

African Journal of Education and Practice (AJEP)

THE CULTURE-RESEARCH NEXUS: STAKEHOLDERS' PERCEPTIONS OF THE CONNECTION BETWEEN DISCIPLINARY CULTURES AND RESEARCH CHOICES IN HIGHER EDUCATION

Muhamadi Kaweesi, Dr. Ronald Bisaso and Associate Professor Betty Akullu Ezati

THE CULTURE-RESEARCH NEXUS: STAKEHOLDERS' PERCEPTIONS OF THE CONNECTION BETWEEN DISCIPLINARY CULTURES AND RESEARCH CHOICES IN HIGHER EDUCATION

^{1*}Muhamadi Kaweesi

¹East African School of Higher Education Studies and Development (EASHESD):
Makerere University, Uganda

*Corresponding Author's email: ahmedkaweesi98@gmail.com

²Dr. Ronald Bisaso

Senior Lecturer & Dean, East African School of Higher Education Studies and Development
(EASHESD),
College of Education and External Studies (CEES), Makerere University, Kampala, Uganda.

³Associate Professor Betty Akullu Ezati

Senior Lecturer and Dean, School of Education, College of Education and External Studies
(CEES), Makerere University, Kampala, Uganda.

Abstract

Purpose: Within the higher education discourse, the critical role of disciplinary cultures in influencing organisational departmentalisation; shaping the academic profession; and in informing academic leadership has been underscored. However, the connection between disciplinary cultures and research choices seems to be underreported. The study explored key stakeholders' perceptions of this connection in Uganda's research-led flagship academic institution, Makerere University. The purpose was to ascertain whether and how the espoused disciplinary practices, values and beliefs inform the research choices of academics across disciplinary fields.

Methodology: We adopted a qualitative, intrinsic case study design that was rooted in social constructivism philosophy and guided by an interpretivist paradigm. Professorial staff and Institutional level senior research managers constituted the sample. Data were collected using in-depth interviews from four Full Professors, eight Associate Professors, and two institutional level senior research managers. We then triangulated data sources with documents checks. We analysed data thematically.

Findings: Findings reveal that although there is a connection between disciplinary cultures and research choices, the ethos of producing knowledge at the very basic level has more influence on academics' research choices. This is because, across disciplinary fields, research is more understood in terms of journal articles.

Unique contribution to theory, practice and policy: We recommend that if the University is to perfect her research-led status, there is need to popularise cultures that would promote the production of diverse knowledge in order to enhance the contribution of the University to national socio-economic development. This could be achieved by revising the existing research policies to ensure that when academics are being assessed for promotion, they should be assessed on a broader criterion that includes number of publications and contribution to policy and the community.

Key words: *Disciplinary cultures, Research choices, Higher education*

1.0 INTRODUCTION

The paper arises from a study on which we have engaged since 2015 into academic staff research orientations at Makerere University. As the research evolved, it became apparent that one of the themes of central interest is the link between academic research and disciplinary cultures. In any given disciplinary field, one can identify examples of characteristic working practices, values, and beliefs which shed light on the research choices which comprise the field. The inferences which can be made are useful in enhancing our understanding of the process on knowledge production, the way that process differs across disciplinary fields, and the ethos that should be popularised in order to promote the production of relevant research. A major thesis of this paper is that an understanding of the culture-research nexus would move Makerere University closer to perfecting her research-led status by popularizing disciplinary practices, values, and beliefs that can promote engagement in diverse high-quality research that would promote national and regional socio-economic development.

Previous research (Etomaru, 2017; Musiige, 2014; Bisaso, 2011) found out that across disciplinary fields at Makerere University, the following disciplinary values and beliefs are espoused albeit varyingly: interdisciplinarity (teamwork); building international collaborations; engaging in applied research, and producing knowledge at the very basic level. This paper focuses on the nexus between the above cultures and academics' research choices. If the general thesis outlined above is tenable, one would expect that the research choices that academics in specific disciplinary fields adopt are to some extent informed by the above disciplinary practices, values, and beliefs. By accessing stakeholders' voices regarding the connection that exists between two, the present paper is an attempt to ascertain this expectation.

1.1 Background

Academic research is highly treasured as a source of meaning and self-worth for academics (Alise, 2008). It is essential for their disciplinary identity and any attempt to describe the orientations it takes should take cognizance of the underlying social and cognitive characteristics of different disciplinary academic communities (Hakala & Ylijoki, 2001; Ylijoki, Lyytinen, and Marttila, 2011). Conceptions of academics research choices in higher education thus remain largely discipline-centered (Alise, 2008; Bauer and Kogan, 1997). In line with the above sentiments, Puplampu (2015) observed that if academics' research choices are to be fully understood, they should be viewed through the lenses of the underlying disciplinary ethos that infuse scholarly effort and productivity.

The critical role of disciplinary cultures in shaping research choices of academics in universities has been underscored in literature (Biglan, 1973; Becher, 1987; Hakala and Ylijoki, 2001; Henkel, 2005; Alise, 2008; Brew, 2008; Ylijoki, *et al.*, 2011; Bisaso, 2011). However, the connection between disciplinary cultures and academics' research choices at Makerere University remains obscure. In describing research choices, terms like basic research (Schauz, 2014; Calvert and Martin, 2001), applied research (Cherney, Head, Povey, Boreham, & Ferguson, 2015; Cloete, Bailey, Pillay, Bunting, & Maassen, 2011); mode one and mode two forms of knowledge production (Gibbons, Limoges, Nowotny, Schwartzman, Scott, and Trow, 1994); utilitarian knowledge (Ziman, 2000); policy-informing research (Gornitzka and Sverdrup, 2010; Jacob, 2006); entrepreneurial research (Bisaso, 2011; Jacob, 2009; Albert, 2003); and community-oriented research (Bornmann, 2012; ERiC, 2010) tend

to pervade the discourse. According to Hakala and Ylijoki (2001), research choices depend on the intended research audience such as the scientific community, the civil society, and ordinary people, the corporate sector, and the government. Drawing on the above scholarly views, we define research choices in accordance with the decisions made by academics regarding the focus and motive of academic research i.e., according to the intended users or audience and intention. In accordance to Hakala and Ylijoki (2001) and Ylijoki *et al* (2011), we argue that the research choices are driven by the urge to satisfy four research audiences namely: the scientific community, business and industry, ordinary people and civil society, and governmental departments.

The term disciplinary culture is commonly used to describe a major quality of universities, that is, the separation of work according to different disciplines whose perspectives, practices and tasks can vary considerably (Alise, 2008; Becher, 2001; Kekale, 2002; Kuteeva & Negretti, 2015; Ylijoki, 2000). Disciplinary cultures thus represent the heterogeneity of academic disciplines that differ from each other cognitively and socially (Clark, 1987). According to Ylijoki (2000), disciplinary cultures connote cultures that emerge as a result of the differences in disciplinary traditions and categories of thought which provide disciplinary members with common cognitive and social characteristics. Becher and Trowler (2001) defined disciplinary cultures as those that emerge as a result of academic tribes and territories that form the basis of the social life of the field. To Biglan (1973), disciplinary culture signifies that culture that develops as a result of the uniqueness of knowledge produced giving rise to different academic specialties, beliefs about theory, methodology, techniques, and problems. In this study, we take disciplinary cultures to be those practices, social characteristics, values and beliefs that surface as a result of the ways in which different knowledge is developed and taught across various academic fields.

Whereas previous empirical studies of disciplinary cultures in higher education investigated the influence of disciplinary cultures on: organizational departmentalization (Faricy, 1974); the shaping of the academic profession (Becher, 1987); teaching and learning (Neumann, 2001); and academic leadership at the departmental level (Kekale, 1999), in this study we focus on the connection between disciplinary cultures and academics' research choices at Makerere University. Drawing on Becher (1989), Brew (2001) and Puplamp (2012) standpoints, we argue that disciplinary fields may vary in terms of the research choices as a result of the differences in disciplinary cultures.

Indicative literature suggests that disciplinary cultures inform academics' research choices. For instance, Hakala and Ylijoki (2001) found out that academics in the hard-pure and soft pure disciplinary fields like physics and history with a culture of producing theoretical knowledge were found to be involved in the production of basic research that is motivated by the desire to achieve recognition within the scientific community. On the other hand, those in the hard-applied disciplinary fields with a culture of producing practical knowledge that is akin to the values of interdisciplinarity and engaging in collaborations made research choices that led to the production of applied entrepreneurial research where the nature of knowledge is commercial and the audience for the research is possible customers. Yet research choices of academics in the soft-applied disciplinary fields with a culture of producing functional knowledge for policy-making, improving professional practice, and improving society and prevailing practice gravitated towards the production of policy-relevant and problem-oriented research.

Ylijoki *et al's* (2011) survey research in which they explored the disciplinary perspective of research markets among heads of departments and research units at Finnish Universities also confirmed that there is a connection between disciplinary cultures and academics research choices. They found out that the culture of building research collaborations is not only more valued in applied disciplinary fields; it also informed the type of research done therein. Related studies done within the sub-Saharan African university context (Ishengoma, 2016; AFRODAD, 2007) equally found out that at a disciplinary level, the culture of collaborating with development partners informs the research choices of academics with researchers aligning their research interests to those of the partners they are already collaborating with.

From the above foregoing, it is evident that there is a connection between disciplinary cultures and academics research choices. As seen above, it is clear that, among others, the cultures of interdisciplinarity, engaging in international collaborations and partnerships, and producing knowledge at the very basic level influence the research choices that academics make at the disciplinary level. However, empirical studies seeking to validate this connection in the sub-Saharan African university context and Makerere University, in particular, are not plentiful.

1.3 Institutional Context

International donor agencies and foundations have pumped research funding into Uganda's flagship Makerere University (MacGregor, 2015). As such, the institution continues to develop new research strategies and directions. The University is unquestionably on the rise as reflected in the 2018 New Times Higher Education Index report that has ranked it as the fourth best University in Africa with only South African universities taking the top three places. Whereas the rankings are used to judge research-intensive universities across all their core missions (i.e., teaching, research, knowledge transfer, and, international outlook), research output appears to be more critical in ranking universities. Because academic research is a strategic source of competitive advantage whose importance cannot be overemphasized in the university context (Hill, Capers & Flink, 2014), Makerere University declared a research-led mission and it continues to reposition itself to support research more than teaching. According to the current Makerere University strategic plan, the research-driven status of the University implies that the University should transition from a teacher-centred to a learner-centred and problem-based institution, while at the same time embracing a paradigm shift from university outreach to knowledge transfer partnerships and networking. The research-driven goal also implies that generated knowledge is expected to transform society and inform public policy.

The above notwithstanding, the research process appears to be personalized, there appears to be an insufficiency of certain types of knowledge, and academic research in terms output is seemingly imbalanced between disciplinary fields (Kasozi, 2016; Makerere University, 2016; Nakayiwa, 2015; Musiige, 2014). By attributing this imbalance to the disciplinary variations in the collaborative efforts of researchers, Mugimu, Nakabugo, Katunguka-Rwakishaya (2013) made a veiled reference to the role played by the espoused disciplinary practices, values, and beliefs in informing the research situation of the University. Given that the university organization is structured around disciplinary fields and knowledge production takes place within academic disciplines, it is necessary to ascertain whether and how the existing disciplinary cultures inform the research choices that academics in specific disciplinary fields adopt.

2.0 METHODS

We conducted this study in a manner that is aligned with the social constructivism philosophy where the notion that reality is socially constructed and given meaning by people is important. Congruent with social constructivism philosophy, we chose to use qualitative methods and root the study in the interpretive paradigm that is based on the assumption that social life is shaped by people's experiences and social contexts and that the nature of phenomena is subjective with people constructing meanings that are varied and multiple (Creswell, 2007). We used an intrinsic case study design because it enabled us to gain a better understanding of Makerere University regarding the connection between disciplinary cultures and academics' research choices.

To ensure holistic coverage of the University, we stratified the University into colleges and these became analogous to combined disciplinary fields along the hard-soft and pure-applied dimensions. The selection of disciplinary fields was based on Biglan's (1973) classification of disciplines. We selected eight participants from the category of Associate Professors and four participants from the category of Full Professors from the four disciplinary fields namely: hard-applied (medicine, engineering, and agriculture); hard-pure (chemistry, botany, and zoology); soft-applied fields (law, education, and economics); and soft-pure fields (sociology, philosophy, and anthropology). In addition, two institutional level senior research managers working in the Directorates of Research and Quality Assurance were also selected. The total number of study participants was fourteen. We purposively selected participants on basis of their prolific contribution to knowledge production. As such, we made consideration for the number of publications, PhDs graduated, and grants won.

To ensure confidentiality and anonymity we assigned each participant a pseudonym. Based on academic ranks, FP denotes Full Professor, AP denotes Associate Professor and RMIL denotes research manager at the institutional level. For the disciplinary categorisation, HP denotes Hard Pure, HA-Hard Applied, SP-Soft Pure, and SA-Soft Applied. In the end, the following pseudonyms were used for the Full Professorial category: FPHP, FPHA, FPSP, and FPSA. For the category of Associate Professors, the alphanumeric Pseudonyms were: APHP1, APHP2, APHA1, APHA2, APSP1, APSP2, APSA1, and APSA2. RMIL1. Finally, for the category of institutional level senior research managers, the alphanumeric pseudonyms were: RMIL1 and RMIL2. We collected data using in-depth interviews for primary data and documents analysis as secondary data sources and analysed using thematic analysis. We used strategic plans, annual reports, and research policies as the main documents.

3.0 RESEARCH FINDINGS

To assess how disciplinary cultures inform the research choices of academics at Makerere University, we posed the question "How has commitment to the values and beliefs of your disciplinary field informed the choices you make with regard to academic research?" The aim was to ascertain whether and how dominant disciplinary cultures inform academics' research choices. Findings revealed that commitment to the values of interdisciplinarity, establishing international collaborations, engaging in applied research and producing knowledge at the very basic level informs the research choices of academics.

3.1 Interdisciplinarity/multidisciplinarity and academics' research choices

When participants were asked whether and how the existing disciplinary cultures inform their research choices, most of them came out strongly that the culture of interdisciplinarity (teamwork) informs the kind of research they engage in. The major accounts given were that the kind of research that is accepted internationally is that which brings together expertise from different fields and that there is no problem that can be solved by one single discipline. This is evident in the expression made by APHP1, an Associate Professor from the hard-pure field that:

I have worked with researchers from other departments. When you look at the kind of research that is accepted internationally, it draws expertise from botany, chemistry, and zoology. Even sociologists would fit in this kind of research. I will really say that researchers who think that they can do work alone are really missing the point. Working as a group or research teams, involving others from different disciplines is the best you can do to solve problems (APHP1).

APHA2 an Associate Professor from the hard-applied field also corroborated that:

Interdisciplinarity is key because all the problems that we deal with, there is no problem that can be solved by one single discipline. So multidisciplinarity in research is the ideal thing. If you really want to solve any problem, you really must approach it from that angle.

Explanations given by FPHP, FPSA, and APHA1 similarly confirm that interdisciplinarity informs the existing research choices at Makerere University:

The culture of teamwork is leading me to embark on research that involves academics from different specialisms. I am completely averse to doing research alone. We publish several to eliminate doubts that people may raise about the quality of the work. When we collaborate, we support one another. Because of teamwork, many times I engage in research that is problem-oriented (FPHP).

We have done a lot of research with Health Sciences, Engineering, and Agriculture, virtually across-the-board. Because everybody is human, everybody has rights, but they have different manifestations and implications according to which angle you are addressing the issue. In fact one time, at the Human Rights Peace Center (HURIPEC) there was a whole project on interdisciplinary teaching and research on Human Rights. So there is a lot of cross-disciplinary and interdisciplinary, problem-oriented research being done (FPSA).

A lot of research emphasizes teamwork. We have been doing research involving simulation of termite saliva. Termites use their saliva to put together soil that makes anthills with very hard mounds. In our study, we tried to get road materials which are as hard as termite mounds so that our roads also live as long as the anthills. In this research, we had: an inorganic chemist; a biochemist; two staff from engineering; and someone from the government chemistry laboratory to help us make sure that our product does not have heavy metals that might be dangerous to the environment...So the interdisciplinarity value informs our research choices (APHA1).

From the above quotes, it is evident that at Makerere University, research that manifests in form of applied research orientations (i.e., impactful, problem-oriented research) is significantly informed by the culture of interdisciplinarity. Results also indicate that because the production of multidisciplinary knowledge is seen as a donor requirement for research funding, there are no distinct patterns of disciplinary variations with regard to the popularity of interdisciplinary research and that the boundaries within which knowledge is produced at Makerere University are shifting. As such, the permanence of disciplinary (basic) research as a defining activity of academic scientists and of the discipline as a source of ideas for knowledge production is increasingly being challenged. For example, despite the fact that HURIPPEC is a predominantly human rights and peace center, there is interdisciplinary research on issues such as information and communication technologies and governance and their relationship with human rights (see <http://huripec.mak.ac.ug/>). This is contrary to the long-held view that membership of academics to their disciplines affords them stable and lawful identities.

It is further inferred from the above results that the popularity of the culture of interdisciplinarity in informing the research choices of academics derives from: a recognition by international development partners that multidisciplinary research is key to solving problems; the ability of multidisciplinary research to yield better quality research and to attract funding; and, its ability to enhance teamwork and as such ensure that many researchers are brought on board.

At Makerere University, there is wide-ranging institutional support for multi-disciplinary research through university policies. For instance, the University Research Agenda proposed research thrusts that are “broad and intended to promote multidisciplinary in addressing research problems” (Makerere University, 2013a, p.7). The research thrusts identified were: Research in health and health systems; Environment and Natural Resources Management; Agricultural production and productivity; Education and Education Systems; Science and Technology; and governance and human rights. These were selected because they are considered important in national development and poverty alleviation. The Research and Innovations Policy also pronounced support for multi-disciplinary research and innovation (Makerere University, 2008b, p.5).

Furthermore, several multidisciplinary centers such as Makerere Institute of Social Research (MISR), the Human Rights and Peace Center (HURIPPEC), Child Health and Development Center (CHDC), Centre for Lifelong Learning (CLL), Centre for Language and Communication Services (CLCS), and the National Software Incubation Centre (NSIC) were put in place to provide interdisciplinary research with an aim of solving societal problems. As a multidisciplinary research and teaching institute, MISR was established to, among others; respond to societal needs through multidisciplinary research on governance and civil society. Indeed, it plays a big role in informing public policy and contributing to economic and social development (see <http://misr.mak.ac.ug/about-misr>).

Pronouncements at the institutional-level in support of multidisciplinary research are contained in several University research policies. For example, the Quality Assurance Policy Framework pronounces that cooperation between units will be promoted especially in the sharing of (human) resources to optimise their usage (Makerere University, 2007). The Research and Innovations Policy encourages the formation of multidisciplinary teams at centres of excellence to ensure that through multidisciplinary research the volume of research increases; research becomes less project and individual-based; and research uptake is

enhanced (Makerere University, 2008b, p. 4, 5). Nonetheless, some study participants expressed mixed feelings regarding the success of multidisciplinary. They revealed that the links between academic disciplines are still weak because academic research is largely undertaken in disciplinary silos despite strategy pronouncement of interdisciplinarity in knowledge production. APHA2 reported that although the University has moved towards the strategy of creating multi-disciplinary departments, formation of these departments is yet to take root. He also reported that the operationalisation of interdisciplinarity is a bit complicated:

We have engaged in many projects where it is a multidisciplinary team. But many times, we go in as different scholars or different specialists and each one is tackling their area of specialty rather than multidisciplinary because it is very complicated to make somebody for example from health sciences to appreciate aspects of agriculture. So coming to the real implementation of multidisciplinary is very complicated. (APHA2)

It can be inferred from the above quote that at Makerere University, disciplinary elites representing more professionalized disciplines such as engineering, medicine, and agriculture partially open up to other disciplines as they attempt to protect dominant interests and values in their communities. The tendency by such disciplines to protect their intellectual space seems to militate against the effectiveness of multidisciplinary research teams. This is because these disciplines remain tightly coupled, unified in consensus, convergent, tightly knit and based on clearly defined rules, procedures, norms and values on what they stand for. Yet multidisciplinary teams are loose formations with members working from their perspective on a more or less shared research topic and in an independent way that does not involve any real interaction between them.

3.2 Building collaborations and academics' research choices

As already observed in the preceding subsection, the University collaborates more with international development partners, donors, and foreign universities since these provide research funding and allow academic exchange. To this extent, most study participants concurred that their research choices are increasingly being shaped by the interests of development partners, donors, and foreign universities that their disciplinary fields are already collaborating with. It was in this spirit that FPHP; a Full Professor from the hard-pure field shared that:

Collaboration is the essence of research. I have published with people in Sweden, and Norway. By collaboration, you do better. You learn from one another. You engage in problem-oriented research. Certainly, as I talk now, my research direction and that of the college is based on collaborations.

Furthermore, participants expressed the view that because the University has succumbed to a donor-driven research orientation, University scientists have no choice but to align their research interests to those of the development partners that the University is already collaborating with. For example, an Associate Professor from the hard-applied field (APHA2) and an institutional-level senior research manager (RMIL1) respectively disclosed that:

Of course, those you collaborate with have their own interests. Nobody is going to fund something that they have no interest in. There is no organisation that is going to fund research and leaves you to do what you want. It is you

who is writing the proposal who has to align whatever research interests that you have to those of the funders. I have written many proposals where they don't seem to be interested in what I am presenting because it does not fit into their interests. So if you are to get somebody's funds, you must align yourself with their interests (APHA2).

Although collaborations have enabled us to access research funding, the bad part of it is that development partners have their own agenda which is in most cases different from that of the University. Because they fund research, in most cases the research you do reflects their interests. For example, since SIDA started funding Makerere University research, they have trained more scientists than those in humanities because this suits their interests. Yet earlier on, it was a must that the College of Health Sciences must be a beneficiary. So they have their own interest to meet (RMIL2).

From the above, it can be seen that research choices and motives of University academics are, to a reasonable extent, informed by the culture of collaboration. Aligning research interests to those of major development partners and donors justifies the conceptualisation of academic research in terms of the donor-driven research orientation across disciplinary fields at Makerere University. Although research funded by development partners and donors largely focuses on their interests, in certain instances it benefits the local researchers and communities because, as APHA2 put it: "no donor wants to fund something that never ends up somewhere". FPHP also corroborated that "...in as far as extending the frontiers of knowledge is concerned; this is beneficial to all of us. Our students benefit when they are funded to pursue doctoral studies. Sometimes the money caters for the interests of the local researcher and country. It is a Win-win situation..." Key development partners have always asked University researchers to align their research proposals to the National Development Agendas such as Vision 2014 and the National Development Plans (NDP) I and II. Development partner funded research is also attractive to academic staff because it contributes to career growth. Nonetheless, opportunities for the University to significantly benefit from the culture of building international research collaborations and partnerships seem to be constrained by the nascent research support and management structures.

3.3 Engaging in applied research and academics' research choices

At Makerere University, the culture of engaging in applied research has been operationalised by the values of practicality (hands-on approach) and end-user engagement. It is also the case, as has already been highlighted that the culture of engaging in applied research is not mutually exclusive to the culture of interdisciplinarity. However, in this subsection, we specifically focused on the values of practicality and end-user engagement (as constructs of applied research) and how they inform academics' research choices.

Majority of the participants disclosed that the culture of engaging in applied research informs their research choices through the above values. APHP1, for instance, expressed that "my choices of the kind of research that I do cannot be detached from that practical orientation that defines chemists". Similarly, APHA1 noted that engaging stakeholders defines their research choices and that this is supported by the College Research Agenda that emphasizes applied research: "Our research agenda helps us to do applied research and to answer questions from industry. So to a certain extent, engaging stakeholders defines our research choices". From the above quotes, it is clear that the culture of engaging in applied research as

expressed in the values of practicality and stakeholder engagement informs the research direction of the University.

APHA1, an Associate Professor from the hard-applied field further shared that the culture of engaging in applied research has led them to produce knowledge that is applicable to the practical problems of society. He also divulged that:

We work hand in hand with the private sector or government locally, but we also have many collaborations with universities within the region and also internationally. These collaborations help us to engage in applied research.

In a related response, an Associate Professor from the soft-applied field (APSA1) shared that the culture of engaging in applied research has pushed them to engage policymakers. To him, engaging policymakers can never be a matter of choice but rather something worthy researchers must do if they are to produce policy-relevant research:

We produce research outputs that have lots of application, especially to policy. So, engagement in applied research has never been an exception but rather a norm in our School (APSA1).

The above position was also corroborated by APHP2 and APHA2 respectively that:

We value engagement in applied research and this has led the Department to engage in research that helps communities. For instance, we once did research that aimed at restoring polluted areas. Although much of this research started as basic research, it eventually transformed into applied research. In this college, what starts as basic research transforms into applied research. Basic research gives background information. So although a lot of the research we do is skewed towards publication, as a research-led University, we are forced to engage in research with useful applications. So engaging in applied research is now an entrenched culture that is certainly influencing our research choices (APHP2).

Engagement in applied research is not only a norm within CAES, but it also informs the research we do around here. Much of the research we do here has application. In some cases, our research improves the lives of the people outside there. We also disseminate our research findings although this also depends on how much resources we have (APHA2).

The drive towards deeper engagement with end-users of scientific knowledge is largely part of the proactive measures adopted by the University to perfect her research-led status by transforming itself into a leading institution for academic excellence and innovations and responding to external demands (Bisaso, 211). Nowonder, in its strategic plan (2008/09–2018/19), the university asserts that its decision to shift its focus from outreach to partnerships and networking was triggered by the realisation that “Much as knowledge, technology, and skills reside in universities like Makerere, the community, public and private sectors also command knowledge bases from which Makerere University can learn and leverage her entrepreneurial and innovative capability” (MUK, 2008a, p. 13).

As highlighted above, the culture of engaging in applied research informs academics’ research choices at Makerere University. However, although various study participants stated their wish for their research to make an impact on policymakers and practitioners, there appear to be some obstacles to effective engagement in applied research. Therefore,

conditions for academic researchers to effectively produce knowledge that practically engages the wider society and economy are not conducive. Obstacles to the deepening of the culture of engaging in applied research discovered by the study were: Inadequate funding; negative attitude of the communities towards University technologies; preoccupation with promotion; weak IP regimes; inadequate institutional capacity to engage; dependence on donor funding; and poor financial management. The voices below sum this up:

Well if you talk of policy-informing and community-oriented research, has the University disseminated what it has? No! Is the government willing to increase its contribution to research? No! Do we reward individuals who come up with cutting-edge research? No! (RMIL1)

The Government needs to devote more money to University research for effective involvement in impactful research. Sometimes, you cannot access an important article because the University has not subscribed. You need a well-stocked library both physical and virtual. You need space and time. Many academics at Makerere University spend more time outside academia trying to make ends meet. People are busy looking for their children's school fees. Professors should have research assistants. Graduate students should be helping us with the workload and being paid for it. We should have computers with fast internet. All this is missing here. The research environment is pathetic at best. In fact, we should pat ourselves on the back because, in spite of that kind of environment, we still can publish. Here at the Law School, we publish twice a year in the East African Journal of Peace. That is sweat and sacrifice (FPSA).

Some participants vented their frustrations on how some practitioners were not “receptive” or exhibited an “inferiority complex” hence their reluctance to utilise research outputs. The following quotes by APHA1 and APSA2 reflect this:

We also get some negative responses from communities. Not all people are receptive to these researched interventions. Because there is that general belief that our technologies are still uncivilized, there is that thinking that the technology from Makerere University does not work. So that mentality is still a challenge to us. Although many embrace our technology, we still have some that do not embrace it (APHA1).

For us here in CEES, the Ministry of Education and Sports (MoES) should be clearly linking up with us. These researches we are doing here should be informing what is being done in the Ministry of Education. But we don't have strong linkages with the Ministry as a College. I think it should be us the leadership, us as academicians here to cultivate these linkages. But I can also tell you that there is a lot of inferiority complex in certain ministries where we have people who don't want to relate with the institution which is seen as an academic giant and they say we are wiseacres and so on. So trying to penetrate their circles is a bit hard (APSA2).

It is noteworthy that, while APHA1 suggests that aversion to researched innovations by some communities is shaped by external factors such as the thinking by some communities that the technology from Makerere University does not work, in APSA2's case, it seems to be

somehow internal whereby external stakeholders are rarely informed of University research outputs resulting in weak linkages between the two.

Finally, from the above voices, variation between participants from the hard and soft fields regarding the extent to which practicality (hands-on approach) as a precursor to the culture of engaging in applied research has deepened in their disparate disciplinary fields can be discerned. Results show that whereas the practical orientation to research is valued across disciplinary fields, it is more entrenched in the hard disciplines and still deficient in the soft-pure domains (APSP2).

3.4 Producing basic knowledge and academics' research choices

Results reveal that across disciplinary fields, research choices continue to be shaped by the culture of producing knowledge at the very basic level. Indeed, the majority of the participants concurred that the pervasiveness and dominance of the basic research orientation across disciplinary fields is anchored in a research culture that, among others, helps them to: generate new theories to underpin application; pursue research interest of their choice; rise through the promotional ladder; advance the frontiers of knowledge; and achieve recognition within the scientific community. It is against this background that an Associate Professor from the soft-applied field (APSA2) submitted that:

For us, we value basic research for visibility and to contribute to the field of Distance and E-learning so that we grow that field and we become scholars of that field. We produce basic research just to generate theories that underpin application. And that is very important because if you don't have theories to underpin application, then you make applications that are not standardized, applications that are not fit for purpose. So there is that research also which is just for frameworks.

From the above quote, it is clear that the culture of producing knowledge at the very basic level has promoted the basic/academic research orientation with an intention of generating theories that underpin application. However, another key point raised is that basic knowledge is actually the foundation of knowledge and that if research is only geared towards application and is not based on knowledge generation, it will run short of ideas because it is not anchored in the very basics of knowledge. Another participant, an Associate Professor from the hard-applied field (APHP2) corroborated the above finding by sharing that:

Much of the knowledge we generate is basic. You cannot do applied research without doing the basic research because if you did, it would appear like you are putting the cart before the horse. If you don't do the basic research, you will not know about many things. So before we think of doing that high-end research, we also need basic research. For instance, before you use butterflies to make designs, you need to know about them. That is putting the cart before the horse. So we encourage a lot of basic research. Unless you know the basics, you cannot do the advanced research.

Results also revealed that the culture of producing knowledge at the very basic level continues to significantly inform academics' research choices because through basic research, academics are able to achieve promotion through publication, extend the frontiers of knowledge, and achieve recognition within the scientific community. Engagement in basic research to earn promotion was explicitly and boldly reported by two participants, nevertheless, the tone and emphasis lent to it substantial. FPHP and FPSP succinctly argued:

We engage in knowledge production for several reasons. However, one of the major reasons why we carry out research and publish it is to generate new knowledge some of which is for the purpose of getting promotion. Promotion has always been one of the major motivations for engaging in basic research in the College of Natural Sciences (FPHP).

Besides promotion, any other focus our research might have is a by-the-way. People are making a very conscious and strong effort to risk not running through the promotional ladder as fast as the other person who is just doing basic research and publishing and moving very fast through the promotional ladder. You can see that we are all oriented to becoming professors in two years. Never mind if anybody knows us outside the gates of Makerere University (FPSP).

It is clear that the desire to earn promotion is the major reason for engaging in basic research by academics that are still rising through the promotional ladder. The point system criterion for academic staff appointment and promotion was also found to be contributory to the popularity of the culture of engaging in basic research and to the phenomenon of skewing research and publication towards promotion. Whereas publication in peer-reviewed journals carries the highest weight of 25 points, contribution to the community carries only five points. Moreover, contribution to the community is not a requirement for promotions at lower levels as it only applies to the ranks from senior lecturer to professor (Makerere University, 2009b, p.18). It is therefore apparent that the demand to publish and subsequently be promoted takes preference over other reasons for knowledge production at Makerere University.

The connection between the culture of producing knowledge at the very basic level and academics' research choices at Makerere University is further heightened by the role of basic research in extending the frontiers of knowledge which in turn helps academics to achieve recognition within the scientific community. This is supported by a common thread that runs through the various narratives of the participants. For instance, FPHA shared that:

As an academic, I engage in research because it gives a lot of satisfaction when you generate new knowledge and share it. A scientist usually has an inquiring mind. You see something and then you want to find out what is causing it. So I think having an inquiring mind is part of it. I am truly interested in scientific inquiry, generating new knowledge and sharing that knowledge internationally and locally helps me to extend the frontiers of knowledge and to be recognised (FPHA).

In the same vein, APHA1 too communicated the same sentiments:

..... our research agenda focuses on producing knowledge that is relevant to the global scientific fraternity to advance the frontiers of knowledge. That is why we have many collaborations and linkages with Universities within the region and also internationally.... These collaborations help us to have research that informs the global scientific community (APHA1).

While speaking about the benefits of publishing, APSA2 equally shared that:

The excitement you get by somebody saying this new knowledge was developed by so and so in Uganda is very enormous. As academics, when our work is cited we get happiness and self-fulfillment. We are visible. We

contribute to the growth of knowledge. Then we become renowned scholars and we just receive invitations to go and talk about our work. I think it is so fulfilling to be able to get to another world to share your findings with the international community. Then you will get a lot of networks (APSA2).

4.0 DISCUSSION

4.1 Interdisciplinarity and academics' research choices

Findings reveal that overall; the culture of interdisciplinarity was reported to have an influence on academics' research choices as expressed in the interviews. Majority indicated that they have done a lot of research with colleagues from other disciplines and colleges and that their choice of research topics is increasingly being shaped by those they are collaborating with. Indeed, a senior research manager at the institutional-level, participant RMIL1 summarized this when he observed that: "Teamwork in research is very much emphasised at Makerere University. Even SIDA as our major funder requires that people work together. So the choice of research topics is increasingly being shaped by the research team. We are soon coming up with a strong policy on interdisciplinarity."

Based on the complementary benefits that the culture of interdisciplinarity brings to the research arm of the University such as "eliminating doubts that people might raise about the quality of the work, higher publication rates, more success in winning grants and bringing people with different skills together" (FPHP), study participants concurred that across disciplinary fields, many academics are engaged in interdisciplinary research. This finding is in agreement with Balsiger (2004) and Lawrence and Despres' (2004) studies that associated engagement in interdisciplinary research to benefits such as: tackling complexity in knowledge fragmentation; accepting local context; requiring continuous collaboration between research and practice; and taking an action-oriented stance that requires linkages across disciplines and between theory and practice. A related study done by Lewis (2007) in the University of Melbourne-Australia also revealed that the culture of interdisciplinary research owed a lot to academics' beliefs that: single authorship is too solitary; interdisciplinarity helped them get easily published, and that publishing together and applying for big grants with others was far more widely seen as a good idea than doing it alone.

A novel result from this study is that despite the above finding by Lewis (2007), there was no major variation regarding the extent to which research choices in science disciplines and the humanities are informed by the culture of interdisciplinarity at Makerere University. Indeed across disciplinary fields, participants concurred that interdisciplinarity is not only valued, but it also informs their research choices. For instance APSP2, an Associate Professor from the soft-pure field (anthology) shared that: "We have had a number of joint publications. In all these publications, the theme that has guided us is interdisciplinarity." Similarly, another participant, FPSP a Full Professor from the same field (sociology) narrated that: "A lot of people in our College value interdisciplinarity and this informs our research choices." This was the view that was shared by all participants from the soft-applied disciplines such as law, economics, and education (FPSA, APSA1, and APSA2). Meanwhile, APHP1 from the hard-pure field (chemistry) corroborated that: "I am an analytical chemist and analytical chemistry can be done in botany, engineering, zoology, medicine, and agriculture. That is why I find it very easy to fit in almost all areas because every time they want to do analytical work, then they think of having a chemist who fits in there. So yes, to a large extent, the research we do in the department reflects the value of interdisciplinarity." All the participants from the hard-

applied disciplines/applied sciences (FPHP, FPHA, APHA1, APHA2) shared the view that interdisciplinarity informs their research orientations.

This study concurs with Sa' (2008) finding that "interdisciplinarity has become a laudable goal for scientific associations, industry, and academic leaders in the US and that academic institutions risk impairing scientific advancement and diminishing the contributions of science to society by retaining traditional organizational forms and modes of work associated with disciplinary specialization" (p. 537).

As already established in the results that donors prefer to fund research that is interdisciplinary instead of discipline-centered research, the growth of donor funding has altered the organisation of research at Makerere University. Traditionally some soft fields such as philosophy, sociology, and history have worked alone and individualism has been one of the most crucial values in their disciplinary cultures. But recently, because donors seem to favour interdisciplinarity and big projects, such fields are increasingly producing interdisciplinary research outputs.

Adaptation to the changes in the donor funding conditions is not, however, clear-cut or robotic. This is illustrated by the fact that although research choices are progressively being informed by interdisciplinarity, some researchers still retain some measure of autonomy. In other words, they have managed to establish research projects where, to some extent, they are able to follow personal research interests and the individualistic working pattern as highlighted by FPSA that: "As an individual involved in research, I write what I am interested in. Three-quarters of my research are things that I have been interested in and whether they are taken up [by the donors] or not, it really depends on whether my research agenda matches with the interests of the donors and not the other way round. So as far as I am concerned, the research which I have done I think first in terms of what I want to do and not whether I will be able to get money from donors". This finding agrees with Hakala and Ylijoki (2001) who held that working on intellectually challenging research topics, contributing to one's field and achieving academic merit within the scientific community are regarded as important values in all research units.

4.2 Building international collaborations and academics' research choices

Findings also revealed that the culture of building collaborations informs the research choices of University academics. This reality, according to RMIL2 and APSA1 has been attributed to the fact that it is through these international collaborations that University researchers are able to attract donor funding. Participants were unanimous in their submission that the kind of research that is done across academic disciplines at Makerere University is largely determined by those with whom the University is already collaborating. This finding is consistent with Ishengoma's (2016) observation that the contemporary development-aid framework enables donors and Northern research institutions to impose their values on research agendas globally, and on North-South research collaborations in particular.

Over the years, Makerere University has built a number of international collaborations with different countries such as Sweden (SIDA); Norway (NORAD, NORHED); Denmark (DANIDA); the US (Carnegie and Ford Foundation), and the UK among others. But according to AFRODAD (2007), these collaborations generally reflect the research interests of the donors, are based on, and perpetuate, imbalance relationships between collaborators which limit the potential for such relationships to enhance research capacities at Southern universities and research institutions. Too often, North-South research collaborations apply to

short-term research projects. It has also been reported that the synchronisation of effort between various project donors and actors is virtually nonexistent (AFRODAD 2007) and this impacts the sustainability of research programs and their potential to build research capacity.

The above notwithstanding research shows that some North-South research collaborations have promoted local research interests and sustainable research networks. For example, Dean, Njelesani, Smith, and Bates (2015) identified a UK–Africa program as one of the genuine North-South collaboration and capacity building between researchers. It is also the case that North-South research collaborations help to supplement Southern governments' inadequate expenditure and investment in research. It is on this basis that Nakabugo, Barrett, McEvoy, and Munk (2010) acknowledged that North-South partnerships on research capacity building (in the South) do have an impact, albeit more on individuals than on institutions. Nakabugo *et al's* (2010) observation is consistent with this study's findings expressed in statements like: "although the donors are interested in certain areas, we also benefit", "through partnerships, we are able to extend the frontiers of knowledge and this is beneficial to all of us", "Our students get funding for their Ph.D. studies", "Sometimes, their interests are not selfish. Sometimes the money caters for the interests of the local researchers and country. It is a win-win situation."

4.3 Engaging in applied research and research orientations of academic staff

Findings reveal that the culture of engaging in applied research has triggered a research direction that is emphatic on the production of commercial oriented, policy-relevant and community-oriented research. This culture was found to be more entrenched in hard-applied disciplines such as agriculture, engineering, and medicine. No wonder, FPHA, a Full Professor from medicine, a hard-applied field shared that: "Medicine is an applied science in which practicals are highly valued. Certainly, this informs the way we do research. Much of the research we do is hands on. Of course at the back of every research we do in the school of medicine, we are looking for practical innovations. Can you come up with new knowledge, new ideas, something new that is going to be of practical value to society...? Our practical orientation helps us to develop a culture that defines who we are."

The above findings concur with Gibbons (1997) who argued that the research carried out in the context of application might be said to characterize disciplines in the applied sciences such as engineering, medicine, and computer science. This view was re-echoed by Bisaso (2011) when he corroborated that research in hard-applied fields such as engineering and medicine is primarily involved in "know how" and is thus more inclined to some practical end with much focus on tangible and usable inventions and techniques of further scientific production.

Despite the deficiency of applied research in the soft fields at Makerere University, results revealed that the culture of producing applied research therein is somehow valued and that in a way, it informs academics' research choices. Along these lines, APSP2 an Associate Professor from anthropology, a soft-pure field that is akin to the basic research orientation corroborated that: "Although the practical orientation is still deficient in our research, we highly value it. When we develop our proposals for funding, we are conscious of the presence of development partners. Development partners are demanding research which has practical aspects, research that can contribute to the world outside of academics."

The above response mirrors the findings from studies conducted by Delanty (2001), Farkas (1999), and Subotzky (1999) in which they held that contrary to the popular belief that basic research is entirely curiosity-oriented and therefore carried out with the aim of producing new knowledge for its own sake, application of basic research can be enhanced if results are used to promote social justice, community development, and public good through collaborative partnerships with relevant bodies in the community. Moreover, as Calvert (2000) concludes and in line with APSP2 above, because of the changing funding climate that favours applied research, researchers from soft fields have no choice but to tailor their research in such a way that it appears to be more applied so as to access donor funding. Seen this way, it can be safely concluded that University researchers from soft-pure fields are yielding to conformance pressures from donors.

4.4 Engaging in basic research and academics' research choices

The findings of the study demonstrate that across disciplinary fields, the culture producing knowledge at the very basic level is highly treasured and as such, it explains the pervasiveness and resilience of the basic/academic research orientation across disciplinary fields. There was strong unanimity among study participants that the ubiquity of the basic/academic research orientation across academic disciplines is partly attributed to this culture. They also shared that this culture enables them to generate new theories to, among others, underpin application, rise through the promotional ladder, and advance the frontiers of knowledge. For instance, APSA2, an Associate Professor from the soft applied field shared that: "For us, we value basic research for visibility and to contribute to the field of Distance and E-learning so that we grow that field and we become scholars of that field. We produce basic research just to generate theories that underpin application. And that is very important because if you don't have theories to underpin application, then you make applications that are not standardized, applications that are not fit for purpose. So there is that research which is just for frameworks." In addition, APHP2, an Associate Professor from the hard-pure field said that: "Much of the knowledge we generate is basic. You cannot do applied research without doing the basic research because if you did, it would appear like you are putting the cart before the horse. If you don't do the basic research, you will not know about many things. So before we think of doing that high-end research, we also need basic research. For instance, before you use butterflies to make designs, you need to know about them. That is putting the cart before the horse. So we encourage a lot of basic research. Unless you know the basics, you cannot do the advanced research."

In support of the above findings, Bentley, Habib, and Morrow (2015) stressed that basic research, or research undertaken with a primary purpose of advancing knowledge for its own sake, has traditionally been fundamental to university missions of advancing applied research; growing the careers of academics; and generating new knowledge. The above findings have further been supported by Albert (2003), Lam (2010) and Ylijoki (2003) who held that applied orientations (mode two) have not followed a path which has seen the decrease of mode one form of knowledge production (basic research). The Makerere University Strategic plan (2008/9 - 2018/19) also recognises that besides engaging in applied research, the University must advance basic research as well (Makerere University, 2008a). Seen in this light, it is safe to argue, at least in the context of Makerere University, against Gibbons *et al's* (1994) contention that disinterested, academic-oriented, and disciplinary centered mode of knowledge production is now a minority preoccupation in universities.

5.0 CONCLUSION AND RECOMMENDATIONS

Conclusions

We, therefore, conclude that there is a connection between disciplinary cultures and academic's research choices at Makerere University. There was indication of the existence of interdisciplinary research and that the choice of research topics is increasingly being shaped by the research team. However, although the culture of interdisciplinarity is being actively encouraged at the research funder level, the existing structures at the institutional-level that are emphatic on the culture of publishing in top-ranked journals have become inimical to the effective operationalisation of this culture. Likewise, the culture engaging in applied research was found to be a major driver of producing knowledge in the context of application especially in applied sciences such as engineering and medicine. Similarly, because university researchers are able to attract donor funding through international collaborations, it was established that some academics' research choices are determined by those with whom the University is already collaborating.

Nonetheless, the culture of producing knowledge at the very basic level was found to have more influence on academics' research choices. This is because, across disciplinary fields, academic research is more understood in terms of the basic research orientation. Indeed, emphasis is more on the production of traditional research outputs and publishing in top-ranked journals so as to earn academic promotions, extend the frontiers of knowledge, and achieve recognition in the scientific community. This culture has put researchers under pressure to publish in top-ranked journals at the expense of engaging in problem-oriented interdisciplinary research. This has diminished the benefits that interdisciplinary research brings to academia and its potential contribution to society.

Recommendations

We recommend that if the University is to perfect her research-led status, there is need to promote cultures that are emphatic on the production of high-quality relevant research for scholarship and for socio-economic development. Among others, there is a need to rethink the University promotional assessment model. This means that when academics are being assessed for promotion, they should be assessed on a broader criterion that, among others, includes: number of publications and contribution to policy and the community. This then means that academic research would be judged by both externalities and internalities. Seen in this light, in addition to publications, academics would then be promoted on basis of say: policy briefs, program advisories, and evidence-based newspaper articles that are not necessarily peer-reviewed.

References

- AFRODAD. (2007). *A Critical Assessment of Aid Management and Harmonization in Tanzania: A Case Study*. Harare
- Albert, M. (2003). University and the market economy: The differential Impact on knowledge production in Sociology and Economics. *Higher Education*, 45(2), 147-187. Retrieved from: <http://www.Jstor.org/stable/3447527>.
- Balsiger, P.W. (2004). Supradisciplinary research practices: history, objectives and rationale. *Futures* 36, 407-421.

- Bauer, M., & Kogan, M. (1997). Evaluation Systems in the UK and Sweden: Success and difficulties. *European Journal of Higher Education*, 32(2), 129-143.
- Becher, T. (1987). Disciplinary Discourse, *Studies in Higher Education*, 12:3, 261-274, Doi: 10.1080/03075078712331378052
- Becher, T., & Trowler, P. (2001). *Academic tribes and territories: intellectual inquiry and the culture of disciplines*. Buckingham: Society for Research into Higher Education and Open University Press.
- Bentley, K., Habib, A., & Morrow, C. (2006). *Academic freedom and institutional autonomy and the corporatized university in contemporary South Africa*. Research report. Council on Higher Education (CHE), HEIAAF, 3. December 2006. Pretoria: CHE.
- Biglan, A. (1973a). The characteristics of subject matter in different academic areas in: M. A. Alise, (2008). *Disciplinary differences in preferred research methods: a comparison of groups in the Biglan classification scheme*. A Dissertation submitted to the Graduate Faculty of the Louisiana State University and Agricultural and Mechanical College in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the Department of Educational Theory, Policy, and Practice.
- Bisaso, R. (2011). *Utilising the Learning Organization for Management Capacity Building at Makerere University*. A PhD dissertation presented at University of Tampere, November 18th, 2011.
- Bornmann, L. (2012). Measuring the societal impact of research. *EMBO Reports*, 13(8), 673–676.
- Brew, A. (2001). Conceptions of research: a phenomenological study, *Studies in Higher Education*, 26, pp. 271–285.
- Brew, A., & Ginns, p. (2008). The Relationship between Engagement in the Scholarship of teaching and learning and Students' course experiences. *Assessment and Evaluation of Higher Education*, Volume 33, Number 5, October 2008, pp. 535-545 (11). Doi: <https://doi.org/10.1080/02602930701698959>
- Calvert, J., & Martin, B. R. (2001). *Changing Conceptions of Basic Research?* SPRU – Science and Technology Policy Research. University of Sussex, Falmer, Brighton BN1 9RF, UK
- Cherney, A., Head, B., Povey, J., Boreham, P., & Ferguson, M. (2015). The utilization of social science research: The perspectives of academic researchers in Australia. *Journal of Sociology*, 51(2), 252-2710. doi: 10.1177/1440783313505008
- Cloete, N., Bailey, T., Pillay, P., Bunting. I., & Maassen. P. (2011). *Universities and Economic Development in Africa. Key findings*. Cape Town: CHET. Retrieved from: <http://www.chet.org.za/books/Universities-and-economic-development-africa>
- Creswell, J. W. (2007). *Qualitative Inquiry and Research Design. Choosing among Five Approaches*. SAGE Publications. Thousand Oaks, London.
- Dean, L., Njelesani, J., Smith, H., & Bates, I. (2015). Promoting sustainable research partnerships: A mixed-method evaluation of a United Kingdom–Africa capacity-strengthening award scheme. *Health Research Policy and Systems* 13: 81

- Delanty, G. (2001). *Challenging Knowledge. The University in the knowledge society*. Buckingham: The society for research into Higher Education & Open University press.
- ERiC (Evaluating Research in Context). (2010). *Evaluating the societal relevance of academic research: A guide*. Delft, The Netherlands: Delft University of Technology.
- Etomaru, I. (2017). Knowledge transmission Strategies and Practices at Makerere University. A PhD dissertation presented to the Directorate of Research and Graduate Training, Makerere University.
- Faricy, W. G. (1974). Grouping departments. *The Journal of Higher Education*. 45(2), 98-111.
- Farkas, N. (1999). Dutch science shops: Matching community needs with University R&D. *Science Studies*, 12(2), 33-47.
- Feldman, M. P., & Desrochers, P. (2004). Truth for its own sake: Academic culture and Technology transfer at Johns Hopkins University. *Minerva* 42: 105-126, 2004. Retrieved from: <http://www.jstor.org/stable/41821274>.
- Gibbons, M. (1997). What kind of university? Research and teaching in the 21st century. Victoria University of Technology
- Gibbons, M., Limoges, C., Nowotny, H., Schwartzman, S., Scott, P., & Trow, M. (1994). *The New Production of Knowledge. The Dynamics of Science and Research in Contemporary Societies*. London: Sage.
- Gornitzka, A., & Sverdrup, U. (2010). Enlightened Decision Making? The Role of Scientists in EU Governance, *Politique européenne* 2010/3 (No 32), p. 125-149. DOI 10.3917/poeu.032.0125
- Guba, E. G., & Lincoln, Y. S. (1988). Do inquiry paradigms imply inquiry methodologies? In: Fetterman, D.M. (Ed.), *Quantitative approaches to evaluation in education* (pp. 89-115). New York: Praeger.
- Hakala, J., & Ylijoki, O. H. (2001). Research for Whom? Research Orientations in Three Academic Cultures. University of Tampere, Finland. *Organization*, 8(2), 373-380. doi: 1350-5084(200105)8:2;373-380;017781
- Henkel, M. (2005). Academic Identity and Autonomy in a Changing Policy Environment. Springer. *Higher Education*, Vol. 49, No. 1/2, Universities and the Production of Knowledge (Jan. - Mar., 2005), pp. 155-176
- Hill, K. Q., Capers, J. K., & Flink, C. (2014). "Why Some and Not Others?" The Determinants of the Quality and Prestige of Public Graduate Research Universities. *State Politics & Policy Quarterly* 2014, Vol. 14(1) 29-49.
- Horvath, F., Weber, K., & Wicki, M. (2000). International Research Orientation of Swiss Universities: Self-Regulated or Politically Imposed? Published by Springer: *Higher Education*, Vol. 40, No. 4 (Dec., 2000), pp. 389-408.
- Ishengoma, J. M. (2016). North-South Research Collaborations and their Impact on Capacity Building: A Southern Perspective. In: T. Halvorsen and J. Nossun (2016). *North-South Knowledge Networks: Towards Equitable Collaboration between Academics, Donors and Universities. African Minds*. Cape Town, South Africa.

- Jacob, M. (2006). Utilization of Social Science Knowledge in Science Policy: Systems of Innovation, Triple Helix and VINNOVA. *Social Science Information* Vol 45, Issue 3, pp. 431 - 462
- Jacob, M. (2009). On Commodification and the Governance of Academic Research. *Minerva: A Review of Science Learning and Policy*, 47(4), 391-405.
- Kasozi, A. B. K. (2016). *The impact of the Uganda state management style on higher education governance, research, and post graduate training 2001-2012*. Paper presented at a Colloquium on higher education, Monday, 11 April 2016, Makerere Institute of Social Research (MISR).
- Kekale, J. (1999). Preferred Patterns of Academic Leadership in different Disciplinary (Sub) cultures, *Higher education*, 37: 217-38.
- Kekale, J. (2002). Conceptions of Quality in Four Different Disciplines. *Tertiary Education and Management (TEAM)* 8(1), 65-80
- Kuteeva, M., & Negretti, R. (2015). *Graduate students' genre knowledge and perceived disciplinary practices: Creating a research space across disciplines*. Elsevier.
- Lam, A. (2010). From 'Ivory Tower Traditionalists' to 'Entrepreneurial Scientists'? Academic Scientists in Fuzzy University-Industry Boundaries. *Social Studies of Science*, 40(2), 307-340.
- Lawrence, R. J., & Després, C. (2004). Introduction: Futures of Transdisciplinarity. *Futures*, 36, 297e405.
- Lewis, J. M. (2007). *Intellectual Curiosity, Disciplinary Traditions and Performance Frameworks: Understanding Academic Networks*. School of Political Science, Criminology and Sociology, University of Melbourne.
- MacGregor, K. (2015). *Transforming Makerere into a Research-led University*. UniversityWorld News: 10th January 2015. Issue No: 349
- Makerere University (2008a). *Makerere University Strategic Plan 2008/09-2018/19*. Makerere University, Kampala: Makerere University.
- Makerere University (2008b). *Makerere University Research and Innovations Policy*. As approved by the University Council at its 112th meeting held on Thursday March 13th 2008. Makerere University, Kampala: Makerere University.
- Makerere University (2009b). *The policy on appointment and promotion of academic staff*. As reviewed and approved by the University Council at the 106th meeting held on 6th and 7th July, 2006, amended at the 112th meeting of University council held on 10th September 2009. Makerere University, Kampala: Makerere University.
- Makerere University (2013a). *The University Research Agenda (2013-2018)*. Directorate of Research and Graduate Training, Makerere University, Kampala: Makerere University.
- Makerere University (2015). *Makerere University Research and Innovations Communication Strategy and Implementation Framework (RICS)*. Final Draft. Department of Journalism & Communication, Makerere University, Kampala: Makerere University.
- Makerere University (2016). *Makerere University Annual report*. The Planning and Development Department, Makerere University, Kampala: Makerere University.

- Mugimu, C. B., Nakabugo, M. G., Katunguka-Rwakishaya, E. (2013). Developing Capacity for Research in Higher Education. A case of Makerere University. *World Journal of Education*. Vol 3, No 6 (2013)
- Musiige, G. (2014). *Research at Makerere University: Faculty perceptions towards the factors that influence research productivity*. A master's dissertation submitted to the University of Oslo.
- Nakabugo, M. G., Barrett, E., McEvoy, O., & Munk, R. (2010). Best practices in North–South research partnerships in higher education: The Irish African partnership model. *Policy and Practice: A Development Education Review* 10: 89–89.
- Nakayiwa, F. (2015). *Transforming Makerere into a Research-led University*. *University World News*. Karen MacGregor 10 January 2015 Issue No: 349.
- Puplampu, B. B. (2012). “50 years of leadership in business education: determining new frontiers”, Keynote Address at Launch of 50th Anniversary celebration of University of Ghana Business School. Amegashie Auditorium, Legon, Ghana.
- Puplampu, B. B. (2015). "Building the research culture in an African business school", *European Business Review*, 27(3), 253 – 280. <http://dx.doi.org/10.1108/EBR-03-2014-0024>
- Sa', C. M. (2008). Interdisciplinary Strategies' in U.S. Research Universities. Springer Science+Business Media B.V. 2007. *Higher Education* (2008) 55:537–552 DOI 10.1007/s10734-007-9073-5
- Schauz, D. (2014). What is Basic Research? Insights from Historical Semantics. *Minerva* (2014) 52:273–328 DOI 10.1007/s11024-014-9255-0.
- Subotszky, G. (1999). “Alternatives to the Entrepreneurial University. New Modes of Knowledge Production in Community Service Program”. *Higher education*. 38(4), 401- 440.
- The Times Higher Education, (2018). *The World University Rankings 2018. List of the top 1,000 universities in the world*. Elsevier.
- Ylijoki, O-H. (2000). Disciplinary cultures and the moral order of studying – A case study of four Finnish University departments. Kluwer Academic Publishers. *Journal of Higher Education*, 39(3), 339-362. DOI: 10.1023/A: 1003920230873.
- Ylijoki, O-H. (2003). Entangled in academic capitalism? A case-study on changing ideals and practices of University research. *Higher Education*, 45(3), 307-335. DOI: 10.1023/A: 1022667923715.
- Ylijoki, O-H., Lyytinen, A., & Marttila, L. (2011). Different research markets: a disciplinary perspective. *Higher Education*, 62(6), 721-740. DOI: 10.1007/s10734-011-9414-2.
- Ziman, J. (2000). *Real Science. What it is and what it means*. Cambridge: Cambridge University Press.