally, the HERANA project provided an important insight into the specific nature of research funding at MAK (Cloete et al. 2011). While the total amount of research funding for MAK is more or less at the same level as research funding at the continent's prime research university, the University of Cape Town (UCT),³ the research productivity at MAK is at a much lower level than at UCT. One important factor responsible for this is the difference in the sources of research funding for the two institutions. In 2013, almost 80% of MAK's research funding came from foreign (either national or supranational) donor agencies, while practically no research funding was acquired from competitive basic research funding programmes, coordinated by national or supranational research councils (see Figure 6.1). UCT's research funding situation is more in line with the situation at the world's top research universities; that is, a considerable part of the research income of UCT is the result of its academic staff being successful in the competition for external research funding. In many respects, the situation at MAK resembles the research funding situation at other universities involved in the HERANA project, with the exception of South Africa. Not only UCT, but also other South African universities, such as the Nelson Mandela Metropolitan University (NMMU), operate on a significantly different research income basis from MAK (see Figure 6.1).

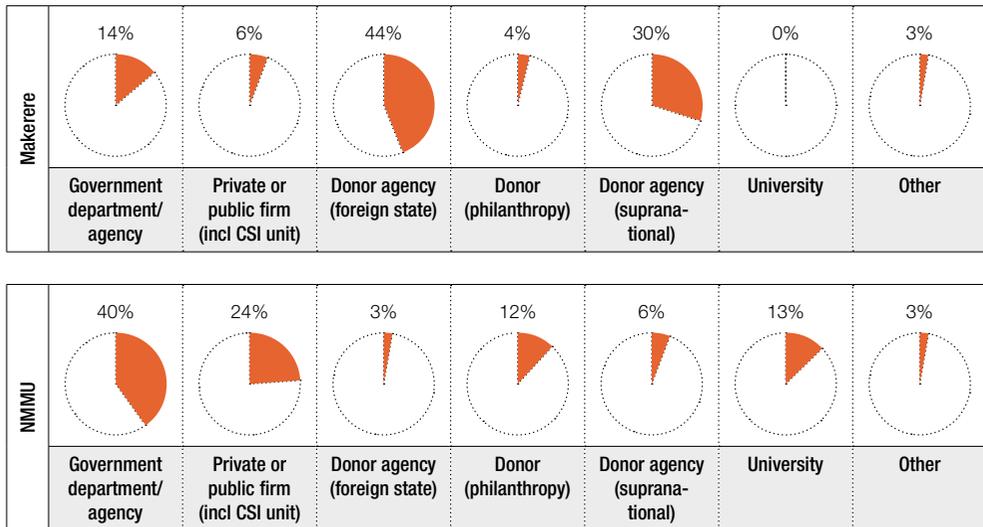
As discussed elsewhere (Maassen 2012), the investments of donor agencies in research projects at sub-Saharan universities, such as MAK, have a number of characteristics that contribute to the low research productivity of these universities. First, in general, donor research funding is not distributed through an open competition, relying on peer review to select the projects that are best academically. Second, donor agencies in general do not require the academics who receive funding from them for a research project to produce academic publications. Third, most donor-funded research projects resemble more of a consultancy activity than an academic research project. Fourth, there is hardly any coordination between donor agencies when it comes to the investments in research projects in sub-Saharan African universities. Overall, the individual donor agency's programmes and ideologies seem to be a

2 This has not only been a concern faced by academics seeking research funding – see, for example, Santamaria (2014).

3 In 2013, research income at MAK was USD 85.10 million compared to USD 93.18 million at UCT (data sources: Department of Institutional Planning at MAK and Department of Institutional Planning at UCT).

more important factor in the determination of which research project should receive donor funding than national and/or institutional research policies and strategies in the receiving countries and institutions. Fifth, donor agencies prefer in general to have direct contact with the academics who receive donor research funding. A consequence of this is the ‘projectisation’ nature of donor research funding; that is, donor agencies invest in projects, not in institutions, despite all the recent donor programme emphasis on ‘capacity building’. The situation at MAK shows how difficult it is for an ambitious African research university to realise its institutional research strategies, when almost 80% of the institutional research funding comes from donors who prefer to invest on the basis of their own programmes and ideologies in individual projects.

Figure 6.1 Makerere and Nelson Mandela Metropolitan University: Research project funding by funding type (2013)



Source: Van Schalkwyk (2014)

Research culture

Research, like all other human endeavours, takes place in a social environment where individuals and groups are driven by different beliefs and attitudes towards their roles. These beliefs are often intangible or invisible and become stronger over time. Clark (1983: 72, 73) notes that every organisation possesses a ‘symbolic side’ that allows members to share common beliefs and stories. The symbolic side of research is usually neglected as people tend to pay more attention to the more visible and quantifiable elements, such as the number and quality of research publications, and research funds. In the context of universities in sub-Saharan Africa, it is crucial to examine the practical realities that contrast with the rhetoric in institutional strategic plans.

Although the MAK strategic plan clearly presents knowledge generation as one of its main goals, the findings of this study reveal that academics regarded the research culture as more a reflection of, and aligned to, funding opportunities than to organisational structures. The nature of research projects was mainly influenced by donor funding, which usually came with a financial reward for the academics. As such, most academics found themselves engaging in research in order to supplement their relatively low salaries with the income from donor projects. Such research was also characterised as an individualised enterprise, where the more ambitious faculty were the most research-active. Two categories of faculty members came across as active: the senior professors, who had strong donor and peer contacts, and the junior academics, who sought promotion to move up the career ladder and thus needed to be involved in research projects and to produce scholarly publications. This strongly suggests that the organisational research culture is still rather weak, thus leaving academic research in practice in the hands of a few active individuals.

Strikingly, when the administrators were interviewed with respect to their thoughts on MAK's research culture, they noted that despite the key challenges, the research output in the university was increasing. They also noted that MAK was still a 'magnet' for many foreign donors and that the number of donor-funded projects had doubled over the last five years.

Conclusion

The study underlying this chapter has explored faculty perceptions and experiences with respect to the factors that influence research productivity at MAK. Of the four main factors identified – individual factors, organisational factors, funding and research culture – funding has been found to have a major impact on the nature and sustainability of research capacity at MAK and, consequently, on the university's research productivity. The contextual realities of academics, such as the low salaries, absence of incentive structures, the poor infrastructure, and the lack of a professional research management are, to a large extent, a result of the lack of consistent and adequate funding earmarked for research. This is not the result of a lack of research funding per se, since MAK's level of research income can be compared to the level of research funding at UCT. Rather, the nature and source of research funding are of relevance here. Almost 80% of MAK's research income comes from donor agencies implying that the institutional leadership has limited to no influence on how this money is invested in the institution's research activities. Consequently, unlike the situation in research universities in the OECD, or even South Africa, the institutional leadership at MAK lacks the level of institutional research income needed to build an adequate academic and infrastructural foundation for institutional research activities. This makes it very difficult for a university such as MAK to develop a collective, organisational dimension in its research activities. In practice this implies that the research funding situation at MAK is one of the main factors

contributing to the weak coupling between institutional research strategies and the individual academics' research activities (or lack thereof).

Nonetheless, more can be done to stimulate the development of a stronger research culture in the institution. MAK's human resource policy should go beyond stimulating academic staff members with PhD degrees to, in the first place, engage in teaching. As for now, tenured academic staff members have no accountability to the institution with regard to engagement in research. On the other hand, the institution could stimulate the strengthening of an institutional research culture by introducing adequate incentives and rewards for academics who engage in research. The situation currently, in which MAK uses the income from tuition fees generated from privately sponsored students to pay lecturers who have additional teaching loads (evening, weekend and extra-mural), does not contribute in one way or another to strengthen the institutional research culture.

When the academics were asked to rank the four major factors (organisational, individual, funding and research culture) in terms of importance for them personally, many of them acknowledged the role of individual factors in determining the success of any academic researcher around the world. However, in their specific institutional context, funding played a greater role when it came to its impact on creating a sense of career-continuity for individual researchers. At the same time, the nature of the research funding practice at MAK was also responsible for making (and keeping) research as an individualised activity. There is hardly any collective (i.e. institutional) component in research funding at MAK, implying a loose coupling between the institutional research ambitions and strategies, and the individual academic staff members' (lack of) engagement in research activities.

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