Disciplines and Engagement in African Universities
A study of the distribution of scientific capital and academic networking in the social sciences

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Emerge, Be Ambulant

You sleep! While worlds march on, oh land of mystery.
You sleep! While worlds advance, the march of time stops never . . .
Upon one hemisphere moves modern history
While on the other one you sleep your sleep forever . . .

The jungle makes of you a hermitage most cruel,
Where growls the beast alone at night his vigil keeping.
The land and darkness have an empire here they rule
While you, remote from time, oh Africa, are sleeping . . .

Wake up. Already now black crows are on the wing
So anxious to swoop down and drink-in, swallowing,
Your blood still warm, within your flesh somnambulant …

Wake up. Your sleep has been of more than earthly mean. . .
The voice of Progress hear, this other Nazarene
With outstretched hand says – "Africa, emerge, be ambulant!"

Surge et ambula

Dormes! e o mundo marcha, ó pátria do mistério.
Dormes! e o mundo rola, o mundo vai seguindo. . .
O progresso caminha ao alto de um hemisfério
E no outro tu dormes o sono o sono teu infindo. . .

A selva faz de ti sinistro eremitério,
Onde sozinha, à noite, a fera anda rugindo. . .
A terra e a escuridão têm aqui o seu império
E tu, ao tempo alheia, ó África, dormindo. . .

Desperta. Já no alto adejam negros corvos
Ansiosos de cair e de beber aos sorvos
Teu sangue ainda quente, em carne sonâmbula. . .

Desperta. O teu dormir já foi mais que terreno. . .
Ouve a voz do Progresso, este outro Nazareno
Que a mão te estende e diz – "África, surge et ambula!"

António Rui de Noronha

In *Poets of Mozambique: A bilingual selection*, ed. F. G. Williams (2006). Utah: Brigham Young University Studies Provo.

DECLARATION

This work has not been previously submitted in whole, or in part, for the awarding of any degree. It is my own work. Each significant contribution and quotation in this thesis, from the work, or works, of other people has been attributed, and has been cited and referenced.

Signed by candidate

Patrício Vitorino Langa

March 2010

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English is not my mother tongue, not even my language of instruction. Most of my knowledge of the language today is self-taught. Thanks to plenty of reading and Hollywood movies! Close friends say that depending on the movie I had watched the previous night, I adopted a particular accent the next day.

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UCT has established a lovely facility for researchers and postgraduate students in the main library. This facility is called the Research Commons (RC). The RC became a second home for most of its users. Here, one would spend more time than in our own homes. Amina Adam and William Daniels, the two librarians in charge of the RC, were always ready to lend a hand. Their dedicated work and efficiency have made the RC the most welcoming place for studying. I would also like to acknowledge the assistance of Nuroo Ismail with the formatting of my thesis.

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DEDICATION

For my sister

Hermínia Vitorino F. Langa-Manjante

ABSTRACT

Drawing on Pierre Bourdieu's theory of field and capital, this thesis examines the disciplinary differences in the social sciences concerning the possession of scientific capital and levels of engagement with academic and non-academic constituencies in three African universities, Eduardo Mondlane University in Mozambique, Makerere University in Uganda and the University of the Western Cape in South Africa. Contrary to approaches that regard disciplinary fields as homogeneous epistemic and social spaces on the grounds of the principles of the stratification of scientific fields, this study investigates the relationship between the hierarchical position of selected discipline-clusters and the levels of engagement with both internal and external constituencies.

The study reveals that levels of possession of scientific capital have a significant effect on the differentiation of the disciplinary fields, both within and across institutions, and on the levels of engagement with (internal) academic and (external) non-academic entities. The analysis shows that scientific capital does not determine the level and forms of engagement with different constituencies. However, the differences across discipline-clusters at institutional level reflect the engagement with academic rather than with non-academic constituencies.

In other words, this means that the level of engagement varies more between different disciplines when the engagement is related to academic entities than is the case when non-academic entities are concerned. Therefore, engagement is not a major discriminator amongst institutions. Scientific capital is what gives academics prestige and symbolic capital to the institution. The significance of this is that academics from different discipline-clusters might have different experiences of engagement with different constituencies. I further conclude that the growing importance that the notion of engagement has for the university is, perhaps, too simple if it does not account for the complex and multifaceted characteristics of disciplinary and institutional fields.

Key Terms: Academic capital, discipline-cluster, forms of engagement, higher education, networks of connections, scholastic capital

LIST OF ABBREVIATIONS & ACRONYMS

An & So	Anthropology & Sociology
CERI	Centre for Educational Research and Innovation
CHET	Centre for Higher Education and Transformation
CREST	Centre for Research on Science and Technology
EAC	East African Community
Ec & Ma	Economics & Management
EMU	Eduardo Mondlane University
FEMA	Faculty of Economics and Management
ICT	Information and Communication Technology
MAK	Makerere University
NGOs	Non-governmental organizations
OECD	Organisation for Economic Co-operation and Development
Ps & Pa	Political Science & Public Administration
SADC	Southern African Development Community
SNA	Social Network Analysis
U.S.A.	United States of America
UEM	Universidade Eduardo Mondlane
UWC	University of the Western Cape

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CHAPTER ONE
INTRODUCTION TO THE STUDY

> [M]y sociological analysis of the academic world is to trap *Homo Academicus*, supreme classifier among the classifiers, in the net of his own classifications (Bourdieu, 1988, p. xi)

1.1 Context of the Study

If I was asked to summarize in one sentence the essence of academic life today, I would respond with the following reformulation of Descartes' famous 'cogito ergo sum' ('I think, therefore I am'): *Connecto ergo sum*, that is, 'I connect, therefore I am'. This implies that networking constitutes a quintessential characteristic of academics today. In other words, academic survival in times of resource constraints is becoming increasingly difficult without networks of connections. The maxim 'Connect or perish' similarly captures this emerging trend and resembles Nyamnjoh's 'Publish or Perish' (2004), which refers to the imperative of publishing in academia. However, as Nyamnjoh (2004) notes, publishing in Africa may be a necessary, yet not a sufficient condition for survival in academia, as many academics still publish but nonetheless perish.

The kinds of connecting networks, in which most African academics find themselves, are not always sympathetic to the enhancement of scholarship. I presume that they are pecuniary survival networks. Although some academics still characterize their work as the most solitary occupation, particularly when it comes to thinking and writing, a substantial part of the work to which academics devote their time comprises the search for funding, the dissemination of their results by attending conferences, as well as publications, preferably in reputable journals.

In order to carry out any of these activities successfully one must be 'well' connected. In that sense, connecting simply does not tell us much about the particular types of academics. Yet, asking academics with whom they connect for working on research project**s**, with whom they publish, from whom they receive research funding and what conferences they attend, will most probably tell us what kind of academic they are. The nature of networks in which

academics engage is the subject matter of this thesis. I classify the supreme classifier among the classifiers, à la Bourdieu, in the net of their own connections.

The problem that is the concerns of this research is twofold. First, I seek to examine the idea that scientific disciplines, like other fields, are structured spaces of forces, according to both generic and specific logics; and that it is possible to map and understand a given position in that space. I draw this idea from Bourdieu (1975, 1988), whose sociology of science has been concerned with the hierarchy in scientific fields. Scientific position in this hierarchy is objectively allocated by means of various forms of capital, and it generates a disposition that matches the position as a consequence. The implication of this observation is that positions inform dispositions.

Secondly, the research entails developing a framework to measure scientific capital and forms of engagement in order to discuss the relationship between them. The study examines different levels of possession of scientific capital and forms of engagement across alternative types of networks of connections classified by the particular social dimension of the social space in which they occur. Therefore, I construct my object based on Bourdieu's (1986) classic account of forms of capital (economic, social and cultural).

In most African countries, academics have increasingly been conducting research outside the so-called "ivory tower" and the walls of the university, partly through their involvement in non-academic institutions, such as non-governmental organizations (NGOs), which seek academically legitimized knowledge (King & Buchert, 1999). Academics work with these institutions as consultants, partly as a result of the global reduction of (research) funding in the overall budgets of universities in real terms (Amaral & Magalhães, 2003; Clark, 1998; Johnstone, 2001; Johnstone, Arora, & Experton, 1998; Slaughter & Leslie, 1997; Wangenge-Ouma, 2007) and partly because these NGOs make it easy for academics on the periphery to connect with them.

This trend implies major changes in African higher education systems; and these changes must inevitably affect the academic profession and culture. These changes have meant a growth in the strength and number of forces acting on academic cultures, enhancing the external, rather than the internal influences on academics (Becher & Trowler, 2001). I discuss this issue in more detail in the literature review. External demands and pressures are not the

immediate and core concern of my study. Although I acknowledge their significant presence in the literature on transformation in current higher education (Gumport, 2000, 2005, Maassen & Cloete, 2006; Maassen & Van Vught, 1994; Scott, 1996), they remain a secondary focus for the study. What I intend with this study is to contribute towards the intelligibility of this phenomenon in the African context by examining the disciplinary levels of scientific capital and of the networks of connections academics establish amongst themselves and with external constituencies.

1.2 Formulation of the Research Problem

1.2.1. Background of the Problem

This study arises out of my concern with the perceived erosion of intellectual capacity in African universities, which could undermine its reproduction. In fact, studies like the global research report series published by the UK-based Thomson Reuters research performance analysis and interpretation group shows that in the 'new geography of science' the global research landscape, Africa ranks behind other regions and countries such as Brazil, India, and China in terms of research output (Adams, King, & Hook, 2010).

The report shows that Africa displays an extremely uneven distribution of research and innovative capacity. Research is concentrated in Egypt in the north, Nigeria in the middle and South Africa in the south. Africa produces only some 27,000 papers a year – approximately the same amount of published output as The Netherlands. Yet, the continent has relatively high representation, as a share of world publications, in fields related to natural resources (Adams et al., 2010). This scenario has been described by other sources on the state of science in Africa in the last decade (Adeboye, 1998; Arvanitis, Waast, & Gaillard, 2000; Gaillard, Hassan, & Waast 2002; Gaillard, Hassan, & Waast (with Schaffer) 2005; Mouton et al., 2000; Mouton & Waast 2008).

These studies provide an overview of the patterns of research activity in Africa. The volume of activity remains small, much smaller than is desirable if the potential contribution of Africa's researchers is to be realized for the benefit of its populations. The challenges that the continent faces are enormous and local research could assist provide both effective and focused responses.

The picture presented by the Thomson report speaks to my own observation in the scientific field in Mozambique where I have been a lecturer and researcher at Eduardo Mondlane University (EMU) for nearly 10 years. My experience has been that a sizeable number of academics seek rewards for their academic activities outside rather than within the scientific system. I suspect this may be one of the reasons for lower volume of research output. In other words, the core academic activities that inform the scientific enterprise, namely teaching, basic research, publications, seminars and conferences, are losing ground and precedence to activities such as consultancies that are not entirely driven by scientific ethos.

It appears as if academics were enjoying more rewards from engaging in activities that are not directly linked to what defines their own existence as such. According to Merton (1968) science has its own reward system for those occupying particular positions in the academic and scientific field. The reward system is graded and based, amongst others, on recognition principally by fellow-scientists. Basically, this recognition is stratified for various grades of accomplishment as judged by academic peers. I suppose that an academic career should be guided by the ethos of science, that is, the values and norms which are held to be binding for the man of science (Storer, 1973).

To put it simply, one of my main observations has been that academics, particularly at Eduardo Mondlane University, were not publishing in reputable journals or not publishing at all without seeming to be concerned about it. They were complaining about their teaching obligation with the excuse that they would rather be engaging in more profitable activities. Actually, even those newly entering the academic field seemed driven by pecuniary reasons rather than the pursuit of an intellectual and academic career. Academic activities did not seem to be the most rewarding for them.

Established academics, some of whom had been my own lecturers, appeared more concerned about their next consultancy outside the university and about gaining more rewards for those external activities, than teaching, conducting basic research and publishing. Young and upcoming academics who had just started their teaching and research careers as assistants often had to take full responsibility for the classes, in some cases even prematurely becoming the main lecturer in the faculty.

This scenario and my own experience as an upcoming academic led me to questions such as the following. First, was there a change in the core values that constituted and informed academic life, and if so, what could the underlying causes be? Secondly, I also questioned whether Mozambique was an exception or whether it followed a general trend taking place in other parts of the world as well as in other African countries. On a more theoretical level, I was interested in examining whether there were differences amongst academics in terms of their commitment to the 'ethos of science' (Merton, 1968, 1988; Storer, 1973) and 'scientific habitus' (Bourdieu, 1975, 1990).

My main research problem, therefore, revolves around the question of what happens to the intellectual capacity of African universities if the perceived erosion of the scientific ethos is real. For instance, in the late 1970s and 1980s, Eduardo Mondlane University used to be the hub of a vibrant intellectual and academic culture, particularly at the Centre for African Studies (CEA), where landmark research was developed early after the country's independence in 1975 with considerable regional and international academic networks being established. Reputable academics and political activists such as Ruth First[1] and the renowned theorist of the Modern World System, Immanuel Wallerstein[2], spent some considerable time as research fellows at the CEA. The CEA was a pioneer in producing collaborative research, resembling Bourdieu's notion of 'collective intellectual'.

For Bourdieu, the 'collective intellectual' resembles a sports team in terms of the spirit that drives it, in this case the 'scientific spirit' in the sense of Bachelard's usage of the term, the collectivist attitudes implied by its activity, and the form of apprenticeship involved – constant, intensive and regular training (Lenoir, 2006). The combination of these elements gives rise to gestures and syntheses which are incessantly repeated to the point where they become a 'habitus', what Bourdieu called the 'scientific habitus'. It also creates the mutually supportive force, mobilized in its practical, articulate and coherent mode, which Bourdieu believed a research centre – a specific form taken by the collective intellectual in the scientific sphere – should constitute.

[1] Ruth First was a South African journalist, scholar and anti-apartheid activist killed by a parcel bomb by the apartheid regime when she was the scientific director of the Centre for African Studies (Marks, 1983).
[2] One of the leading theorists of the Modern World System (Wallerstein, 2004).

Showing his activist side, Bourdieu makes a direct appeal to academics to engage in the preservation of intellectual autonomy as he thinks the intellectual field in general is increasingly threatened, for instance, by the interpenetration of art and money. "Marketing criteria and sales have come to replace genuine intellectual criteria in publishing. Even the avant garde [*sic*] chases after commercial success, rather than maintaining its traditional disregard of commercial criteria" (Swartz, 2003, p. 811).

Like the CEA at Eduardo Mondlane, Makerere University in Uganda was for years regarded as the centre of intellectual production in the East Africa region. Makerere did not live up to its reputation in the 1960s and 1970s. Some academics argue that towards the end of the 1980s, the institution embarked on a series of neo-liberal reforms that changed it from being an intellectual centre towards embracing a more privatized and commercialized approach of academia (Mamdani, 2007; Musisi & Muwanga, 2003).

It appears as if the classical reward system of science, as described by Merton (1968), at least in the manner in which it operates in developed societies, has not been appropriate for the development of a vibrant scientific ethos. In what seems to be a form of subversion of science, academics were becoming pecuniary seekers outside of academia, looking for external rewards rather than internal recognition. Those who were successful outside, it seems, would also be winning within academia; yet, the same is not always true the other way around. At this stage, my concerns were principally intuitive and practical in the sense that they derived from my own experience and participant observation, as I had not subjected them to a theoretical formulation and empirical test.

1.2.2. Theoretical Formulation

The literature provided some insights into how I could formulate the problem. In my research, I identified three ways in which the problem has been formulated theoretically and followed by some empirical investigations. It is around these approaches that I found the ground to formulate and present my research questions. Within science studies, there are currently two main approaches of explaining change in the science system endogenously (Muller, 2005a). On the one hand, we find the institutionalist approach, which deals with changes in the institutional settings of research, including science policy (Mayntz, 1998; Mayntz & Schimank, 1998; Muller, 2005a, 2005b; Weingart, 1998). This approach focuses

on the structural conditions and mechanisms created to direct science, and on the institutional responses of science (Muller, 2005a, 2005b). The cognitivist approach, on the other hand, deals with changes internal to the knowledge structure of science as the driver of change, focusing on changes in the mode of knowledge production.

The two main contending theories here have been the Starnberg group's finalization theory (Weingart, 1997), and the mode 1/2 account of Nowotny, Scott and Gibbons, (2001) and others (Muller, 2005a). Muller points out that there are other contenders with different approaches, like the 'Triple Helix' approach of Etzkowitz and Leydesdorff (1996) and Rip's sociocognitive approach (Muller, 2005a, 2005b; Rip, 1997). A considerable number of the empirical studies examine changes in science by looking at the relationship between the university and industry (Anderson, 2001; Dill, 1995; Fairweather, 1988; Kruss, 2005, 2006). Others look at changes in science and universities through a variety of thematic lenses. One of the most prominent is the so-called knowledge economy. Studies have been undertaken to understand the changes affecting universities in the context of knowledge economies (Conceição, Heitor, & Oliveira, 1998). There are also studies assessing the role of universities for community and regional development (e.g. Barrows, 2001; Chatterton, 2000). These and others will be further explored in the literature review.

My aim was not to study changes in the science system as such. Instead, I was interested in the reward system in science as it is presented in Merton's sociology of science. This approach looks at the social organization of science to investigate the reward system in science, disputes between scientists, and the manner in which prominent scientists often receive disproportionate credit for their contributions, whereas lesser known scientists receive less credit than their contributions actually merit (Merton, 1968). Merton called this phenomenon the "*Matthew effect*" (Merton, 1988, p.606-7).

I assumed that this approach could provide a plausible explanation for the reason why prominent academics appear to leave the "*Ivory Tower*" to seek (market) opportunities in other constituencies outside academia. Merton was able to explain how the social system of science at times deviates structurally from the *ethos of science*, in this case by violating the norm of universalism, according to which claims to truth are evaluated in terms of universal or impersonal criteria, and not on the basis of race, class, gender, religion, or nationality (Storer, 1973).

The concept of 'cumulative advantage' directs our attention to the ways in which initial comparative advantages of trained capacity, structural location, and available resources make for successive increment of advantage such that the gaps between the haves and have-nots in science (as in other domains in social life) widen until dampened by countervailing processes (Merton, 1988). While the 'cumulative advantage' would be an interesting way to examine the differences in which African academics look for reward, I was also not interested in an individualistic approach. In other words, I was looking for an approach which could capture the relational dimension of the scientific space. This concern led me to consider another way of formulating the problem by using Bourdieu's theory of field and capital.

Bourdieu's conceptual trilogy of capital, field and habitus is therefore the second line in my theoretical formulation of the problem. These concepts form the keystone of his relational sociology. For Bourdieu, capital is "the sum of the resources, actual or virtual, that accrues to an individual or a group by virtue of possessing a durable network of more or less institutionalised relationships of mutual acquaintance and recognition" (Bourdieu & Wacquant 1992, p. 119).

On the one hand, the concept of capital resembles Merton's notion of 'cumulative advantage'. I considered an accumulated amount of a particular form of capital an advantage. For instance, an academic with a certain number of publications is more likely to have accumulated scholastic capital, which can translate into prestige and renown, than those without any publications. Accumulated capital, in my understanding, is a form of advantage.

The concept of field, on the other hand, brings in the relational dimension. That is, capital is accumulated in a context of struggles for its monopoly. The use of strategies, usurpations, exclusion in the competition, struggles for monopoly over forms of capital are the principal indicators to ascertain whether a particular social space is functioning as a field, as well as the instruments for empirically determining the limits of a field. Fields present themselves synchronically as structured spaces of positions whose properties depend on their position within those spaces and can be analyzed independently of the characteristics of their occupants (which are partly determined by them) (Bourdieu, 1993a). In order to employ this approach one has to map the space of positions occupied by particular agents. My first and second research questions, therefore, are formulated in a manner that enables me to stratify the space of social sciences disciplines according to distribution of scientific capital.

Another line of inquiry, which sheds light on the formulation of my research problem, was informed by studies referring specially to the African context of knowledge production. In this group I include, amongst others, Gibbons (1998), Mouton et al. (2008), Mouton (2006, 2008) and Subotzky (2001).Most of their theoretical assumptions are informed in one way or another by the distinction between 'mode 1' vs. 'mode 2' introduced by Gibbons et al. (1994), Nowotny, Scott, and Gibbons (2001), by Etzkowitz (1983) and Etzkowitz and Leydesdorff's (1996, 2000) 'Triple Helix' analysis of industry/university/government relations.

Gibbons et al. (1994) argue that the way in which scientific knowledge, technical practices, industry, education and society are organized and function currently differs significantly from the way they used to be. In support of their argument, the authors distinguish between two modes of knowledge production. A divide between academia and society characterizes 'mode 1'. Academia ranges around an autonomous university, with self-defined and self-sustained scientific disciplines and specialities, and the determination by scientific peers of what does and does not constitute science and truth (Muller, 2000; Shinn, 2002).

Additionally, 'mode 1' is characterized by purportedly weak interaction between academia and society and no interaction at all between academia and industry. By contrast, 'mode 2' knowledge production inaugurates the weakening of the isolation of the modern university, the erosion of scientific disciplines and the decline of peer control over the course and content of research programmes. Moreover, 'mode 2' science is also characterized by inter-disciplinary inputs, by the movement of short-term task-force teams of experts to problem domains, and by the primacy of social and economic problems in establishing what spheres of knowledge should be developed. Society thus denies the legitimacy of science's prerogatives, its institutional autonomy and its cultural identity (Shinn, 2002).

The other line of inquiry pertaining to university and society connections, the 'Triple Helix', acknowledges and emphasizes historical continuities. It recognizes that previous relations between the university, industry and government will continue. In contrast to the 'New Production of Knowledge', the 'Triple Helix' identifies the emergence of a complementary level of 'knowledge development', a level in which specific groups inside academia, enterprise and the government meet in order to address new problems arising in a deeply

changing economic, institutional and intellectual world. The 'Triple Helix' as suggested by Shinn (2002, p. 600), "is intended to be a sociological expression of what has become an increasingly knowledge-based social order".

Mouton and Waast (2008, p.38) in their studies of national research systems in Africa concluded that, many of the scientific institutions in the developing countries of sub-Saharan Africa are:

- Fragile and susceptible to the vagaries of political and military events
- Severely under-resourced
- Suffer because of a lack of clarity and articulation of science governance issues (demonstrated by constant shifts in ministerial responsibility for science).

Because of that they consider that academics have no incentive to remain in academia. Those who stay develop linkages with external constituencies for subsistence. In the process, they argue, those academics pursue individualistic careers contributing less to the institutionalization of science within the universities.

> In fact, one could even refer to some of these science systems and the associated institutions as operating in a '*subsistence mode*' [a metaphor borrowed from Gibbons et al., 1994] where they struggle to even reproduce themselves. By a '*subsistence mode*' we mean a system that basically produces knowledge for its own use only and does not export knowledge and in fact does not make a significant contribution in the global game of knowledge production. (Mouton & Waast, 2008, p. 39)

For these authors, consultancy is predominant in Sub-Saharan countries. "Consultancy science is self-explanatory and refers to the wide-spread occurrence of academics engaging in consultancy work – mostly for international agencies and governments – to augment their rather meager academic salaries" (Mouton & Waast, 2008). In other words, academics are drifting from the science ethos for subsistence reasons. The problem of this approach is that most of its analysis is based on survey data, failing, therefore, to differentiate amongst academics that are more likely to engage in such kind of science, assuming that all academics are more or less the same. Bourdieu's framework seems to offer an alternative for establishing the structural positions of academics in the scientific field.

Subotzky (2001) argues that academics increasingly have to assume fund-generating roles, functioning as "knowledge workers" or "entrepreneurial scientists". The implication is that academics are "faced with developing new skills in interdisciplinary and team project management and networking (. . .). [T]hese measures are generally positively regarded by

applied scientists and faculty in professional schools, especially those with external links, heightened prestige and added monetary benefits" (p. 10). Therefore, the distinction between basic and entrepreneurial research appears to be increasingly blurred, with entrepreneurial activities being incorporated into merit and reward procedures. This conclusion seems to reinforce the Mertonian idea of the science reward system, which in this case is subverted through externalization.

1.2.2.1 Research Questions

My research questions attempt to operationalize the research problem presented in the previous section. The problem of the study is summarized by the following questions:

- How does scientific capital affect the positioning of discipline-clusters in the social sciences in (specific) African universities?

- How are discipline-clusters in the social sciences at Eduardo Mondlane University, Makerere University and the University of the Western Cape positioned according to levels of scientific capital?

- What is the level of engagement of discipline-clusters in the social sciences at Eduardo Mondlane University, Makerere University and the University of the Western Cape with different (internal and external) constituencies?

With these questions, I investigate whether discipline-clusters in the social sciences at three African universities are endowed with differential levels of scientific capital and whether it co-varies with levels of engagement or networks of connections with distinct publics.

1.2.3 Rationale of the Study

My initial research aim was to explore the relationship between higher education (universities) and development, as studies based on correlations between higher education and economic growth have been arguing for a connection between the two variables (Bloom,

Canning & Chan, 2005; Bloom, Canning & Sevilla, 2002; Lin, 2004; World Bank, 1999, 2002). The rise of the knowledge economy and knowledge society discourse, which intends to characterize sociologically post-industrial society, regards higher education as the necessary tool to help developing economies make up ground with more technologically advanced societies, as graduates are likely to be more aware of and better able to use new technologies (Bloom et al., 2005).

Before confronting what seemed to be a gigantic subject, I decided to start by posing what I consider a fundamental question. If higher education is so important for 'development', generally by providing qualified human capital, what is the actual intellectual capital possessed by African[3] universities? What is the future of scientific capital in African universities? Where are the giants of knowledge production in Africa? I did not want to delve directly into the central but often-misleading debate about the *brain-drain* or *brain-gain* (circulation) of African intellectual resources. Rather, the question that increasingly came to the fore for me, regards the productivity of intellectual capital in African universities in terms of research output. For that I measured scientific capital of academics in three discipline-clusters in the social sciences in three African universities. I also looked at levels of engagement of academic with distinct constituencies in society.

I intend to consider, even if not by examining it empirically, the question of how academics in the social sciences – particularly in Anthropology and Sociology (An & So), Political Science and Public Administration (Ps & Pa) and Economics and Management (Ec & Ma) – at Eduardo Mondlane University (EMU), Makerere University (MAK) and the University of the Western Cape (UWC) – respond to the pressures caused by the new conditions of knowledge production (Gibbons, 2006; Gibbons et al., 1994).

In Africa, particularly in South Africa, studies on the restructuring of higher education explore whether attempts to make it more responsive to the challenges of the new knowledge economy and development are also increasing. According to Muller (2000, p. 45), "there is a global increase, registered in South Africa too, in what might be called 'problem-solving' or

[3] I do not intend to refer to all African universities; neither do the three selected cases aim to be representative of the entire continent. The term African here is used in a geographical sense referring to universities located on the African continent. The present study does not attempt to undertake the daunting task of describing an entire continent, with more than 50 nations, hundreds of languages and a flurry of higher education institutions with its first university, the University of Morocco, established in CE 859 (Adams et al., 2010).

'strategic', as opposed to 'disciplinary' research." The evidence for this claim comes from studies, such as those by Cooper (2005a, 2005b, in press), who examines the relationship between 'basic' internal structures and network 'superstructures' of applied research centres and units at South African universities.

For instance, Kraak (2000) has edited a book on 'changing modes', which includes a number of articles analyzing the so-called new knowledge production and its implications for higher education in South Africa, focusing on the contributions of higher education to development in the country. Kruss (2005, 2006) explores how network practices have begun to penetrate higher education and industry in South Africa and looks at the three high-technology fields that are most likely to generate benefits for South Africa: information and communication technology (ICT), biotechnology, and new materials' development.

Despite some advances in the study of change in higher education and science in Africa, comparative studies accounting for changes in research practice, knowledge production, academic professions and the universities' role or function in the context of a new knowledge economy are still lacking. There is a shortage of studies in the African context that look at disciplines at a cross-institutional level and across universities to assess their relationship with both academic and non-academic entities.

The main reasons that justify research on scientific capital and the different forms of engagement are the following:

- Scientific capital seems to be one of Bourdieu's conceptual constructs that enables us to capture the dynamics and the development of the intellectual capacity of higher education institutions in Africa. Bourdieu's framework provides a fruitful way of looking at the interactions between higher education in its complexities and society, and it facilitates an understanding of the different institutions and individuals located within a network of relations within an encompassing logic of practice.

- The discourse about 'brain-drain' and 'brain circulation' in Africa needs evidence that is more systematic. Studies by some African scholars consider that science in most African societies is going through a process of de-institutionalization, as academics

are being attracted to do consultancy work that is less directly academic (Mouton, 2006; Mouton et al., 2008). While this study does not rely on the evidence that sustains this argument, it seeks to contribute to the debate by bringing a different approach to the examination of the intellectual capacity of African universities and their deployment to society through networks of connections.

- I refer to claims that there is an increase in what might be called 'problem-solving' or 'strategic' as opposed to 'disciplinary' research in African universities. Studies show that the restructuring of higher education in most African countries is aimed at transforming the university into a more responsive institution to meet the challenges of the 'new' knowledge economy and development. My study seeks to bring a comparative approach across institutions and disciplines to this kind of analysis, as well as to look at the internal capacity of scientific disciplines.

- The significance of my approach lies not only in the possibility of applying and examining the relevance of Bourdieu's framework in a transcultural context, but also brings in a meso-sociological approach by studying the various disciplinary fields to complement survey studies, such as Mouton's (2006) and Mouton's et al. (2008) and in-depth analyses, for example, Cooper's studies (2005a, 2005b, in press).

1.2.4 Research Motivations

This research has three key motivations:

- First, it aims at exploring specific aspects of academic activity, namely knowledge production and dissemination, through research and publication collaborations, the search for research funding and the supply of knowledge or expert services (e.g. consultancy) to various publics. Scientific capital, in this context, is used as the lens through which to examine disciplinary differences in scientific fields. These hold the possibility to inform the nature of engagement academics from particular discipline-clusters may establish with various constituencies inside and outside the university.

- Secondly, while considerable research has been conducted on the university-industry relationship, particularly between the natural sciences and biotechnology (e.g.

Anderson, 2001; Dill, 1995; Fairweather, 1988; Wofsy, 1986), it seems that the response of academics, particularly in the field of the social sciences has received less attention. This arena of academia has not been widely studied with regard to the relationship with society. Currently, few studies analyze such a relationship from the perspective of the social sciences. Yet, a number of studies have emerged recently in Africa on science, academic research units, as well as on academics themselves, as a 'community of practice' with regard to scientific knowledge networks, academic mobility, responsiveness to external pressures and the dynamic of knowledge production in different disciplines (Bailey, 2005; Mouton, Boshoff, Kulati, & Teng-Zeng, 2007; Muller, 2005b). This research aims to contribute to this field of studies.

- The third motivation comes from my personal experience of studying and working in the field of higher education in Mozambique and South Africa. In Mozambique, I have noticed that academics generally seem to be especially vulnerable to an external determination of their research agenda (Langa, 2009). However, there is a great shortage of empirical studies on such issues. This study constitutes an opportunity to explore that observation.

In post-1994 South Africa, the responses of academics to a new policy environment (e.g. curriculum reform) and other external forces or pressures are reported as being decidedly diverse (Kahn, 2006; Muller, 2005a; Muller & Ogude, 2002):

> There are those who have embraced the new discourse with enthusiasm, already put their academic offerings in programmatic formats required by NQF [National Qualification Framework] (. . .), and are happily participating in the new NQF organizational landscape of National Standards Bodies and Standards Generating Bodies. But at the other end of the spectrum are those who have, through a kind of stubborn immobility, responded by doing nothing at all; who have not begun in any way to participate either in curriculum reform or in preparation of their courses for NQF registration. (Muller & Ogude, 2002, p. 21)

In Uganda, especially at Makerere University, studies reporting on similar changes in higher education have also emerged (e.g. Mamdani, 2007; Musisi & Muwanga, 2003). These examples show that, academics' responses to external pressures and demands vary substantially. In the policy documents and debates[4], from different African countries in

[4] In 2005 the Minister of Education of Mozambique, in a lecture at the opening of the academic year at Eduardo Mondlane University made the following statement, questioning the relevance of social science for

particular, there is a profusion of assumptions about how universities ought to embark on the reform of organizational structures, governance, performance and relevance to meet the developmental challenges in an era of the knowledge economy (e.g. Ali, 2005). These speculative assumptions are turning into strong beliefs, yet have seldom been examined consistently and even less so from a comparative perspective.

1.3 Aims of the Study

This study aims at contributing to scholarship in bringing a comparative approach to different countries, universities, faculties, disciplines and academics. The comparison intends to reveal the specifics proper to academics of each of the disciplines mentioned previously, as well as to show that a sound understanding of the transformation affecting the institutions (universities) must not fail to account for the specificity of each scientific discipline and its academic staff.

In recent times, the notion of socially engaged knowledge production has generated debates about the nature and the role of universities. In developing societies, like Mozambique, South Africa and Uganda, politicians, some academics and especially the funders argue that universities ought to concern themselves with knowledge aimed at development. In other words, universities are called on to become more responsive to the demands of society (Hall, 2008; Julius, 2000; Muller, 2005a; Tierney, 1998).

In summary, the aims of this study are as follows:

Using scientific capital, one of Bourdieu's conceptual constructs that offers heuristic possibilities to account for the different levels of productivity of African academics, this study aims to:

development: "There is a huge absorption of the student population into areas which do not create wealth directly. Therefore, it is imperative to change this scenario, by encouraging students to choose courses (programmes) which will help us to quickly deal with the issues of eradicating absolute poverty, the struggle for development, allowing the majority of the population to increase their revenue by using the appropriate technologies to stimulate growth in production and productivity of their household" (Ali, 2005).

- Construct a social space of distribution of scientific capital (power and prestige) and position social science disciplines from three universities in specific and relative positions within that space, i.e., specific because it refers to a particular case and relative as it is related to the other positions in the same space.

- Develop a research design that will enable me to undertake a cross-national, cross-institutional and cross-disciplinary cluster comparison of the relationship between scientific capital and the different forms of engagement or networks of connections.

- Improve the intelligibility and understanding of changes in higher education, through developing concepts and theoretical approaches which might offer a new insight into a complex phenomenon. The study is an inquiry into the nature of networks of connections (linkages) between academics occupying different hierarchical positions within their disciplinary field based on production and prestige and their different constituencies in local and global communities.

1.4 Outline of the Study

This thesis is organized into seven chapters.

Chapter One presents the context, rationale, formulation of the problem and the aim of the study.

Chapter Two is dedicated to the literature review where I locate the study in a spectrum of lines of inquiry about changes in higher education, academic profession and identity. I also discuss the context of change that is informed by the debates on issues of new knowledge production and the notion of socially engaged science (Gibbons et al., 1994). In this chapter, I will also review a selected number of studies, which suggest a route from one-dimensional to hybrid academic institutions regarding the multiple duties (work), networks and professional identities of academics. I also present a review of studies that look at the uses of science in society.

Chapter Three is devoted to the main conceptual and theoretical framework of the study. I divide the chapter in two main parts. In the first part, I provide an outline of Bourdieu's field

theory, while the second part presents a typology of the different forms of engagement. Each part comprises detailed sections on each dimension of scientific capital and forms of engagement, respectively.

Chapter Four is assigned to the methodology of the study. I begin the chapter by reconstructing the logic of the research. In doing so, I also discuss the methodological and epistemic principles that inform the study. In the process, I propose a conversion of empirical subjects into epistemic subjects. I present and discuss the research design of the study. The response rates, issues of reliability and validity, and the strategies adopted to increase confidence are discussed in separate sections. The chapter closes with a reflection on my fieldwork experience.

Chapter Five constitutes the core of the thesis. The chapter presents a complex analysis, which is divided into two parts. The first part introduces the detailed operational procedures. I use for measuring scientific capital in separate sections. In the second part, I present the operational procedures and apply them to the measuring of forms of engagement.
Chapter Six discusses the research results while attempting to relate scientific capital and forms of engagement by comparing the scores of the two variables.

Chapter Seven is dedicated to the conclusions and implications of the study.

CHAPTER TWO
THE LITERATURE REVIEW

2.1 Introduction

This chapter sets out to locate the research problem within the growing body of literature on changes in higher education, academic professions and identities and engagement. In so doing, I pay special attention to the issue of academics' networking with different constituencies in society.

2.2 Locating the Study in the Higher Education Literature

This study examines the relationship between scientific capital and forms of engagement or networks of connections by academics from three discipline-clusters in three African universities. In defining the scope of the study, a range of research fields and lines of inquiry are to be taken into consideration. Thematically, this study belongs to a tradition of disciplines, such as sociology of science, education and knowledge, which attempts to account for changes in science as well as in the university.

In what follows I map some of these fields and lines of inquiry, yet the picture that emerges from this exercise does not represent the whole complexity of the different areas of studies and lines of inquiry about academics. That endeavour would require another study. Instead of ascribing to my study a single disciplinary identity, I draw on multiple fields and lines of inquiry from various disciplines. It is thus my research questions, rather than the boundaries of a particular discipline, that shape and limit the scope of the study with regard to its theoretical approach. Drawing on the works of Henkel (2000), Gumport (2007) and Musselin (2008), I also indicate general trends concerning changes in academic identities. I begin by looking at some classical ways of studying academics.

2.2.1 Classical Studies of Academics

According to Musselin (2008), a large body of literature considers that research on academics and academic activities shares some common features, regardless of the theoretical approach

it favours, internalist or externalist (Kornblith, 2000), Mertonian versus 'strong programme' (Merton, 1957a, 1957b), differentiationist versus anti-differentiationist (Shinn & Ragouet, 2005). In this section, I draw on Musselin's five characteristics of the classical ways of studying academics, and consider their major shortcomings. In doing so, I also indicate how or whether I intend to deal with such limitations in my study.

First, while a significant amount of the literature focuses on the natural and life sciences, very little of it examines the social sciences, law included. As a result, there is a strong bias towards disciplines where collective work, experiments and/or equipment play an important role (Musselin, 2008, p. 48). Research, such as Becher's (1989) and Becher and Trowler's *Academic Tribes and Identities* (2001) constitute an exception to this trend, as they compare a broader spectrum of scientific activities.

Secondly, Musselin (2008) holds the view that studies of academics are mostly research-centred. The argument here is that academics are primarily studied as scientists, with the consequence that teaching, management, self-governance and other related activities are usually disregarded. Even though I acknowledge this *lacuna*, I do not intend to deal with it directly in this thesis. However, the study does not only take particular interest in research-driven activities, but also considers the supervision of students, research fund raising, publication and so forth.

Thirdly, another feature of the classic studies of academics is the "tendency to present scientists as rather specific workers" (Musselin, 2008, p. 48). By considering science as a peculiar sphere, with a specific ethos and norms incorporated and defended by a specific community of professionals, Mertonian sociology of science emphasizes the peculiarity of academic activities. This view differs from that of the 'strong programme', which regards science as no different to any other activity. I aim at finding a middle ground between the two, which I take to be the position that Bourdieu's field approach can offer.

On the one hand, I tend to follow Merton concerning the particularity of academic activity. This view holds true and I am of the view that having an *'ingenious idea*' is not what determines the logic of scientific discovery. On the other hand, I also partly agree with some of the observations made by constructivist scholars, such as Latour and Woolgar (1979),

Latour (1987) and Knorr-Cetina (1999), when describing the social nature of scientific activity that demystifies the idea of ingenious discovery.

However, the scientist remains the centre of my interest in this study. As acknowledged by Musselin (2008, p. 49), "even if networking scientists are losing the exceptional character pushed by the Mertonian perspective, they nevertheless remain the heroes of the story, they are the '*network's builders'***,** the scientific entrepreneurs: they are located at the centre of the network they develop and extend" (emphasis added).This is a crucial observation for my study. It is precisely because of this power to build particular networks that I am interested in examining their nature. As I will show below, Bourdieu's notion of scientific field is particularly appropriate for understanding this feature.

The fourth feature shared by some of the classical studies is the tendency to be a-contextual. For Musselin (2008), these studies tend to discuss academic activities in isolation from their temporal context. The national location in which these studies were conducted does not play any relevant role. The rationale behind this stance is the epistemological belief that science is universal. This implies that the possible effects of local and academic culture, as well as those of national science policies are overlooked.

Informed by the heuristic possibilities of Bourdieu's framework, my study locates academics in a three-dimensional social space: cross-national, cross-institutional and cross discipline-clusters (I will explore this issue in detail in Chapter 4).

The fifth and final characteristic of some of the classical studies of academics is the disregard of their institutional environment. Features such as whether academics are employed in a public or private institution (university), autonomous institution or state agency are normally neglected. The same accounts for leadership positions in the institutions. Some of these issues are included in this research. However, they were considered within the particular framework that informs the research. For instance, academic leadership is one of the components of academic capital, which I measure in the study.

Classical studies, such as Wilson's *The Academic Man* (1942) and Lazarsfeld and Thielens' *The Academic Mind* (1958) chose the faculty as their unit of analysis and the 'academic man' and 'mindset' in a particular organizational structure as the object of study. Issues such as

self-regulation, professionalization and autonomy, amongst others, were at the core of the definition of the academic profession. The idea of academics in the labour market was not popular. Being an academic was seen as a calling resembling that of a priest. Yet, the emergence of studies, such as *The Academic Marketplace* (Caplow & McGree, 1958) during that period already signalled winds of change in the academic profession.

This focus would change decades later with drastic transformations to the configuration of higher education and with campuses in particular becoming more complex social settings. In the 1960s and 1970s, profound changes in the demography of students and diversification of the professoriate also altered the place of academics in the organization, as they were now increasingly regarded as workers and service providers.

The massification of higher education systems, initially examined by the American sociologist Martin Trow in the 1970s (Trow, 1970), was followed by an increase in the diversity of both students and professors, and by the rise of institutional forms very different from those found in the elite universities that the 'academic man' had inhabited. According to Amaral, the former elite system was based on great trust in academics, grounded in professional behaviour, guided by the "dictates of conscience, or considerations of honour, or professional norms, depending on their social origins" (Amaral, 2008, p. 85; Trow, 1996, pp. 317-318).

The study of the 'academic mindset' and the singularity of the faculty would gradually give way to the study of faculties, the division of academic labour, as well as of academic life, disciplinary specialization and different campus cultures. With massification, the university becomes a far more heterogeneous space, and students and teachers in large numbers are now a motive for a more economically instrumental type of higher education.

2.2.2 The Impact of the Sociology of Academic Work and Identity

Sociologists interested in academic work (Dill, 2002; Henkel, 2005a, 2005b; Kogan & Hanney, 2000; Tapper & Salter, 2003) have more recently developed an approach to studying academics. These authors, amongst others, have opened new lines of inquiry into the academic profession. This is mainly located and informed by a context of profound changes in higher education. Most of these analyses depart from Clark's (1983) conceptualization of

the main sources informing academic behaviour and academic culture as being the discipline, the higher education institution, the national system and the academic profession.

In the last two decades, the realm of higher education has experienced dramatic changes at macro, meso and micro levels. First, at macro level, the superstructure that defines the division of labour - of what constitutes higher education and the purpose it serves - has been debated. If the traditional idea of higher education, especially of the university, was clearly defined in terms of the functions it had to fulfil in society, namely teaching and knowledge production, this clarity seems to have decreased in the course of the last two or three decades. Changes in policy and practices have resulted in debates about the primary purposes of the university (Marton, 2005).

Secondly, at meso level, changes in governance models and steering mechanisms of higher education have also contributed to the questioning of the university's primary '*raison d'être*' and its role as a knowledge institution (Gumport, 2000, 2005; Maassen & Cloete, 2006; Maassen & Van Vught, 1994; Scott, 1996).

Thirdly, at micro level, there are a number of studies looking at how these changes at macro level (e.g. policy) and meso level (e.g. management) are going to affect the micro level in higher education, e.g. leadership style, dynamics between individual academics, disciplines and academic identity. For instance, Mary Henkel's seminal publications (2000, 2005a, 2005b) on academic work and identities display elements that combine all these three levels, but give prominence to the micro level and particularly to academic identity. In her book *Academic Identities and Change in Higher Education*, Henkel argues that "it is possible to locate academics on a spectrum that extends from those who might be called 'idealist' to 'pragmatists'" (Henkel, 2000, p. 148).

On the one hand, 'idealist' refers to those whose working lives revolve around their commitment to a discipline. For an idealist sociologist, physicist or anthropologist this is indeed a way of life. 'Pragmatists', on the other, are those academics for whom membership in the academic profession and the status attached to it have higher salience. Whereas the former normally make individual choices concerning discipline, research area or intellectual stance that may in some cases be connected with personal biographies, the latter, are more likely to deviate from their academic identities.

Although, this study does not place academic identities at the centre of attention, it can also be located within the spectrum suggested by Henkel. On the one hand, by looking at scientific capital as a source of (symbolic) power that may condition the nature of networks and academic establishments with others, I acknowledge and take into consideration the (individual) 'idealistic' project. On the other hand, I also consider the implications of external networks on academics as a central aspect that conditions their identity – and therefore any aspect that would influence their pragmatic collective identity.

2.2.3. From One-Dimensional to Hybrid Academic

In the previous section, I have revisited some of the classical approaches to the study of academics and pointed out some of their limitations. In this subsection, I will pay attention to a particular thread in the changes in the academic profession by using some of the significant works on academics.

2.2.3.1 Homo Academicus and the French Academia

Bourdieu's *Homo Academicus* (1988) typifies another category among the studies of academics. As Wacquant states, "in *Homo Academicus,* Bourdieu applies his sociological acumen and interpretive virtuosity to his own tribe, that of French university professors" (1990, p. 678). For this reason perhaps, his analysis is more 'Francocentric' than others characterized by a line of inquiry that goes beyond the peculiarities of French society and its higher education system. Yet, I still consider it interesting to present this view, not simply because it profoundly informs my study, but also as the analytical tools developed in Bourdieu's work have finally gained an audience beyond the boundaries of French academia and society, with most of his works, including *Homo Academicus*, *State Nobility* and other books, being translated into English.

Homo Academicus takes a central place in Bourdieu's work on academics. "It is both the most personal and most impersonal of his books" (Wacquant, 1990, p. 679). Wacquant argues that what distinguishes *Homo Academicus* from the growing literature that seeks to examine academics (intellectuals), is that instead of taking up a partial and/or partisan viewpoint on the world within which they evolve, "Bourdieu discloses the *totality of the*

game that engenders both the specific interests of the intellectuals and the one-sided vision that each participant has of the interest of the others" (Wacquant, 1990, p. 679). Academics, but also intellectuals in general, are moved by forces motivated by stakes, and wield forms of power, that are specific to the academic field.

It is in the description of these forms of power and interest that I find Bourdieu's approach useful to account not just for the French experience, but also for other contexts, as long as the appropriate translation of the tools to a different context is effected.

Homo Academicus provides therefore "an involved analysis of the relational distribution of professors according to their social origins and connections, economic and political resources, academic trajectory, titles and professional practices, as well as their renown, and political stances turns up a chiasmatic picture that consistently reproduces the structure of the dominant class" (Wacquant, 1990, p. 680).

Bourdieu's analysis distinguishes between disciplines whose source of power is 'temporal' and those whose source of power is intellectual prestige. On the one hand, the power of disciplines, such as medicine, law and business rests largely on their academic capital, that is., a temporal power resulting from the control over organizational positions, appointments and so on. On the other hand, academics in culturally autonomous disciplines, such as the natural sciences, have the source of their power mainly in their *intellectual capital* (scholastic), that is, scientific prestige, capacities and reputation, as defined and strictly acknowledged by their peers.

These constitute two opposite poles between which there is a spectrum occupied by the various disciplines in the humanities and the social sciences organized around struggles between sociopolitical and scientific authority.

This is, in my view, a hypothesis and an assumption worth examining. The research problem of my study draws significantly from this formulation. Although Bourdieu's analysis can be located in a particular context of higher education in the 1980s, it is still highly topical. His analysis shows that the field of higher education (of universities) may be understood as a set of objective relations that exist between the various positions and disciplines in the

distribution of species of capital. This is the locus of constant struggle aimed at altering its very structure (Bourdieu, 1984, 1988; Wacquant, 1990).

Like Bourdieu, I depart from the assumption that academic disciplines are spaces of distributions of position based on levels of possession of power. These positions within the structure condition the strategies of their occupants, not simply to impose the occupant's internal principles of hierarchization on the field, but also in the way they react to subversive external forces.

In my research case, I seek to look at how academic disciplines with different amounts of capital (scholastic and academic) in three homologous fields in the social sciences establish networks with both internal and external constituencies. In a context in which higher education, and particularly universities, are said to be experiencing considerable pressures from external constituencies (stakeholders) (Gumport, 2000, 2005; Maassen & Cloete, 2006; Maassen & Van Vught, 1994; Scott, 1996).

If the 'academic man', as portrayed by Wilson (1942) in the 1950s is dead, due to the transformations of higher education (such as massification), current times witness the mutation of '*homo academicus*' into what I call a 'hybrid academic'. The latter is characterized mainly by her selective engagement in productive, or unproductive, prestigious or non-prestigious networks, according to her position in the various fields in which she participates. This is particularly the case when universities and academics are living in the so-called era of 'academic capitalism' (Slaughter & Leslie, 1997; Slaughter & Rhoades, 2004), a topic which I will discuss later in this chapter.

2.2.3.2. Neo-Institutional Theory

The neo-institutionalist approach represents another line of inquiry into the changes in higher education and their implication for academics and the academic profession (Enders, 1999; Gumport, 2000). From an institutional viewpoint, organizations function in a setting dominated by rules, requirements, taken-for-granted understandings about what constitutes appropriate or acceptable organizational forms and behaviour (March & Olsen, 1984, 1989; Oliver, 1997; Olsen, 1991; Scott, 1987).

Currently, most African higher education systems find themselves amidst processes of change that have an impact on the positioning of their academics in the institutional structure. Studies using the neo-institutionalist approach emphasize the survival value of organizational conformity to institutional environments. That is, for instance, academic institutions under pressure to be more responsive to society's demands would find ways of buffering the pressure by appealing to their academic core values.

In the case where academics are forced to introduce market-oriented programmes, the institutionalist argument would state that their adoption is significantly determined by the extent to which they are institutionalized – whether by law or by gradual legitimization (Tolbert & Zucker, 1983). In many respects, this resembles the notion of organizational adaptability, as found in resource dependency; yet the focus moves to how organizations adapt to norms and beliefs in their environments, not to resource dependencies.

In this case, conformity is often of a ritualistic nature where organizations construct symbols of compliance to environmental change (DiMaggio & Powell, 1983; Meyer & Rowan, 1977). Moreover, the academic culture of the organization would also inform the way the agents react to such changes (Maassen, 1996).

Although I acknowledge the value of institutional and neo-institutional approaches, I incline to Bourdieuan field theory. While the former approaches can be important in understanding differences in the nature of networks that academics selectively establish with different constituencies – by referring to their need to protect the 'core-values and norms' of the academic institution – the latter seems to provide a powerful tool, as it considers academics as social agents in a hierarchical social space competing for the monopoly over legitimacy and power.

It is this context of competition that gives relevance to the type of studies examining academics in the marketplace and the new global economy. As for engagement, this approach makes it possible to examine what kind of academics or disciplines display particular trends in their relations with different constituencies.

2.2.3.3 Academic Capitalist Theory

In 1997 Slaughter and Leslie published *Academic Capitalism*, followed seven years later by Slaughter and Rhoades' *Academic Capitalism and the New Economy*: *Markets, State, and Higher Education* (2004). The authors of the second book claim that the two are fundamentally different in their substantive focus in terms of countries and institutions, as the first book examined public research universities in four countries, Australia, Canada, the United States and the United Kingdom, while the second looks at all accounts for varied institutional settings, in which market and market-like practices are pursued (Slaughter & Rhoades, 2004).

Nevertheless, these two books provide a theory that accounts for the processes by which universities integrate in the so-called new economy. Amongst the various issues tackled in the books, the commoditization of knowledge, a key aspect of the theory of academic capitalism establishes a focus on networks. As acknowledged by Slaughter and Rhoades (2004, p. 15), "academic capitalism focuses on networks that (. . .) link institutions as well as faculty, administrators, academic professionals and students to the new economy". This view is allied to the one I adopt in my study, without putting too much emphasis on the commercial part of the argument. According to the authors, knowledge no longer moves primarily within scientific/professional/scholarly networks.

While the two books define and explain academic capitalism as the pursuit of market and market-like activities to generate external revenues, my analysis proposes that the academic capitalist is simply one dimension, namely the economic, of the multiple forms of engagement or networks of connections which academics establish with different constituencies. I regard academic capitalism as the type of academic behaviour that produces what I term 'homo academicus economicus', even if in the case of this research I limit the economic dimension of academics' networks to the search for external research funding. My understanding of the term 'homo academicus economicus' is that it refers to academics engaged in profit-oriented activities – as an indicator of their economic drive.

2.2.4 Engaging with Higher Education Engagements

The idea of engagement has become commonplace. The notion is now found in a plethora of higher education literature (Gibbons, 1998, 2005; Holland, 2005; O'Brien, 2009; OECD, 2007). While widely present in the literature on higher education, the notion also remains highly ambiguous and, as Hall (2008) suggests, under-theorized. Therefore, a brief critical review of the concept should be considered at least for the benefit of clarity. My objective in this section is to engage critically with the notion of engagement.

First, I engage with its normative undertone, arguing that far from representing a 'value-free' concept with heuristic possibilities to account for changes in higher education, it carries a highly normative connotation. Secondly, the notion also resembles a 'self-fulfilling prophecy' (Merton, 1957a). Thirdly, the term engagement, despite its ambiguity, is used as a yardstick for the assessment of universities' commitment to engagement (for example, community service for the external constituencies), but also as a battlefield of judgement of moral standing with regard to the mission of higher education (Hall, 2008; Langa, 2009; Muller, 2010). These are some of the issues with which one has to engage, when considering the notion of 'engagement'.

The notion of engagement in current higher education literature defines mostly "the whole orientation and tone of a university's policy and practice" (Gibbons, 2001, p. 1). The tacit normative connotation the notion carries becomes explicit when referring to what universities ought to be doing for society. Since the mid-1990s, the normative tone has gained momentum, particularly with authors such as Gibbons et al. (1994), Gibbons, (2001, 2005), Nowotny et al. (2003).

In the process, it has come to obscure its heuristic possibilities as an approach that can facilitate the intelligibility of higher education as a social phenomenon. In other words, the normative approach tells us more about what universities ought to do than about their constitutive characteristics. This is illustrated in the following:

> A university's mission must (. . .) be much wider than perpetuating the life of scholarship for its own sake. The world depends increasingly on the universities for knowledge, prosperity, health and policy thinking. Universities are thus required to become engines of development for people, institutions and democracy in general. Engagement defines the whole orientation and tone of a university's policy and practice. Mission-statements, strategic planning, teaching-and-learning policies and research directions must evince and encourage active respect for the concerns and challenges faced by society. (Gibbons, 2001, p. 1)

In an introduction to a recent volume on university engagement and 'relevance', Scott and Harding (2007, p. 2) observe that in the new competitive higher education climate, two themes have become an insistent refrain in the language of institutional self-promotion: 'relevance' and 'scale':

> Whether they consider themselves 'world class' and in possession of an 'international reputation' (. . .) or as essentially 'national' or 'civic' institutions with fewer international credentials (. . .) most claim to produce eminently useful knowledge that can be utilised by a huge range of 'communities', but is especially valuable to those living, metaphorically speaking, on the university's doorstep.

As Muller (2010, p. 69) comments, engagement, particularly "'community engagement"' is a "highly contextual space (. . .), [a] weakly bounded site (. . .) of practice and highly susceptible to rhetorical fashion."

In this research, I consider the term without its normative connotations. By forms of engagement, I simply refer to the involvement of academics with distinct publics. The study tries to present snapshots of particular positions (this is further elaborated in the methodology chapter) occupied by discipline-clusters and relates them to networks of connections with these publics. It is never suggested that academics should privilege connections with one or another specific constituency. Rather, I seek to characterize academics according to the nature of their connections.

2.2.4.1. Scientists and Their Engagement with Society

As I indicate in the previous section, the line of inquiry that I adopt in this study considers engagement as a form of linkage academics establish with various publics. This approach is not entirely new. For instance, a number of researchers have examined whether scientists who engage with society perform better academically (Jensen & Croissant, 2007; Jensen, Rouquier, Kreimer, & Croissant, 2008). Another line of inquiry looks at scientists'

collaboration strategies with those around them, as opposed to those more distant in geography or institutional setting (Bozeman & Corley, 2004).

Jensen et al. (2008) use statistical correlations between dissemination activities and academic records of scientists from a wide range of disciplines to show that scientists engaged in dissemination are more active academically. Their study counters the common idea that "dissemination activities are carried out by those who are not good enough for an academic career" (Royal Society cited Jensen et al., 2008, p. 537).

They also argue that their research has shown that "even in the institution hosting the most fundamental sciences, roughly half of the scientists are in close contact with society, i.e. popularize or look for funding outside the academic sphere"(Royal Society cited in Jensen et al., 2008, p. 538).

The authors reject the idea of isolating science from society's needs. Based on their findings, the authors consider that even the idea of the 'ivory tower' is a fallacy, as science has never existed in isolation from society. Scientists have always been connected with society, on which they depend especially for their funding.

While the argument concerning scientists' perpetual connection with society is partly true (Latour, 1987), it is also true that they have experienced a significant degree of autonomy and freedom in the exercise of their profession. The exception would be cases where political meddling compromises the enterprise of science (Langa, 2009). Therefore, my study departs from the assumption that the openness of scientists to the external world is now being hastened by, among other factors, survival reasons.

This is especially the case in most African countries, but not exclusively so, where access to resources depends increasingly on the ability of scientists to articulate political agendas or prove their relevance to particular publics (Burawoy, 2009). Yet my research here is not directly concerned with the survival strategies adopted by academics. The focus lies on presenting the disciplinary intellectual capacity, which I intend to relate to various forms of engagement.

2.2.4.2. Higher Education and Its Publics

Higher education institutions are being pressured to reconsider their role in society and to evaluate their relationships with various constituencies, stakeholders, and communities (Hearn & Holdsworth, 2002; Jongbloed, Enders, & Salerno, 2008). As a result, universities are networking with an increased number and variety of publics, each with a particular claim on the institution. This has resulted in a growing literature studying the new and revised relationships between higher education institutions and their external communities or so-called stakeholders. These relationships have local, regional, national and international elements (Castells, 1996; Clark, 1998; Dill & Sporn, 1995; Enders, 2004; OECD-CERI, 1982).

Increasingly, universities are now expected to assume a 'third mission' and to establish relations with industrial and regional partners (Cooper, 2005b). While incentive schemes and government programmes try to encourage universities to reach out more to external communities, some important barriers to such linkages still remain. To fulfill their obligations towards being a socially accountable institution and to prevent mission overload, universities will have to carefully select their stakeholders and identify the 'right' degree of differentiation.

In order to explore further some of these concepts and to empirically investigate the tendencies suggested here, this study proposes a model for tackling the emerging issues of academics' interaction with society.

2.2.5 Social Distribution and the Uses of Science

Current studies on academic research and the social uses of science (Bourdieu, 2003, 2004) in society have focused mostly on three themes: First, the evolution of public and private sector investment in research (Albert & Bernard, 2000; Clark, 1998; Dill, 1995; Fisher & Rubenson, 1998; Fisher, Atkinson-Grosjean, & House, 2001; Slaughter & Leslie, 1997); secondly, on the reconfiguration of scientific policies and the social conditions of knowledge production – so as to make them more responsive to the needs of economic and industrial social agents (Albert & Bernard, 2000; Deem, 2001; Enders, 1999; Lesemann, 2003; Ylijoki, 2003a, 2003b). This was discussed earlier in this chapter. And thirdly, the application of bibliometric

measurements or scientometrics to carry out analyses in matters of scientific production (Auriol, Feliz, & Fernandez-Polcuch, 2007; Benner & Sandstrom, 2000; Godin & Gingras, 2000).

There are three reasons why these do not appear to be the most appropriate theoretical frameworks for sociological analyses of science in developing social contexts. The first reason concerns the problem of demarcation between 'traditional' or conventional and 'new' modes of knowledge production, as well as the insufficient theoretical elaboration of the model of analysis for these particular social contexts (Prpić, 2007).

Prpić (2007) drawing on the work of Ferlie and Wood (2003) in health services research, shows that, regardless of whether they explicitly mention 'mode 2' or not, researchers will optimally find a combination of 'traditional' and 'new' knowledge production modes. The type of knowledge production that characterizes health services research reveals a mixture of the two modes, academically based or engaged, 'mode 1' – knowledge for the sake of knowledge – or socially distributed 'mode 2' – knowledge for social problem-solving purposes. For instance, health services research in the UK is characterized by a mixture of 'mode 1' and 'mode 2' output indicators, strong external relationship building by group leaders, a powerful drive from external finance, and extensive dissemination and development activity (Ferlie & Wood, 2003).

This study will to some extent examine whether, in the context of the social sciences disciplines academics are establishing networks of connections with particular social actors or entities in society. As it appears, even (social) scientists, who are still driven in their research by their own intrinsic and disciplinary interests and the desire to generate inputs to teaching, rather than by utilitarian motives (Harman, 2005, 2006), can nevertheless still successfully settle into a commercial, entrepreneurial and managerial university environment. Examples of this 'strategic adaptation' of academics to the discourses or demands of policy are reported by Mouton in an analysis of 'strategic science' in South Africa (Mouton, 2001, 2003, 2006).

In other words, the message that 'mode 1' is now obsolete, that academics should now be entrepreneurs, and that interactions between universities, industry and government agencies are to be actively welcomed, is normatively loaded in the modern world, as Rip (2000)

maintains. Actors feel the normative pressure of the changes labelled in this way, and react conservatively, opportunistically, or by embracing the new model (Rip, 2000). In further development of this research it would be interesting to find out to what extent actors react differently.

In the same category of studies, Albert (2003) found that the identified modes of knowledge production in sociology and economics do not favour 'mode 2', despite the differences in the level of what he calls 'instrumentalization' of knowledge in these two disciplines. Scientometric studies show that neither have new methods of assessing scientific quality described in the new knowledge production model been verified empirically, nor do generational differences in scientists' professional values indicate the rise of a new research ethics (Gulbrandsen & Langfeldt, 2004; Prpić, 2005).

The second reason why the 'new' models appear to be somehow inappropriate – especially for developing and transitional societies – lies in the nature of the social context in which these changes in knowledge production were first identified. The context is that of the world's most developed countries with powerful economies and technological and scientific potential, massive investments in Research and Development and competitive research systems. They are to be seen in contrast to the post-socialist countries of central and Eastern Europe, which, despite their socio-historical differences, all underwent deep political, economic and social transformation in the 1990s, not yet to mention Africa (Korovitsyna cited in Prpić, 2007).

However, I acknowledge that there has been some effort to export those models to developing contexts mostly in the form of policy. Gibbons (1998, 2001) particularly makes the case for Africa.

The third and most important reason why the models seem to be inappropriate for analyzing transitional societies is concerned particularly with the so-called "third" world or developing societies. Muller (2000) suggests that 'mode 2' knowledge production depends on a 'mode 1' disciplinary base. The general policy priority is clear: an indispensable first step is to strengthen and consolidate 'mode 1' undergraduate courses in the institutions. 'Mode 2' development will then spontaneously follow. He argues that 'mode 2' does not have to be

created since it is market-pulled: it has to be facilitated, or encouraged, and it has to be regulated (Muller, 2000).

Muller's observation is key here because it describes precisely the situation in Mozambican higher education, where the political discourse and funding conditionalities are pushing institutions to move from 'mode 1' towards 'mode 2', whilst 'mode 1' remains very underdeveloped. The consequence of this development according to Muller (2000) will be that institutions push towards 'mode 2' with an aggressive funding policy before possessing adequate 'mode 1' capacity, especially among the academic staff. The result of this development is unlikely to be sustainable.

2.3 Summary of the Chapter

In this chapter, I have outlined the various lines of inquiry on the study of academics. I have divided this discussion into five main parts. First, I located the study in the context of the literature on higher education studies that looks at the academic profession. I provided a critical overview of the classical studies on academics, looked at some of the shortcomings of these studies and indicated how my study intends to deal with them.

In the second section, I examined the impact of the sociology of higher education on the study of the academic profession and work – with a special focus on academics as workers, which is a perspective developed by sociologists interested in academic work (e.g. Dill, 2002; Henkel, 2005a, 2005b; Kogan & Hanney, 2000; Tapper & Salter, 2003). This literature supports the general assumption that there have been dramatic changes in higher education, the way in which the academic profession is carried out nowadays and the manner in which academics manage their time, space and relations with external publics. This is the general background from which my study emerges.

In the third part of the chapter, I have presented and discussed a selected number of works that represent a move away from what I term one-dimensional academics to 'academic hybrids'. The idea was to capture a morphological transformation of the nature of the academic profession by looking at a number of studies that deal with this professional

category. I discussed the ambiguity of the notion of engagement, as well as the implications of its practice.

I then discussed the notion of higher education engagement in the fourth part of the chapter by critically addressing its normative connotations and providing the definition of engagement that underlies this study. In this section, I also commented on scientists and their engagement with society, as well as on higher education and its publics. The chapter closed with a debate on the social uses of science.

CHAPTER THREE
THEORETICAL AND CONCEPTUAL FRAMEWORK

> When one considers the scientificity of a field, one is referring to properties which all have to do with degree[s] of autonomy. For example, the social sciences must endlessly reckon with external forces which hold back their 'take-off' (Bourdieu, 2004, p. 47).

3.1 Introduction

This chapter is divided into three main parts. First, drawing on Bourdieu's concept of field and capital I explore the analytical usefulness of the concept of scientific capital for understanding the relationships academics maintain with different constituencies, both academic and non-academic. Secondly, I propose a typology of academics based on their networks or forms of engagement with actors in different social spaces. This typology fulfils the analytical purpose of highlighting emergent patterns in these forms of engagement.

The combination of these two approaches constitutes the framework I use to interpret the empirical data gathered through structured interviews at three African universities. I close the chapter by providing a summary of the main theoretical constructs.

3.2 Thinking with Bourdieu's Analytical Tools

3.2.1 Research Hypothesis I

In this section, I discuss and explain the underlying theoretical foundations for the first hypothesis of the study concerning disciplinary differences in distribution of scientific capital. My first working hypotheses for this study consider that:

> **H1)** *The particular position occupied by Anthropology & Sociology, Political Science & Public Administration and Economics & Management, as disciplinary fields in social sciences in a particular scientific field, depends on the amount of scientific capital they have accumulated during a certain period.*

This hypothesis speaks to a particular way in which I interpret Bourdieu's relational sociology. Therefore, the first section of this chapter presents my appropriation of Bourdieu's relational thinking.

It was back in 1999, when I was about to graduate with a Bachelor's Degree in Social Sciences at the Eduardo Mondlane University, that I first read a text by Bourdieu. 'Sociology of Education, Contemporary Sociological Theory' and 'Social Stratification' were compulsory courses. Both courses had, amongst other sociological theorists, Bourdieu as one of the main readings. '*L'ecole conservatrice: Les inégalités devant l'ecole et devant la culture'* (Bourdieu, 1966), was the first text. Reading Bourdieu was not love at first sight.

First, I did not welcome his unending l-o-n-g paragraphs at the beginning. Secondly, I could not understand why he would distort words by creating neologisms out of them. These two tendencies, I am afraid, became amongst the worst legacies I inherited from the subsequent relationship. Certainly, that was before I had embarked on a journey of self-analysis and had become conscious that I had unconsciously acquired a Bourdieuan writing habitus. Five years later, I had established a sturdy bond with Bourdieu's academic and intellectual project. I had read most of his available texts, both in the French original and in Portuguese and English translations. By the time I read his work on reflexivity, I was already thinking with Bourdieu against Bourdieu (King, 2000). In other words, I continue(d) reading his work with a necessary critical distance.

I am currently at the stage of critically assessing the limits of Bourdieu's theory and thus starting to develop my own. This is the period of my 'Bourdieuan meditations' – that is, acknowledging his influence, yet seeking my own understanding of social realities. Whoever reads an author as if he is reading the Bible, will succumb to dogmatism and adulation. To avoid an uncritical application of his framework, I decided to test empirically some of his theoretical tools and ideas. The first opportunity came in 2005 when I used his theory to account for the constitution of the space of higher education institutions in Mozambique, resulting from a process of expansion and diversification.

Although the theory proved useful to account for the phenomenon, the study also revealed some of its weaknesses. For instance, concepts such as cultural and scientific capital have not been thoroughly operationalized in Bourdieu's work. Most of the definitions remain nominal

and generic definitions. It is for the researcher, who intends to apply them in an empirical site, to carry out the work of operationalization. This is what I had to do, both in my Master's thesis with the concept of cultural capital and in this study with the concept of scientific capital.

In this study, I continue with my exploration of Bourdieu's theoretical tools. In view of that, my focus still lies on the usefulness of Bourdieu's approach for understanding the social world of higher education in Southern Africa. Rather than simply testing his general philosophical, academic and intellectual project as do some of his critics, I use his tools to account for my research problems. In other words, I am interested in the 'thinking tools' of Bourdieu's relational sociology that offer a heuristic possibility to account for particular social phenomena in particular contexts and social spaces. In so doing, I am also interested in the analytical limitations of these tools. This is the epistemological principle that informs my conception of knowledge production and progress.

The idea is not simply to replicate or dismiss the usefulness of Bourdieu's concepts, and in so doing to gain some notoriety, as have some of his detractors, but to contribute towards strengthening a conceptual framework that has given evidence of great heuristic possibilities. The heuristic possibilities of Bourdieu's work for higher education have been usefully explored in the works of various academics, such as Lemert (1981), Sabour (1988, 2001), Harker, Mahar and Wilkes (1990), Robbins (1991), Jenkins (1992), Calhoun, LiPuma and Postone (1993), Swartz (1997), Naidoo (1998) and Maton (2005).

An aspect that has not received enough attention from studies so far is the explanatory potential of the concept of scientific capital in the field of higher education. This is even more the case in the sub-saharan African context. Apart from Bourdieu's works *Homo Academicus* (1988), *State Nobility* (1996) and his last lectures on reflexivity (Bourdieu, 2004), a mere handful of works have dedicated attention to the concept. Shinn (2000) has done some interesting work on the operationalization of the concept, yet without going beyond the replication of the operational dimensions originally proposed by Bourdieu in the French context.

There is a remarkable work by M'hammed Sabour (1988, 2001) on the Arabic academic world. Four years after Bourdieu's portrayal of French academia in *Homo Academicus*,

Sabour (1988) published his *Homo Academicus Arabicus*, studying the intellectual and social position of the Arab academic in Arab society. Sabour explores both the way in which external and institutional determinants condition position, and how Arab academics perceive their situation as possessors of knowledge and performers of an academic function in a developing society.

He looks at a wide range of variables incorporated into the analysis, including the academics' educational, social, economic and symbolic capital, the field of activity in which they are involved and the status they hold within academia. He also presents a critically modified version of Bourdieu's notion of capital, habitus and the field applied to these variables, and develops a theory of respectability, which takes into account the specificity of Arab society.

My study intends to expand the possibility of transferring (Derek, 2004) Bourdieu's tools to transcultural settings such as the African context. Similar to Sabour (1988, 2001), I seek to construct a modified version of Bourdieu's notions of capital, field – and particularly scientific capital – to account for the positions of academics in a stratified space of academic disciplines in African universities. Subsequently, I intend to make inferences on the influence these positions have on the networks academics maintain with academic and non-academic constituencies. In that sense, this study also brings Bourdieu to Africa.

3.2.2 Bourdieu's Field Theory

The first step in setting the scene for using Bourdieu's concepts is to recap the author's field theory and relational sociology. I will apply these concepts to map the positions occupied by academics in a disciplinary social space of social sciences in the three institutions under examination based on the distribution of scientific capital. Although Bourdieu's work has been extensively explored, particularly since his death in 2002, certain concepts of his framework remain less examined in empirical settings. This is the case with scientific capital. In my review of the theory, I am, therefore, particularly interested in locating the concept within Bourdieu's general theoretical scheme.

As I said earlier, some of Bourdieu's critics tend to assess the validity of his concept removed from an empirical setting (Bourdieu, 2000; Bourdieu and Wacquant, 1992; King, 2000). Bourdieu himself had the intellectual and academic integrity to acknowledge that he had not

taken all of his concepts to the empirical test. He urged those who wanted to confront the core of his main constructs to do so empirically. "There is no doubt a theory in my work or, better, a set of thinking tools visible through the results they yield, but it is not built as such (. . .) it is a *temporary construct which takes shape for and by empirical work*" (Bourdieu cited in Wacquant, 1989, p. 50, emphasis in the original).

In line with this, my review of Bourdieu's theory aims to create the required conditions for using his thinking tools in a particular empirical setting. In the next section, I will review the notion of relational field and sociology as opposed to 'substantialism' and non-relational modes of thinking.

3.2.2.1 Constructing a Relational Field Theory

Bourdieu (1985, p. 723) constructs his theory of field by breaking away from Marxist theory. First, he breaks with "the tendency to privilege substances – here, the real groups, whose number, limits, members, etc., one claims to define – at the expense of relationships; and with the intellectualist illusion that leads one to consider the theoretical class, constructed by the sociologist, as a real class, an effectively mobilized group." Secondly, he considers that "there has to be a break with the economism that leads one to reduce the social field, a multi-dimensional space, solely to the economic field, to the relations of economic production, which are thus constituted as co-ordinates of social position" (Bourdieu, 1985, p. 723).

Finally, he argues for a "break with the objectivism that goes hand-in-hand with intellectualism, and that leads one to ignore the symbolic struggles of which the different fields are the site, where what is at stake is the very representation of the social world and, in particular, the hierarchy within each of the fields and among the different fields" (Bourdieu, 1985, p. 723).

The concepts of field and capital that form the central and fundamental analytical research tools of Bourdieu are a consequence of his demarcation from Marxist theory. The two concepts constitute, together with the concept of habitus, the triad in Bourdieu's theoretical framework and form the keystone of his relational sociology (Langa, 2006). He uses the term social world to refer to society in general. The social world is a macrocosm constituted of multiple dimensions, which he calls social spaces:

> Social world can be represented as a space (with several dimensions) constructed on the basis of principles of differentiation or distribution constituted by a set of properties active within a social universe in question, i.e., capable of conferring strength, power within that universe, on their holder. (Bourdieu, 1985, pp. 724-5)

In line with this view, agents and groups are defined by their relative positions within a particular space. If we take, for instance, the space of academic or scientific disciplines, in a particular university (yet, we can also look at a transnational space of African and global sociology), each academic is assigned to a position or precise class of neighbouring positions (that is, a particular region in this space) and they cannot really – even if they can in thought – occupy two opposite regions of the space. The implications of this approach for my research are that particular discipline-clusters are regarded as occupying a relational instead of a substantial position in their respective fields. The concept of the social field plays a crucial role in this regard.

3.2.2.2 The Concept of Social Field

> To understand is first to understand the field with which and against which one has been formed. (Bourdieu, 2007, p. 4)

Since Bourdieu's death in 2002 many books have been written on his work or using his concepts to account for specific problems in various social fields. Therefore, Bourdieuan literature has grown considerably with some very interesting applications of his theoretical tools in specific empirical sites (Benson & Neveu, 2005; Lardinois & Thapan, 2007; Reed-Danahay, 2005; Swartz & Zolberg, 2004). Even though I acknowledge the value of these numerous studies using Bourdieu's tools, I have decided to rely more on the original texts rather than the secondary sources.

In this section, I discuss Bourdieu's concept of social field. Bourdieu (1985) conceives 'field' as a magnetic space of forces, as the properties selected to construct a space, constitute a set of objective power relations that impose themselves on everyone entering the field and that are irreducible to the intentions of the individual agents or even to the direct interactions among the agents. More specifically:

> The social field can be described as a multi-dimensional space of positions such that every actual position can be defined in terms of a multi-dimension-al system of co-ordinates whose values correspond to the values of the different pertinent variables. Thus, agents are distributed within it, in the first dimension, according to the overall volume of the capital they possess and, in the second dimension, according to the composition of their capital - i.e., according to the relative weight of the different kinds of assets within their total assets.
> (Bourdieu, 1985, p. 724)

Figure 3.1: *Bourdieu's Conceptualization of Social Fields and Society*

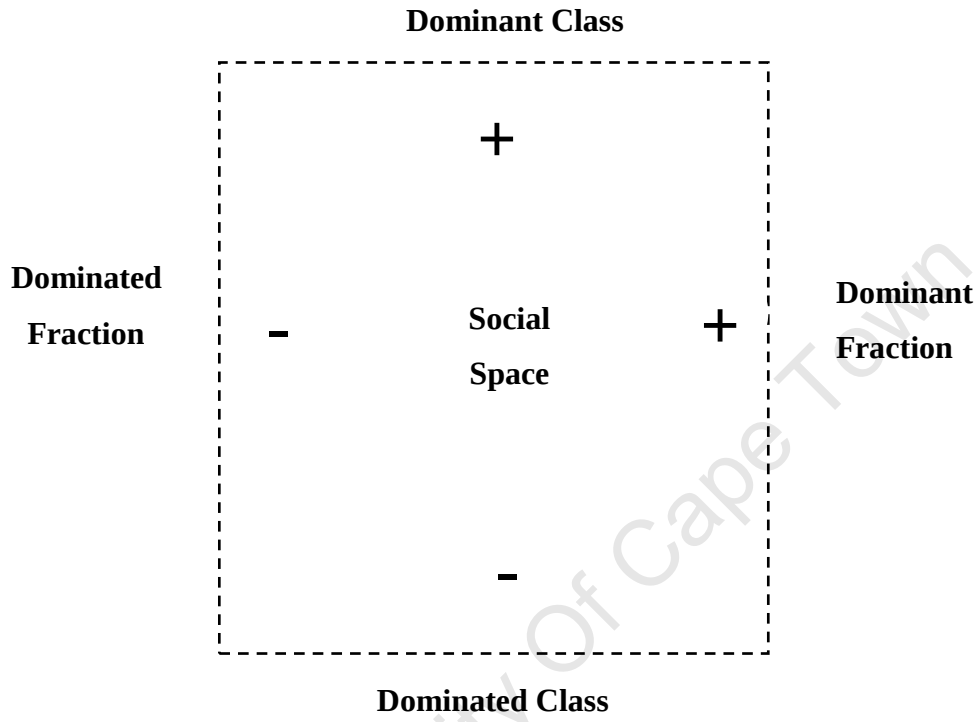


Figure 3.1 above provides a schematic representation of the social field that can be applied to any dimension of social reality. Every field, for instance a scientific field, is structured by two major competing principles of hierarchization: a heteronomous principle looking beyond the specific activities of the field (such as monetary success) and an autonomous principle looking inwards to its ostensibly disinterested activities (such as 'knowledge for its own sake').

However, the specific forms of capital differ. It is important to note that, for Bourdieu, the positions that can be mapped out in social space – for example, for the purposes of statistical analysis and which constitute the main means to manifest the structure of the social space – do not exist as real groups, although they explain the probability of individuals constituting themselves as practical groups.

When I claim that academics from An & So at Eduardo Mondlane University or the University of the Western Cape hold a certain amount of scientific capital, I intend to locate them in a relational, hierarchical and structured space of positions. This space of position constitutes a theoretical, not a substantial construct. However, we also find a space of relationships that is as real as a geographical space at EMU, MAK and UWC, in which movements are paid for in work, in effort and above all in time. Distances within the social space are measured in time taken to raise or to convert capital, for example, to convert research into publication and into recognition (symbolic capital).

Another example, which I use recurrently in the study, is related to academic capital, a subtype of scientific capital. What distinguishes the position of a junior from a senior academic is not simply the amount of time spent in acquiring the necessary qualifications, which is then converted into an academic position, but also the symbolic capital attached to it.

To recap, analytically,

> a field may be defined as network, or configuration, of objective relations between positions. These positions are objectively defined, in their existence and in the determinations they impose upon their occupants, agents or institutions, by their present and potential situation (situs) in the structure of the distribution of species of power (or capital) whose possession commands access to the specific profits that are at stake in the field, as well as by their objective relation to other positions (domination, subordination, homology etc.). (Bourdieu & Wacquant, 1992, p. 97)

This research starts by outlining the structure of the disciplinary field of the social sciences in the three institutions under examination, based on the heteronomous distribution of scientific capital. The idea was to establish the state of the *relations of force* between agents (academics) that define the structure of the discipline-clusters. I have attempted to map a space of forces using a set of indicators corresponding to different forms of capital academics hold, so that their relative position in the discipline informs the strategic orientation towards the 'games' that are played in each field.

For instance, two academics endowed with an equivalent amount of overall capital can differ, in their position as well as in their position-takings, in that one holds a lot of scholastic capital

and little academic capital, while the other has little scholastic capital and a large amount of academic capital.

Literally, the strategies of a professor and everything that defines his 'game', let us say in terms of attracting research funds through his networks, are a function not only of the volume and structure of his capital at the moment of consideration and the 'game chances' they afford him, but also of the evolution over time of the volume and structure of this capital, that is, of his social trajectory and of the dispositions (habitus) constituted in the prolonged relation to a definite distribution of objective chances (Bourdieu & Wacquant, 1992, p. 99).

In order to avoid unnecessary replication of Bourdieu's theory of field, which can be directly taken from his many books, I will delineate the conception of field which I use in this study. One of the purposes of the study is to uncover different similarities and similar differences between heteronomous levels of possession of scientific capital by academics in three discipline-clusters at EMU, MAK and UWC and their forms of engagement, that is., networks of connection, with different constituencies, both academic and non-academic.

I depart from the assumption that academics in these three discipline-clusters participate in three social spaces, that is, in three academic fields.

Figure 3.2: *Imaginary Homologous Field of Social Science at EMU, MAK & UWC*

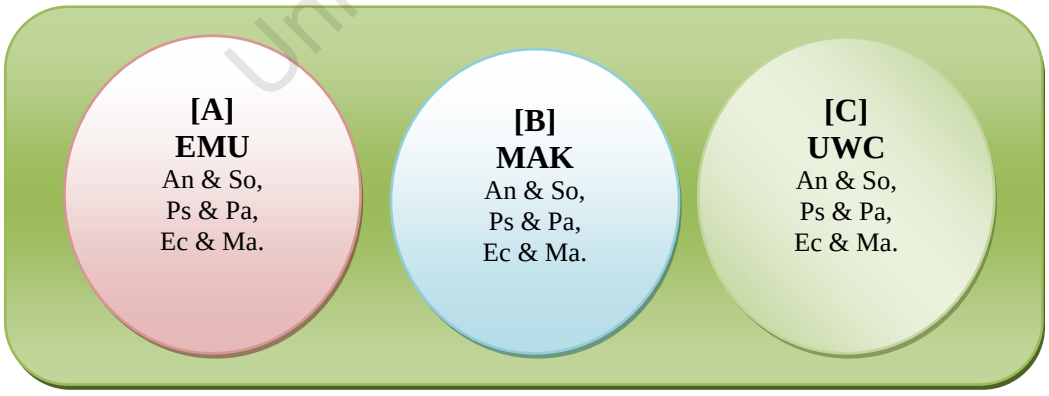


Figure 3.2 shows three imaginary social spaces composed of three clusters of disciplines. The figure represents an inactive field. The positions of each discipline-cluster are fortuitous and do not reflect the structure of a functioning field that considers a historical process of progressive accumulation of different forms of capital by its participating agents.

In this study, I do not undertake a particular analysis of the historical formation of the three academic fields to determine the current state of positions. Rather, I intend to establish a picture of the space in its current state. As Bourdieu and Wacquant (1992) argue, the notion of field reminds us that the object of social science is not an individual, even though we cannot construct a field without individuals, since the information necessary for statistical analysis is generally attached to individuals or institutions.

In this sense, I conceptualize the disciplinary fields of the social sciences in the three universities by using a particular kind and level of aggregation. I will elaborate on this issue in the methodology chapter. However, it is worth noting that the three universities were considered as a totality, from which the faculties, departments and then, and more importantly, the disciplines were selected (see Figure 3.3 below in this section).

The three discipline-clusters, in their own milieu, are regarded "as simultaneously a space of conflict and competition, the analogy here being with a battlefield, in which participants vie to establish monopoly over species of capital effective in it – (. . .) scientific authority in the scientific field – and the power to decree the hierarchy and the 'conversion rates' between all forms of authority in the field of power (Bourdieu & Wacquant, 1992, pp. 17-18).

Bourdieu (1986, 1996, 2000, 2003, and 2004) uses the concept of field to refer to a structured social space with its own rules, schemes of domination, legitimate opinions and so forth, relatively autonomous from the larger social spectrum, in which people relate and struggle through a complex of connected social relations among the main fields of modern societies. He mentions the arts, education, politics, law and economy as examples of fields.

In fact, every social space can be regarded as a field, as long as it represents a construct of particular spaces based on the principles of differentiation and distribution, as constituted by a set of properties active in that specific universe. Since the properties selected to construct a particular space are active properties, one can also describe it as a field of forces, that is, as a set of objective power relations that impose themselves on all who enter the field and that are irreducible to the intentions of the individual agents or even to the direct interactions among the agents.

Ideally, one would have to establish empirically the presence and effectiveness of at least a structure of positions as an alternative to simply assuming its existence as given. Some of the general field properties that are likely to be found in every field include (Bourdieu, 1991b, 1993a):

a) A structured space of positions;

b) General laws or logics that guide interactions and stakes towards which practices are oriented;
c) Social struggles for the stakes or forms of capital valued and conversion rates between different forms of capital;

d) A social body endowed with habitus that orients the dispositions of the agents to the stakes, and thus to the continuation of the field;

e) A structure by a state of power relations at a given point in time;

f) The production of distinctive patterns of strategies adopted by different agents relative to their own position and trajectory;

g) A function analogous to a game.

Every field to be considered as such is expected to have at least some, if not all, of these properties. Yet, as Rawolle (2005) observes, Bourdieu rarely evokes the presence of all properties as necessary and sufficient conditions for a given field. Rawolle (2005) argues that in Bourdieu's work it is difficult to determine which of the properties have priority in providing evidence for the operation of a field.

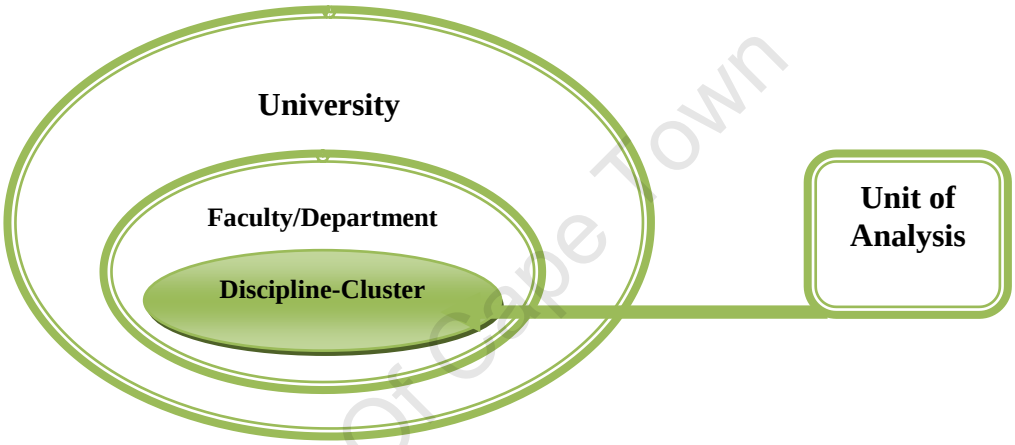
In the case of my study, I have considered the social spaces constituted by three discipline-clusters at three universities as representing three homologous social fields (see Figure 3.2 above). Ultimately, I use the scholastic productivity (e.g. publications, qualifications) of academics in these discipline-clusters to establish their relative positions in each space. Later on, I draw *inter*-and *intra*-institutional comparisons between the positions of the discipline-clusters and the dispositions to link with distinct agents and entities.

In other words, I establish comparisons between the scholastic productivity of academics in a particular discipline-cluster and the level of connections with *internal* and *external* constituencies. For instance, I look at the amount of scholastic resources (capital) possessed by Anthropologists and Sociologists from Eduardo Mondlane University as a discipline-

cluster and compare it with that of their peers at Makerere or the University of the Western Cape. Having established the level of scholastic productivity of each discipline-cluster, I then look at whether the level of productivity is in some way related to the type and density of networks in which academics are involved.

Figure 3.3 below represents the unit of analysis of my study and can be regarded as a sub-field of discipline-clusters.

Figure 3.3: *Unit of Analysis*



The field or sub-fields of discipline-clusters in this study consist of Anthropology & Sociology, Political Science & Public Administration and Economics & Management. These three sub-fields comprise the unit of analysis of the study. In proposing this way of looking at the academic space in the three institutions, I hope to contribute to a sociological comparison and understanding of the positions and position-takings of the academics in these fields. As Bourdieu puts it: "the space of positions tends to command the space of position-takings" (Bourdieu, 2004, p. 105).

A sociological understanding of the *positions* of academics can shed some light on the *position-takings,* when it comes to establishing networks with different constituencies in and outside the academia.

3.2.2.3 The Concept of Species of Capital

> It is impossible to account for the structure and functioning of the social world unless one reintroduces capital in all its forms and not solely in one form recognized by economic theory (Bourdieu, 1986, p. 242).

Throughout his career, Bourdieu avoided what he called 'professorial definitions', as he thought that the use of 'open concepts' was a way of rejecting positivism (Bourdieu & Wacquant, 1992). Concepts "have no definition other than systemic ones, and are designed to be put to work empirically in systemic fashion. Such notions as habitus, field, and capital can be defined, but only within the theoretical system they constitute, not in isolation" (Bourdieu & Wacquant, 1992, p. 96).

Therefore, this section does not provide a set of professorial definitions, but indicates the analytical operations to which Bourdieu's concepts were subjected to meet the purposes of the study. As far as types of capital are concerned, Bourdieu throughout his work gives emphasis to four species of capital, economic, cultural, social and symbolic. However, each field can develop its own species or sub-types of capital. For instance, scientific capital pertains to the academic or scientific field.

In the next section, I will provide the nominal definitions of each of the main species of capital mentioned earlier.

I start by discussing the notion of capital itself. According to Bourdieu (1986), capital exists in an objectified form – in the form of material properties – or, in the case of cultural capital, in the embodied state, and, as may be legally guaranteed, represents a power over the field (at a given moment) and, more precisely, over the accumulated product of past labour (in particular over the set of instruments of production), and thereby over the mechanisms which tend to ensure the production of a particular category of goods, and thus over a set of incomes and profits.

Economic capital is regarded as the command over economic resources, such as cash or assets. Cultural capital consists of any knowledge, experience or connection a person acquires during the course of her life that enables the person to be more successful than someone with

a different set of experiences, knowledge or connections. Social capital is a resource based on group membership, relationships and networks of influence and support. Finally, symbolic capital is a resource available to an individual on the basis of honour, prestige or recognition (Bourdieu, 1986).

The species of capital, like the aces in a game of cards, are powers that define the chances of profit in a given field. For instance, the volume of cultural capital determines the aggregate chances of profit in all the games in which cultural capital is effective, thereby helping to determine a position in social space (to the extent that this is determined by success in the cultural field (Bourdieu, 1985).

3.2.2.4 The Concept of Scientific Capital

Scientific capital is one of the main constructs in my study. In this section, therefore, I pay special attention to explaining its meaning and use in the context of my research. My discussion is informed amongst others by three main sources from Bourdieu's (1975, 1991a, 2004) extensive work. In the two previous sections, I have outlined the concept of social field and species of capital. These two concepts, as I have already mentioned, are critical in Bourdieu's field theory and constitute the principal schemata that inform and govern my empirical study.

I investigate two types of questions about academics in three discipline-clusters in three African universities. On the one hand, I inquire and establish whether academics are endowed with different amounts of scientific capital. The reason behind this is my conceptualization of scientific capital as an intellectual resource that can be used to differentiate academics, disciplines and institutions, according to their differential levels of possession of capital. On the other hand, I investigate whether the particular position academics occupy, for example in the space of their specific disciplinary field and at their particular university, due to differential levels of possession of capital, has a specific relationship with the type of networks in which they engage.

I reintroduce the concepts of field and capital to specify and illustrate more precisely the notion of scientific capital that I use. However, I begin by bringing back to the fore how Bourdieu considers sociology as a discipline that studies the social world. I should commence

by pointing towards Bourdieu's dissatisfaction with the common use of the notion of society as an analytical category in social sciences as being too vacuous. As an alternative, he proposes the notions of social field and social space. As explained by Vandenberghe (1999):

> (1) A space is anything that is topologically constructed as a relational structure of differences, generated by a principle, or, as Cassirer would say, by a "lawful progression" or "mathematical function" (Vandenberghe, 1999, p. 53) that discloses and constitutes a region of reality.
>
> (2) All societies are social spaces, that is, structures of relational differences, generated by the principle of the distribution of the different species of capital in currency in a given society.
>
> (3) Social spaces are fields, that is, fields of forces and fields of struggle in which social classes try to transform the structure of the field.
>
> (4) The structure of forces of the field of power determines at any given moment the principle of the hierarchization of the positions in the field with either economic or cultural capital being the dominant principle.

In summary, just as a physical space is "defined by the reciprocal externality of positions (…), the social space is defined by the mutual exclusion, or *distinction*, of positions which constitute it, that is, as a structure of juxtaposition of social positions (themselves defined (…) as positions in the structure of distribution of the various kinds of capital)" (Bourdieu, 2008, p. 134, emphasis in the original).

Generally, Bourdieu conceives sociology as social topology (Bourdieu, 1985, p. 723), that is, an analysis of relative positions and of the objective relations between these positions. Therefore, field for Bourdieu is "a set of objective, historical relations between positions anchored in certain forms of power (or capital)" (Bourdieu & Wacquant, 1992, p. 16). Fields are by definition fields of struggle, they are socially constructed spaces of action in which agents endowed with different resources confront one another to conserve or transform the existing power relations (Bourdieu, 2004).

What I have just described is the logic that I attempt to apply in my study, since I consider academics as agents who undertake actions, the ends, means and efficacy of which depend on their position within the field of forces, their position within the structure of distribution of capital in their disciplinary fields and in their particular universities. Why do I use scientific capital as the main construct of my study?

First, scientific capital is a theoretical concept that enables me to conceive academics as agents within their scientific and disciplinary fields (or sub-fields) and assess their intellectual productivity and recognition, which while defined by a determinate position within the field of the discipline as a whole, has a relative autonomy with respect to the constraints associated with their particular position. The academic disciplines, as specific "spaces of play", would enable further analysis, for instance, of the strategies of the agents, that is, the possibilities offered to their dispositions.

I presume that differential levels of possession of scientific capital, as an intellectual asset, would for instance inform the actions (conscious or unconscious) academics take to attract research funding, collaborate with particular peers, and publish in certain journals. Depending on the position they occupy in the sub-field of the disciplines in a particular university (that is, the position of each academic within the structure of the distribution of scientific capital in its two main kinds, scholastic and administrative or academic capital), academics may display different patterns in their networks with distinct agents inside and outside the university. In this study, these two kinds of capital are demarcated from one another.

Secondly, although Bourdieu considers that each field or social space is governed by its own intrinsic rules, the scientific field has its own peculiarities. The scientific field, as he suggests, is "a scholastic universe where the most brutal constraints of the ordinary social world are bracketed, is the locus of the genesis of a new form of necessity and constraint or a specific legality" (Bourdieu, 1990, p. 389). Yet, for every social space, the logic of a social field is established by the incorporated state in the form of a specific habitus, or, more precisely, a sense of the game, ordinarily described as a 'spirit' or 'sense' (philosophically, literarily, and artistically), which is practically never set out or imposed in an explicit way (Bourdieu, 2000, 2008). In the case of the scientific field, the logic of the field is established by the incorporated *scholastic point of view*; that is, the academic vision.

> The scholastic view is a very peculiar point of view on the social world, on language, on any possible object of thought that is made possible by the situation of *skhole*, of leisure, of which the school – a word which also derives from *skhole* – is a particular form, as an institutionalized situation of studious leisure. Adoption of this scholastic point of view is the admission fee, the custom right tacitly demanded by all scholarly fields; the neutralizing disposition (in Husserl's [1983] sense) is, in particular, the condition of the academic exercise as a gratuitous game, as a mental experience that is an end in and of itself. (Bourdieu, 1990, p. 381)

Therefore, scientific capital is a particular type of symbolic capital, a capital based on knowledge and recognition. It has "a set of distinctive properties which exist in and through the perception of agents endowed with the adequate categories of perception, categories which are acquired in particular through experience of the structure of distribution of this capital within the social space or a particular social microcosm, such as the scientific field" (Bourdieu, 2004, p. 55).

Moreover, symbolic capital is a power, which functions as a form of credit; presupposing the trust or belief of those who undergo it because they are disposed (by their training and by the very fact of their belonging to the field) to give credit, belief to it (Bourdieu, 2004). The structure of the distribution of scientific capital determines the structure of the field. This, for instance, pertains to the relation of forces among the academics under examination: possession of a large quantity (and therefore a large share) of scientific capital gives more power over the field, and therefore over the agents (relatively) less endowed with that capital (and over the price of entry to the field) and governs the distribution of chances of profit there from.

As conceived by Bourdieu, and if applied to my case studies, the absence of any direct interaction, intervention, or manipulation by academics does not affect the structure of the field regarded as an unequal space of distribution of scientific capital. Ultimately, I consider scientific capital as an intellectual resource (asset) possessed by academics that are a product of acts of knowledge on their part and recognition of originality of that knowledge by their peers who are also engaged in the scientific field.

The peers are therefore also endowed with the specific categories of perception that enable them to make the pertinent distinctions, in accordance with the principle of pertinence that is constitutive of a socially constructed ordering of experience of the field.

In practical terms, I go beyond the conceptual or nominal definition of scientific capital and present an operationalization in line with the objectives of the study. To recap, the main objective is to examine whether the level of academic productivity and recognition discloses anything about the nature of networks of collaboration that academics are involved in. In this study scientific capital is thus operationalized in two dimensions. On the one hand, there is the dimension of scholastic capital, with the following three sub-assets: a) publications, b)

educational qualifications, and c) supervision of postgraduate students. A set of indicators was derived from each of these components. I provide a comprehensive account for this operationalization in the methodology chapter.

On the other hand, the dimension of *academic capital* comprises two components: a) an academic and b) an administrative component. For each, a set of indicators was extracted once again for measuring the component (see appendix 1). I used this analytical model to construct spaces of distribution of scientific capital among academics in three discipline-clusters. In general, I constructed three juxtaposed but different homologous spaces of distribution of scientific capital, as illustrated in Figure 3.2. In each space, I place academics in a relative position of forces within their discipline-cluster.

This study constructs therefore a three-dimensional social space of the academics of three discipline-clusters at EMU, MAK and UWC. In Figure 3.2 I represent a homology of these spaces as [A], [B] and [C]. Agents (academics) participate in these spaces as members of the university, faculty, department and discipline. In Chapter 5, that focuses on the descriptive analysis of my data, these spaces are bestowed with a heteronomous power, that is, a specific weight of scientific knowledge and recognition. The condition of existing scientifically in one of the spaces [A], [B] or [C] is to have a balance of assets in terms of the criteria of judgement of perception prevailing within the field of the selected discipline-clusters, that is to say, for one's peers, to have contributed something, to have distinguished oneself (positively) by a distinctive contribution (Bourdieu, 2004).

In scientific exchange, maintains Bourdieu, the scientist makes a 'contribution' for which he is recognized by acts of public recognition, such as citation within the reservoir of the discipline. This is the principal reason why I use a set of indicators of scientific production and productivity to measure the levels of possession of scientific capital in the three sites.

The ultimate form of recognition is when the various species of capital, or a particular one, highly valued in a specific field, consecrate the positions of the bearer in terms of symbolic capital. In the case of scientific capital, one can say that a highly acknowledged scientist is endowed with high levels of symbolic capital. That recognition is always in relation to the relative position of his competitor-peers. Therefore, "s*ymbolic capital*, that is to say, capital – in whatever form – insofar as it is represented, i.e., apprehended symbolically, in a

relationship of knowledge or, more precisely, of misrecognition and recognition, presupposes the intervention of the habitus, as a socially constituted cognitive capacity" (Bourdieu, 1986, p. 56).

3.2.2.5 Capital Exchange

> Symbolic capital flows to symbolic capital. (Bourdieu, 2004, p. 56)

'Money flows to money', says the popular adage. Nevertheless, with money one can also buy many other goods. The same principle seems to apply in the case of species of capital. Those with higher scientific capital are in a better position to exchange it for other species of capital, like prestige or money, than those with less scientific capital. However, the conversions are not as straightforward as if one were simply going to an exchange bureau. For instance, just as it would be difficult to exchange Zimbabwean dollars in any serious economy into American dollars, precisely because of its astronomic depreciation rates and worth, different academic qualifications do not automatically grant the same access to top jobs in different markets.

> As everyone knows, priceless things have their price, and the extreme difficulty of converting certain practices and certain objects into money is only due to the fact that this conversion is refused in the very intention that produces them, which is nothing other than the denial (*Verneinung*) of the economy. A general science of the economy of practices, capable of reappropriating the totality of the practices which, although objectively economic, are not and cannot be socially recognized as economic, and which can be performed only at the cost of a whole labour of dissimulation or, more precisely, *euphemization*, must endeavour to grasp capital and profit in all their forms and to establish the laws whereby the different types of capital (or power, which amounts to the same thing) change into one another. (Bourdieu, 1986, p. 47, emphasis in the original)

In this study, by creating a set of operational dimensions and indicators of scientific capital, I confer analytical weight on the scientific capital possessed by any given academic in the three discipline-clusters under examination. I use, for instance, academic qualifications to make possible a comparison between qualification holders in the three spaces. Moreover, this enables me to establish correspondences between scientific capital and forms of engagement or academic networks of connections. I presume that certain levels of scientific capital correspond to particular tendencies in terms of networks of connections.

In other words, scientific capital is exchangeable for access to academic, political, economic and civil society networks. Nevertheless, I do not intend to suggest a tight correlation between a given amount of scientific capital and any other particular form of engagement. This is because the relationship between these variables is complex and dynamic. Not all academics with higher qualifications will necessarily have the symbolic power that derives from their qualification to determine the kind of networks in which they may get involved.

For this reason, Bourdieu (2004) considers it important to analyze both the structure (positions), *statics* – and the changes – *dynamics*, together. On these grounds, I have adopted a methodological approach that creates a multidimensional space in which both the properties of the spaces and the holders of the properties interact to produce non-linear patterns.

The material and symbolic profits, which the academic qualification guarantees, also depend on their scarcity. The investments made (in time and effort) may turn out to be less profitable than anticipated, there having been a change in the conversion rate between academic capital and economic capital in the mean while (Bourdieu, 1986). The strategies for converting scientific capital into particular networks of connections are governed by changes in the structure of the chances of profit offered by the different types of capital academics have accumulated both scholastically and academically.

In terms of my research, I will not be looking at conversion in a sense that suggests direct and correlating principles of exchange. Yet, I examine the extent to which levels of possession of scientific capital can translate into particular trends within academic networks. In other words, I expect that academics with high levels of scientific capital will create and establish particular types of networks with specific social actors in society. In a sense, this is a way of converting scientific symbolic power (capital) into other species of capital, whether economic (e.g. the ability to attract research funds), social (belonging to highly prestigious professional bodies and other kinds of connections) and so on.

3.2.2.6 Position and Disposition in the Field

> To have knowledge of the structure is to acquire the means of understanding the state of the positions and the position-takings, but also the probable evolution, the future, of those positions and position-takings (Bourdieu, 2004, p. 61).

What determine the relative position of a given agent within the social space are the positions that this agent occupies in the different fields in which he participates, that is, in the distribution of the powers (capital) that are active within each of them. For instance, in a disciplinary field of the social sciences in the three spaces [A], [B] and [C] mentioned earlier, academics would be placed in particular positions, according to the amount of scientific capital they possess. Each of the spaces [A], [B] and [C] contains disciplines that are relatively autonomous, stable and whose boundaries are relatively well delimited, making it relatively easy to identify them.

Anthropology & Sociology, Political Science & Public Administration and Economics & Management have academically and socially recognisable names and institutional spaces. These disciplines have developed strong identities to the extent that they are found in the libraries' classifications, course outlines, departments, faculties, and professional bodies – and are able to stand by their names.

Globally, these disciplines possess a collective capital of specialized methods, concepts, and accumulated knowledge. This collective capital is the tacit or implicit price of entry to the field. Although, theoretically it is possible to think of the disciplines as transcending national boundaries, most disciplinary cultures and practices are marked by the nation-state and are defined by their national society. While the discipline-clusters at the three institutions are treated as separate fields, they are also regarded as homologous in their functioning principles.

In other words, I assume that being a sociologist at EMU, MAK or UWC means to share the relatively same professional identity, jargon and so on. However, the way the boundaries of the discipline are protected by a more or less codified strict and high cost of entry, will vary between the three institutions. The amount of scientific capital one may need to be regarded as a top sociologist at MAK may not be quite the same as at EMU. Let us say this is related to the position of the national discipline in the international field of sociology. Nevertheless,

despite the different socio-historical contexts, it is possible to draw comparisons between the institutions based on the homology of these disciplines in the three different settings.

Academics are thus defined by their relative positions within the selected disciplinary fields based on the amount of scientific capital they possess. Each of them is assigned a position – or a precise class of neighbouring positions, that is, a particular region – in the disciplinary space, and one cannot – even if one can in thought – occupy two opposite regions in the space. In this sense, the systemic ranking academics from these discipline-clusters acquire and display depends on the position they occupy in the respective disciplinary field, that is, their particular endowment with scientific capital. Two co-ordinates, the overall volume and the composition of the capital they hold in that space, may thus chart the position of an individual academic, group or institution in a disciplinary field.

A third co-ordinate, the variation over time of this volume and composition, records their trajectory through social space and provides indicators as to their habitus by revealing the manner and path through which they have reached the position they presently occupy.

3.2.2.7 The Relative Autonomy of the Field

For Bourdieu each field has its own specific structure and logic, but all share homologous features. There are "general laws of fields" (1993a, p.72), including relative autonomy, relational and hierarchical structures, and struggles. Relative autonomy is the condition of possibility of a field and therefore a precondition for its existence. It is thus important to note that the field serves as a decisive mediating context which, 'like a prism', refracts external influences "according to the specific logic of the field; and it is by this intermediary that they act on the logic of the development of works" (Bourdieu, 1993b, p. 164).

Consequently, the manner in which changes are played out within a field depends, first of all, on its "refraction coefficient" (Bourdieu, 1993b, p. 182) or degree of autonomy from other fields, which shapes the extent to which wider pressures impact upon it, and, secondly, its internal structure, which shapes the way these pressures are realized within the field.

In this study, I am not directly concerned with measuring the levels of refraction in the three discipline-clusters so as to assess how they respond to increasing external pressures. Yet,

indirectly, the patterns that emerge from the correspondence between the different levels of scientific capital possessed by academics and the nature of their networks of connections can shed some light on the relative autonomy of the respective fields. I presume that academics with higher levels of scientific capital will be in a better position to act as the guardians of the autonomy of their discipline by influencing the kind of networks that will reinforce the discipline's identity. For instance, academics in managerial positions, but also with higher scholastic capital, can look at diversifying their sources of funding in order to avoid relying solely on government state funding.

3.3 Types of Academic Networks and Levels of Engagement

3.3.1 Research Hypothesis II

In this section, I discuss and explain the underlying theoretical foundations for the second hypothesis of the study concerning disciplinary differences in levels of engagement. My second working hypothesis for this study considers that:

> **H2)** *Discipline-clusters can be placed in a hierarchical space according to the intensity of their engagement with different constituencies, both academic and non-academic.*

Today's academics move in multiple time frames and networks. "Living amid multiple and even competing time frames is not particular to academic life. Rather, it must be characteristic of professional life in general these days. But perhaps it is more insistently a feature of academic life" (Barnett, 2008, p. 8). Barnett argues that the shifting and shaping of academic life in temporal terms are but signs of larger transformations at work in higher education. Those transformations, he states, "bear the labels that are familiar enough: marketisation, globalisation, the emergence of 'academic capitalism', the 'audit society' and entrepreneurialism" (Barnett, 2008, p. 8).

One of the implications of these transformations at work in higher education is that "academics are no longer assured of a living; they have to sing for their supper. Or, at least, they have to be *proactive*, to a large extent taking responsibility for framing their own pattern of work" (Barnett, 2008, p. 8, emphasis in the original). However, another important feature

of these new times is that academics, as Barnett says, are "also caught amid multiple networks, in their department and university and beyond, in research communities, professional communities and communities of polity (p. 8)."

Academics move in these multiple time frames and networks, partly because they construct multiple identities through multiple engagements in the course of their professional careers. The different time frames and multiple networks "amid which our academics move exert their own callings, some more insistent, some more relaxed" (Barnett, 2008, p. 8), but also the levels of various forms of capital (power) academics possess from the various social spaces, in which they participate, influence their identities. The fact that an academic establishes more ties (locally or internationally) with peers than with non-academic actors from other spheres in the social world, namely, political, economic or civil society does not prevent them from also sustaining other types of networks. However, the compressed time frames and the conditions in which academics work today can lead to a situation where they have too many ties and too little time.

Academics, in the course of their careers, establish linkages with social actors representing different constituencies from various social spaces. There is much literature that looks at academic networks as forms of social capital, studies their role in the organizational culture, changes, spinoffs from university to industry and so forth (Burt, 2000; Hague & Oakley, 2000; Nicolaou & Birley, 2003). In this study, I am interested in examining whether there is a particular pattern in the networks that certain types of academics in their specific sub-fields of discipline-clusters establish with certain types of social actors and their constituencies. This approach allows me to construct 'ideal-types' of academics based on their engagement with particular categories of social agents in selected dimensions of the social world: academic, economic, political and civil society. In other words, I do not expect to find 'pure types' of academics and academic forms of engagement in real life.

In everyday life, experience shows that academics establish relationships with various social actors. On this basis, one would most likely be able to identify other types of academic networks and adopt a different categorization and classification in addition to the one developed here. However, it is in the context of their professional practice, values and beliefs (ethos) of what constitutes an ideal academic, and levels of symbolic, scientific and academic

capital, which position them hierarchically in the academic or scientific field, that they will develop certain kinds of networks rather than others.

According to the kind of symbolic capital, that is, the prestige and power that academics accumulate across their careers, they can develop particular types of networks with various constituencies. Bourdieu (1977, 1990) argues that the accumulation of symbolic capital is just as rational as the accumulation of economic capital, particularly since such capital may be converted from one form into another, ultimately to gain advantages in the forms of additional wealth, power and allies.

The hypothesis developed here is that it is the nature and quality of scientific capital, and ultimately symbolic capital (power and prestige), of academics that largely determines the type of networks they will establish with different social actors among various constituencies. For instance, purely academic interests and the accumulation of scientific capital will probably result in well-built connections with their academic peers.

In general, issues like the size and structure of the academic field (Ohmann, 1967), academic identities (Henkel, 2000, 2005a, 2005b), language (Ortiz, 2006), "academic tribes and territories" (Becher, 1989; Becher & Trowler, 2001), will also determine the nature of such networks. I view networks as a form of power (Slaughter & Rhoades, 2004). The possibility to network is neither homogeneous nor democratically distributed, but hierarchically. For academics, the networking power, the power to network, depends on the levels, amongst others, of their scholastic and academic capital, which they have accumulated over a period of time in the course of their academic careers.

The study seeks to investigate whether certain levels of scholastic capital, that is, where power is essentially distributed according to scientific prestige and capacities defined by academic peers, among academics of the three discipline-clusters will lead to the establishment of certain networks. Where power is essentially accumulated due to academic capital, that is, control over the material or organizational and social instruments of reproduction of the faculty (Wacquant, 1990), I will examine whether this in turn leads to certain types of networks.

The fact that none of these types of academic networks or forms of engagement is found in historical cases in the 'pure' form is not necessarily a valid objection to attempting to define their conceptual formulation in the sharpest possible way. For instance, the transformation of a 'homo academicus' into a 'homo academicus consultans' by the process of marketization and the commoditization of knowledge and the rise of the consultant as a professional, will be discussed, and thereby the relevance of the concept to an understanding of the transformations in the academic profession hopefully demonstrated.

For analytical purposes, I will seek to construct four pure types of academic networks or forms of engagement based on their inner and outer linkages. The distinction here is supposed to analytically separate scholastic from non-scholastic networks. Therefore, each type refers to a tendency of academics to maintain connections with particular constituencies.

3.3.2 Homo Academicus (Engagement with Academic Peers)

'Homo academicus*'* resembles the 'conventional academic orientation' (Kutinlahti, 2005), an academic who lives off the illusion of the 'interest in disinterestedness' (Bourdieu, 1988), pursues knowledge for the sake of knowledge, and resides in what is left of the 'ivory tower'. There is also a 'cynical' side to it denounced by Bourdieu (1988), where academics are viewed as a category of professional mandarin, fostering elitism and inertia.

In theory, this type of academic is oriented more to internal peer networks in the possible universe of networks of connections. Academics resembling this type normally possess high scientific capital, are well-published internationally in peer-reviewed journals and supervise a considerable number of Master's and PhD graduates. Occasionally, they can be advisers or undertake a consultancy, which is, however, not the 'core' feature of their academic identity.

3.3.3 Homo Academicus Economicus (Engagement with Industry)

The type 'homo academicus economicus' resembles the 'entrepreneurial' (Clark, 1998; Meyer, 2003) academic or the "academic capitalist" who may be defined in terms of "the involvement of colleges and faculty (academic staff) in market-like behaviours" (Slaughter & Leslie, 1997; Slaughter & Rhoades, 2004), living at the edge of the so-called "knowledge economy" of the Informational Age (Castells, 1996, 2000). The assumption here is that

academics particularly from public universities faced with a major loss of state support now enter the market and sell a wide range of academic products commercially in the private sector as a basic source of income.

In this study, I am only considering the networks academics establish with economic entities in search of funding, or by doing consultancy work. There is a large range of other forms of economic behaviour by academics, such as registering patents and the running of actual businesses, which I do not explore in this study. Today's academics are seeking to generate revenue from their core educational, research and service functions, ranging from the production of knowledge (such as research leading to patents) to the faculty's curriculum and instruction (teaching materials that can be copyrighted and marketed) (Slaughter & Rhoades, 2004).

Turner (1986), for instance, makes the following observation concerning sociology:

> Sociology is a professional calling but, given the sociological structure of the academic market-place, we are forced to live it as a trade. Given a highly competitive struggle within the market, sociologists in search of employment and prestige are forced to innovate in order to secure clients and audiences. (Turner, 1986, p. 272)

At a systemic level, Turpin and Garrett-Jones (1997) argue that universities are tending to develop formal commercial arms, which are increasingly likely to evolve into loosely knit organizational networks, largely independent of their university and industrial antecedents. Clark's (1998) study of five entrepreneurial universities identifies the types of organizational changes he believes are necessary to adapt to this new environment. His five pathways of transformation involve: (1) "strengthening steering from the university's core; (2) expanding the developmental periphery; (3) diversifying the funding base; (4) stimulating the academic heartland; and (5) developing an integrated entrepreneurial culture" (Becher & Trowler, 2001, p. 8). As mentioned earlier, I do not intend to examine the commercial or entrepreneurial drive and practice of academics. Rather, I confine my analysis to mapping the ties academics establish with economic entities for seeking research-funding and contracts or by doing consultancy work.

3.3.4 Homo Academicus Politicus (Engagement with Politics)

The engagement of academics in politics is probably the most controversial type of involvement, as academia and politics are often not regarded as good soul mates, but rather as strange bedfellows. The nature of the relationship that academics establish or ought to sustain with political actors is mostly contentious. Depending on whether academics are regarded as "academic professionals" or "public intellectuals" (Michael, 2000), they may face some kind of criticism. As pointed out by Bellamy (1997, p. 27):

> Intellectuals, [academics in particular], have often been criticized by Left and Right alike for being detached from everyday concerns of their fellow human beings. The Left usually characterize this detachment as an ivory-towered and unworldly elitism that leads at best to irrelevance and a passive acquiescence in the oppression of their fellow citizens, and at worst to a spurious legitimation of that oppression as part of the way of the world. The Right, not dissimilarly, typically accuse intellectuals of being snobbish and antipopulist. Indeed, intellectuals who engage in politics attract much greater criticism than those who shun it.

There is considerable literature on the boundaries that should separate the domain of academia and politics. Weber's scholarly manifestos "Science as a Vocation" and "Politics as a Vocation" (Weber cited in Gerth & Wright Mills, 1948), for instance, attempt to "separate the institutional settings of research and political action" (Roth, 1969, p. 204):

> To take a practical political stand is one thing, and to analyze political structures and party positions is another. When speaking in a political meeting about democracy, one does not hide one's personal standpoint; indeed, to come out clearly and take a stand is one's damned duty. The words one uses in such a meeting are not means of scientific analysis but means of canvassing votes and winning over others. They are not plowshares to loosen the soil of contemplative thought; they are swords against the enemies: such words are weapons. (Weber cited in Gerth & Wright Mills, 1948, p. 10)

The prominent Italian Marxist theorist Gramsci (1971) in his *The Prison Notebooks* also characterizes what he describes as 'Traditional' and 'Organic Intellectuals'. His concern is to establish whether intellectuals are an autonomous and independent social group or whether every social group has its own particular and specialized category of intellectuals. He asserts that intellectuals function to fashion the intellectual, moral and political leadership by engaging in practical, that is, organizational, activities. This is especially true of organic intellectuals who fuse moral and intellectual dimensions with the practical activities of the class out of which they emerge. I mention these two classical examples to indicate that the debate on the boundaries between academia and politics is not new; on the other hand, this is

a way of introducing my own understanding and construction of these two categories into the study.

I use the term *'homo academicus politicus'* to refer to an academic whose networks of connections with political actors and entities, especially political parties, are relatively strong. Different from the policy-maker or adviser, whose main role it is to provide the decision-maker with a solid basis to make a decision, *'homo academicus politicus'* is also a player in the field of power. However, his political authority derives from being associated with a university. The idea is not to suggest an incompatibility of academia and politics, even if I do consider it difficult to reconcile the two fields.

I establish two main dimensions of political engagement. The first concerns the extent to which academics undertake contracts or consultancy with government agencies, political parties and individual politicians[5]. The second relates to the level of political engagement in party structures. Thus, academics were ranked in terms of their likelihood to establish links with political entities, especially government and political parties. The more involved in these networks academics become the higher their resemblance to the type of *'homo academicus politicus'*.

'Homo academicus politicus', hence, is simply a category without any normative or ethical connotations. The prominent British sociologist Anthony Giddens, who at some point in his career was highly engaged in politics – serving as adviser to former British Prime Minister Tony Blair (Giddens, 2007) – is a good example of an academic who for some time wore the mantel of *'homo academicus politicus'*.

3.3.5 Homo Academicus Consultans (Engagement in Consultancy)

'Homo academicus consultans' refers to academics in their disciplinary-clusters whose scholarship is shaped by their networks with external constituencies (political, economic or civil society) rather than by some inner circle of academic peers. Academics may be hired to deploy the research methods and/or the substantive findings of their research to shed light on problems identified by clients. Normally, the consultant is expected to provide his clients

[5] This category was later eliminated from the analysis, as the number of cases reported was so small to analyze.

with recipes intended to change the order of the social world in desired ways, and is thus considered as a social engineer of some sort.

What I aim to highlight by coining the term 'homo academicus consultans' is not the simple idea of an academic or professional who provides expert advice. Rather, I am referring to a phenomenon that is becoming common in many parts of the world, especially in Africa, where academics find the only way to survive is to become remunerated consultants. Consultancy is becoming a field with its own logic and structure. It is also establishing its entry fees for newcomers. Consultancy can grant more symbolic capital (Henry, 2002) to its participants than that acquired from the academic field itself. For some academics, especially junior ones, becoming a consultant can actually be the pinnacle of their academic aspirations. In their academic Curriculum Vitae's the list of consultancies can outnumber those of accredited or scientific journal publications.

Engaged in consultancy networks, the 'new academic' produces more consultancy research and reports than academically accredited publications. He has more contracts with non-academic than with academic entities and receives more funding from external sources than from the university or from government. Consultancy work by academics constitutes, therefore, another form of engagement and can occur in all spheres whether political, economic or in civil society.

These networks established essentially in the context of consultancy work denote the 'pure form of 'homo academicus consultans'. Bourdieu already noticed the emergence of this 'new' class of professionals in the 1980s (Bourdieu, 1987). Perhaps back then they were not as visible as they are today. According to Bourdieu, the consultant "claims to be an expert and to be vested with symbolic power" – that is, power to produce, by making diagnoses, opinions that are acknowledged as official and transcending individual interests" (cited in Henry, 2002, p. 19).

In this study, 'homo academicus consultans' still retains the university as his main habitat. However, he will spend much of his time doing user-oriented academic work. The prestige and recognition gained may open avenues in particular consultancy networks. Their academic profile, publications and research are shaped by the amount of consultancy work done for

external constituencies at the university. Most of the consultancy work does not provide any spin-off into academic writing and publication in peer-reviewed and accredited journals.

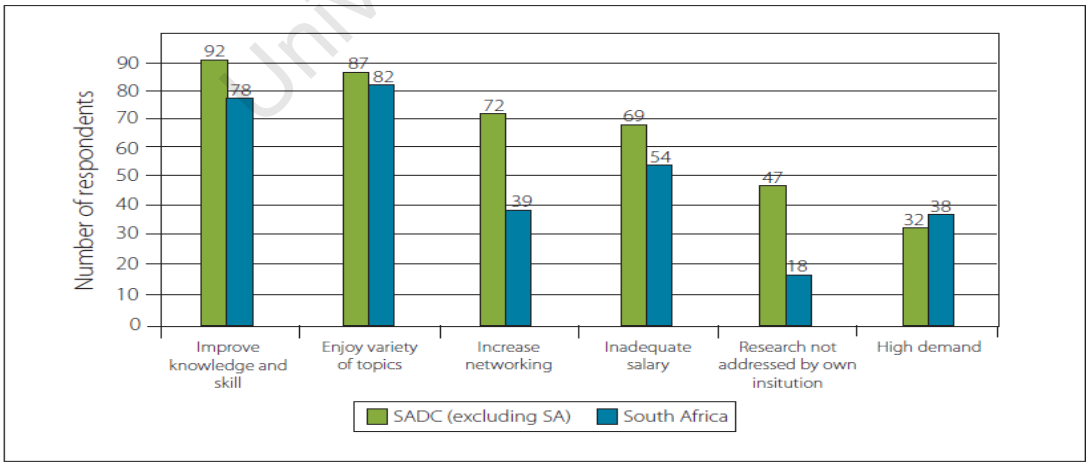
'Homo academicus consultans', thus, resembles a 'cash-crop' peasant, where academic worth is seen as a short term harvest object. He does research in a variety of areas provided it brings in some cash. I thus also refer to this type as 'cash-crop academics'.

This study is limited to mapping the density of consultancy networks by academics in the selected universities. However, it also draws on results from the CREST[6] survey, which shows that a shift in modes of knowledge production in Southern Africa has been taking place towards the poles of contract and consultancy-type research, rather than towards development and community-based research (Mouton, 2006).

Figure 3.4 shows the various reasons given by academics in the SADC countries for engaging in consultancy work.

> Consultancy is widely prevalent across the Southern African region – whether people see it as a positive form of academic work (to enrich themselves, to increase their networks, to transfer knowledge to industry) or as a necessity born out of poor academic salaries and working conditions. The challenge for universities in the region is to ensure that such activities do not further undermine and weaken the already fragile base of many scientific institutions. (Mouton et al., 2008, p. 206)

Figure 3.4: *Reasons Given for Doing Consultancy*



Source: (Mouton et al., 2008, p. 206)

[6] Centre for Research on Science and Technology at the University of Stellenbosch.

Drawing from Weber (1968), Lachmann (1970), Rex (1971) and Sahay (1971), I have thus selected certain aspects and behaviours of academics and their disciplinary fields, which are observable in the real world, and I exaggerate these to form a coherent intellectual construction as the defining characteristics of the ideal type. Not all characteristics will always be present in the real world, but any particular situation may be understood by comparing it with the ideal type. For instance, individual academic institutions may not exactly match the elements of the ideal type of capital, but the type can illuminate these variations. Ideal types are hence hypothetical constructions, formed from real phenomena, which have an explanatory value.

When I assert that certain academics resemble the type of 'homo academicus politicus', for example it does not necessarily mean that they have sold their entire soul to the politicians and, consequently are less valuable as academics. 'Ideal', simply means 'pure' or 'abstract', rather than normatively desirable. However, the precise relationship between ideal types and the reality to which they refer remains obscure. Weber (1968) suggests that the major discrepancies between reality and ideal types would lead to the type being redefined, but he also suggests that ideal types do not constitute models that need always to be tested. I to some extent part ways with Weber (1968) on that premise, arguing that ideal types, which in the case of this study regard academics and forms of engagement with different constituencies, can be empirically tested, contested or amended.

In order to embark on this kind of analysis and to construct ideal academic types, one needs to go beyond descriptive statistics by simply capturing the frequency with which academics engage with these constituencies, in favour of adopting relational thinking, as well as a relational methodology. Rather than using the formal tools of network analysis, the study uses score analysis.

3.4 Summary of the Chapter

In this chapter, I argue that Bourdieu's framework provides useful thinking tools that enable me to explore the nature of academics' networks of connections with agents in different social spaces, including academia. I take particular interest in the concept of scientific capital, as I intend to examine how such resources of symbolic power can be mobilized consciously

or unconsciously by academics to select particular networks. I then discuss the fundamental concepts of Bourdieu's relational sociology as a means to locate the concepts I use in the study in an articulated and systematic framework.

Drawing from Weber, I proceed by proposing and using a typology of forms of engagement or networks of connections as an analytical tool to indicate patterns in the nature of academics' networks with different social actors. The combination of these two approaches provides the framework I use to interpret my empirical data.

CHAPTER FOUR
METHODOLOGICAL STRATEGIES, RESEARCH DESIGN AND FIELD WORK

> The sociologist who chooses to study his own world in its nearest and most familiar aspects should not, as the ethnologist would, domesticate the exotic, but, if I may venture the expression, exoticize the domestic, through a break with his initial relation of intimacy with modes of life and thought which remain opaque to him because they are too familiar (Bourdieu, 1988, p. xi).

4.1 Introduction

In this chapter I outline the methodological strategies, research design and field work that together provide the empirical evidence for the study. I discuss the epistemic and methodological assumptions, the construction of the object of the study, the instruments of observation used to collect the data and the sampling criteria. Finally, I discuss issues related to validity and reliability, and share some of my fieldwork experiences.

4.2 Reconstructing the Logic of Research

This study constructs its object by making explicit the epistemological and methodological principles that are behind the reconstructed logic of the object of analysis (Bourdieu, Chamboredon, & Passeron, 2004). In this way, I hope to avoid the trap of characterizing the work as either qualitative or quantitative.

Sociologists of science observe that the relationship between scientists and their own practice, at least in the way they reconstruct it when they describe the exercise, is always mediated by social representations inspired by philosophies often distant from the reality of the scientific act. In the case of the social sciences, "the reinterpretation of the acts of research operates, most of the times, in conformity with the canons of methodology as a reconstructed logic, outlined in the 'logic-in act' that is applied by the procedures of the real invention" (Bourdieu et al., 2004, p. 113).

If reconstruction of procedure is one of the means to control the rigour of the research, it may have unintended consequences when presented as a reflection of the actual method. There is a

difference between the logic in the scientific procedure and the ideal logic of the *post festum* (meaning after it is done) reconstructions (Bourdieu et al., 2004, p. 113). Therefore, a permanent epistemological and methodological vigilance has been a major concern throughout the study to avoid 'hyper-empiricism' as well as the "intuitive adventure".

As Kaplan (1964) observed, a reconstructed logic cannot pretend to authentically represent the real procedures of the scientist for two reasons. First, logic proceeds by evaluation and often shows interest, not for what scientists achieve, but for what they have failed to accomplish. Secondly, a reconstructed logic does not present itself as a description, but as an idealization of scientific practice. Not even the most 'consecrated' scientists can display their procedure in a manner that is entirely and accurately logical.

Even the most striking researchers end up showing their human nature in certain aspects. Reconstruction idealizes the logic of science as it shows us simply what it should have been, as if it were possible to extract from it real acts and refine it until it reaches its utmost degree of purity.

By embracing these epistemological principles, I intend to deliberately break with a naive realism, but also not fall into unguarded constructivism. Both Weber (1949) and Bourdieu et al. (1991) support this view: ""it's not the 'actual' interconnection of 'things' but the conceptual interconnection of problems which define the scope of the various sciences.' A new science emerges, where new problems are pursued by new methods, and truths are thereby discovered which open up significant 'new points of view'" (Weber cited in Bourdieu et al., 1991, p. 33). Based on this assumption, I report on some of the crucial steps of the research.

4.3 Epistemic and Methodological Principles

Three epistemic and methodological principles underlie the construction of the object of this study:

i) Methodological pluralism;
ii) Equal epistemic attention to all the operations; and
iii) Methodological reflexivity.

The first principle entails a mixture of methods, that is, to deploy instruments of observation and verification best suited to the question at hand and to continually confront the results yielded by different methods. The second principle advocates an organic relationship between theory and method, which grants equal epistemic attention to all operations. The third and last principle refers to the relentless questioning of the method in every moment it is implemented (Wacquant, 1998). These are the epistemic and methodological principles that informed and guided this research throughout its course.

4.3.1 From Empirical Subjects to Epistemic Subjects

> The risks of misunderstanding in the transmission of scientific discourse on the social world depend, in a very general way, on the fact that the reader tends to make the utterances of the language of construction function as they would function in ordinary usage. (Bourdieu, 1988, p. 21)

This study, being a sociological endeavour, attempts to do what Giddens (1984) refers to as 'double hermeneutics'. In his book, the *Constitution of Society* he argues that all explicitly formulated rules become sites of interpretation, and the rules that are most basic to human action and interaction are not formulated, but rather, as far as the actor is concerned, are pre-conscious. In other words, all the material of sociological interpretation at some point has already been interpreted by the 'lay' people even when they do not look for the principles of action. The sociologist's task is to undertake a second level of interpretation which he calls 'double hermeneutics'.

While philosophers and other social scientists have already considered the influence of 'lay' terms in scientific jargon, Giddens was breaking new ground by also considering the reverse. For Giddens, sociological concepts are not produced about an independently constituted issue, which continues regardless of what these concepts are. The findings of the sociological analysis often enter constitutively into the world they describe. Every scientific fact will one day turn out to be sheer common sense.

In this regard, Bourdieu (1984, p. 476) argues, "knowledge of the social world has to take into account a practical knowledge of this world which pre-exists it and which it must not fail to include in its object, although, as a first stage, this knowledge has to be constituted against the partial and interested representations provided by practical knowledge."

There is nothing extraordinary in the idea of academics establishing networks of connections with different social actors in multiple social spaces, including both the social world inside and outside the university. However, my aim is to establish a basic principle of explanation that governs academic networks with these different constituencies; a principle that goes beyond the observable networks of connections – and can be accessed even by an untrained mind. I seek to look beyond the empirical subjects and construct a sociological space of objects from which I can examine the nature of connections between academics in particular positions in the scientific and academic field and social actors in other social spheres.

Sociology is a discursive social science that proceeds by reasoning and argument. In the process, it uses the same language we use in ordinary communication, turning it, however, into concepts. Bourdieu (1988, p. 21) gives a good example from Weber's concern with axiological neutrality, which continues to create misinterpretations. "A reader, ignorant of Weber's distinction, perceives as sociological value-judgements 'references to values' inherent in the object of study. When, for example, he speaks of a 'second-class faculty', of a 'subordinate discipline' or of the 'lower echelons', of the university space, the sociologist is only recording a fact of evaluation destined to 'refute' it."

When I refer to an academic of a specific discipline, who establishes particular networks and holds a specific amount of scientific capital, as 'homo academicus politicus', I am not making a value-judgement, based, for instance, on the assumption of the dominance that political capital may have over the scholastic capital of that particular academic. Rather, I am acknowledging a factual judgement that he is likely to establish more connections with politicians than with academic peers. Therefore, sociological discourse demands a sociological reading, capable of reproducing the operations of which it itself is a product.

In summary, the academics I examine are real people (empirical subjects) who establish ties with various social actors at different levels and spaces of the social world. However, in this study, I regard them as particular epistemic subjects by looking at them as agents occupying particular positions with differential levels of possession of scientific capital in a social space of capital. Ultimately, these positions in the field should tell us something about the nature of the networks academics engage in during the course of their professional career.

4.4 Strategy for Data Analysis

Within the social sciences, there are two distinct conceptions of the role of statistics, namely, comparing variables versus constructing a social space. The former goes hand in hand with traditional statistical analysis (which I do not apply in this study), whereas the latter is part of Geometric Data Analysis (GDA) (Le Roux & Rouanet, 2004). Correspondence analysis constitutes one form of GDA. It is "a technique for investigating the associations among a set of qualitative or categorical variables" (De Nooy, 2003, p. 306).

For instance, Bourdieu's *Distinction* (1984) and *Homo Academicus* (1988) are regarded as the seminal works of sociological correspondence analysis. In the former he presents a detailed analysis that shows that the determinants of taste, cultural discrimination and choice lie in the possession of two forms of capital, economic and cultural, with sub-groupings defined by senior positions in possession and related forms of acquisition.

In his study of *Homo Academicus*, for instance, Bourdieu uses an advanced type of correspondence analysis which maps the categories of the variables, as well as the respondents. In Graph 2 (1988, p. 80) he maps the space of universities and the professional affiliation and background variables of Parisian professors, whereas in Graph 7 (1988, p. 276) he displays the positions of the professors in a two-dimensional space. He uses multiple correspondence analysis which is normally obtained by applying regular correspondence analyses to a special data matrix. This is called the indicator matrix or super indicator matrix (Greenacre & Blasius, 1994).

In this study, I do not strictly apply the methods of GDA and correspondence analysis due to the categorical nature of my data and the tentative aim of my analysis. Instead, I use snapshot score analysis. For lack of a better term, this consists of comparing aggregate scores of discipline-clusters in terms of possession of scientific capital and ranking the discipline-clusters in a field of distribution of scientific capital. By snapshot score analysis, I mean a procedure that consists of calculating the current state of accumulation of scientific capital and defining the particular position of a discipline-cluster in a scientific field at a particular point in time.

The position is established by creating a series of indices and coefficients that can be used to weigh the indicators of specific concepts and thus compare different positions in the homologous spaces. The scores allow me to apprehend the relational but also the synchronic position of the discipline-clusters through snapshots. I estimate the amount of scientific capital possessed by discipline-clusters through a set of dimensions, components and indicators that include the number of publications (subdivided into various sub-categories and weighed up by specific coefficients), academic qualifications and the supervision of postgraduate students.

This procedure was performed for the entire data file, and evaluated according to whether scores of scientific capital or scores for levels of engagement were used. The result of this method was to generate snapshot data for an aggregated period of four years (2004-2008).

In other words, the scores I use to construct disciplinary spaces of positions based on possession of scientific capital and to examine the possible link with the different forms and level of engagement or networks of connections of these disciplines with various constituencies gives me a picture over a period of four years. My aim is to show whether there is a relationship between the two sets of variables in the period under consideration. I establish a set of assumptions based on the levels of possession of two forms of scientific capital: the scholastic and the academic form, with sub-groupings defined by seniority in possession and related forms of acquisition within the specific disciplinary and scientific field.

My concern is to depict disciplinary positions in a space of distribution of scientific capital and relate these positions with particular types and levels of engagement with different publics. For this purpose, as I mentioned earlier, I use scores to rank both the discipline-clusters according to levels of possession of scientific capital, and also the levels of connectedness in different types of networks. This methodological approach has the particular limitation of not capturing the dynamics of capital accumulated by individual academics. It also does not capture the features of the social space over time.

4.5. Research Design

> The point of view creates the subject (. . .). In other words, a science cannot be defined by a domain of reality that is distinctively its own (Bourdieu et al., 1991, p. 33).

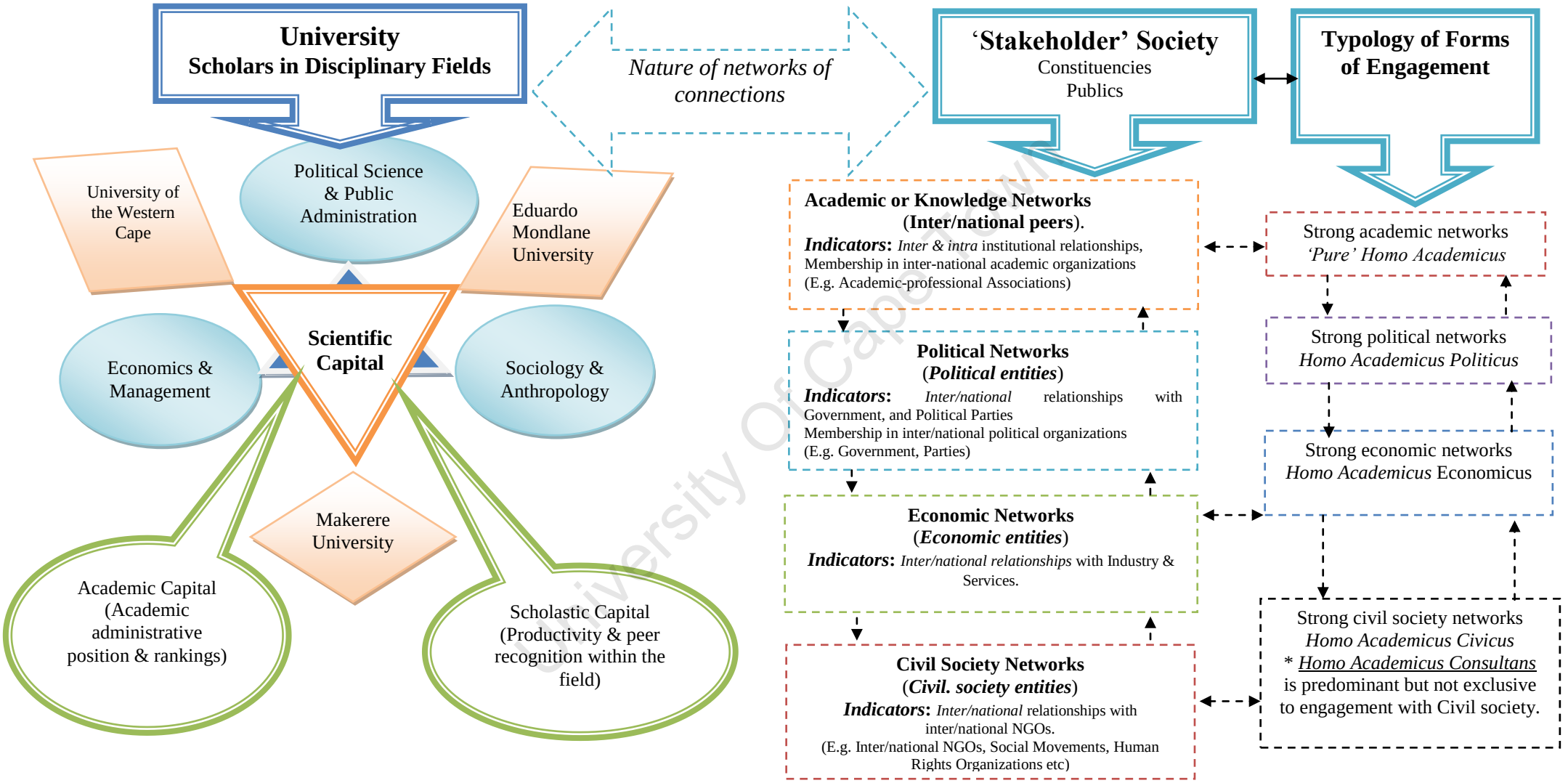
The research design of this study sets out to examine variables in a cross-disciplinary cluster. As I have already mentioned, the design avoids the language of qualitative or quantitative analysis in favour of combining both methods. Therefore, I adopt a multifaceted research design to construct spaces of distribution of scientific capital. There are mainly three purposes one can pursue in social research: First, explore an issue; secondly describe a reality; and thirdly, explain a social phenomenon (Babbie & Mouton, 2001). Each of these purposes may lead to different implications for the research design, but they can also be combined to achieve one major goal.

In this sense, I pursue more than one aim. I intend to explore, describe and explain the relationship between scientific capital, as an explanatory variable, and the various forms of engagement variables that demand to be explained. The study thus constitutes a research design to provide a basic understanding of the issue of academic networks, together with the implications for knowledge production, dissemination and reputation.

I seek to provide an account of the tendencies and indicate possible regularities in the observed phenomena. The objective is to establish a corresponding relationship between the levels of possession of scientific capital and the different forms of engagement, or networks, by academics.

There are three comparative layers of observation in this study, namely the cross-national, cross-institutional and cross-disciplinary (see Figure 4.1 below). In the next section, I will elaborate on the reasons for selecting the three countries, universities and discipline-clusters.

Figure 4.1: *Model of Analysis*



4.5.1 Cross-National Layer

In this study, I examine three universities located in three different countries, namely Mozambique, Uganda and South Africa. Later on, I provide the reasons for selecting these three sites. According to Hantrais and Mangen (1996, p. 2):

> A study can be regarded as cross-national and comparative if one or more units in two or more societies, cultures or countries are compared in respect of the same concepts and concerning the systematic analysis of phenomena, usually with the intention of explaining them (. . .). The expectation is that the researchers gather data about the object of the study within different contexts and, by making comparisons, gain a greater awareness and a deeper understanding of [the phenomena being studied].

This had implications for the delimitation of the study's unit of analysis. Even though the unit of analysis of this study refers particularly to academics located in the space of discipline-clusters, my analysis also looks generally at the structural and contextual characteristics of the counties in which the institutions and disciplines are located.

4.5.2 Cross-Institutional Layer

I examine three higher education institutions, namely, Eduardo Mondlane University (Mozambique), Makerere University (Uganda) and the University of the Western Cape (South Africa). I consider a cross-institutional layer as I locate the three discipline-clusters within the institutional context of their universities. By institutional context, I refer to the prevalent conception in social research of the relationship between context (social structure) and individual action, as expressed by sociologists, such as Durkheim, who considers individual action to be determined by collective normative values or social facts (Makitalo & Saljo, 2002).

In fact, epistemologically, I identify with the work of Bourdieu (2008) on subjectivism/objectivism (Jenkins, 2002; Wacquant, 2006) and Giddens' Structuration Theory (Giddens, 1984, 1990, 1991; Sewell, 1992), which all attempt to overcome the antinomy and reductionism of objectivism/subjectivism and the agency/structure dilemma in social theory.

The main argument in support of the selection of the three universities was informed by a set of theoretical and practical reasons. The first related to my own educational biography. I

intended to expand the scope of my previous research, from national to cross-national level, which I started in 2005 while studying for the attainment of a Master's degree in Higher Education Studies at the University of Cape Town (UCT). I completed the study in 2006, examining the constitution of the field of higher education institutions in Mozambique.

The study addressed the expansion and diversification of higher education institutions in the country. The central focus was on the implications for the expansion of higher education institutions on the evolving structure of higher education, especially on whether it was leading to the constitution of a social space functioning as a relatively autonomous and hierarchically structured social field of practice. The study established a new hypothesis, stating that institutions possessing higher levels of cultural capital are at a competitive advantage, which enables them to attract other forms of capital – capital goes to capital (Langa, 2006).

It was this hypothesis that triggered my curiosity and inspired me to continue my research, while pursuing a PhD. During that time, I was living in South Africa and getting more familiar with the country's higher education system. I became involved in research projects with the Centre for Higher Education and Transformation (CHET). CHET's tradition of conducting cross-national comparative studies provided me with the environment to think beyond the limits of Mozambique. A CHET research project, called HERANA (Higher Education Research and Advocacy Network in Africa), that seeks to understand the intricacies and complexities of higher education and development in African higher education, gave me the platform to embark on a comparative study.

I was already working on my PhD research proposal at UCT, in which I intended to examine the hypothesis I brought from my Master's thesis. If "capital attracts capital" (Langa, 2006, p. vii), then academics endowed with different amounts of the capital valued in their field should be able to attract corresponding forms of capital from the specific constituencies to which they relate during the course of their career. Instead of looking at the whole range of forms of capital valued in higher education, I decided to limit my analysis to the dimension of scientific capital.

Initially, I intended to test this hypothesis by comparing two universities: Eduardo Mondlane in Mozambique and the University of the Western Cape in South Africa. The two universities

are small-to-medium size institutions and have almost the same numbers of student enrolment (less than 20 000). For instance, in 2006, the level of enrolment was 14 800 for UWC and 14 400 for EMU (Cloete, Belding, Sheppard, & Bunting, 2009). Both EMU and UWC show similar patterns in terms of student enrolment and academic staff growth. Student enrolment increased from 2000 to 2006 with an aggregate rate of 87% at EMU and 53% at UWC (Cloete et al., 2009, p. 24).

This dramatic increase in student numbers did not match that of the academic staff. The average annual growth rates between 2000 and 2006 were 7.9 % for academic staff and 11.0% for student enrolment at EMU; UWC's growth rate for academic staff amounted to 2.7% and student enrolment to 7.4% (Cloete et al., 2009, p.28).

These figures do not differ markedly, and consequently enable us to advance the speculation that academic staff at these universities might be overloaded with teaching activities and might consequently spend less time doing research and engaging in other activities. This might also lead to struggles over the academic division of labour, where those with less capital, both scientific and academic, would be obliged to do the onerous jobs. In an era where academics face pressures to be more socially engaged and relevant as well as academically productive, it appeared theoretically interesting to examine the positions of academics in these universities and the way they respond to such pressures.

One way of doing such an examination is to look at the nature of networks of connections academics maintain with different constituencies, both internally for the pursuit of a knowledge or academic agenda and externally to search for other forms of capital, namely, funds or to disseminate and distribute their different forms of expertise.

Both EMU and UWC are universities located in higher education systems characterized by the existence of multiple suppliers, both public and private. However, the study deliberately set out to compare public institutions, excluding private universities, from the outset. I could easily have chosen other institutions rather than EMU and UWC. Yet, I was looking for institutions, which represented a certain tradition or vision in terms of 'ideal engagements' with external constituencies.

On the one hand, EMU, as the first national university after the country's independence from Portugal in 1975, was tasked with serving the national developmental goals. Even though the mission and vision of organizations evolve and change over time, this characteristic seemed to dominate and shape EMU's identity (Beverwijk, 2005; Chilundo, 2006; Mário, Fry, & Chilundo, 2003). On the other hand, UWC, being a historically disadvantaged university during the apartheid era, emerged in the new South African higher education landscape as one of the universities embracing a transformational agenda and vision informed by the idea of engagement as serving community development (Cooper, 2006, in press; Cooper & Subotzky, 2001).

This image contrasts sharply with explicitly research-based universities, such as University of Cape Town, as illustrated in the following quotation:

> An African university like UCT (. . .), whose goal is to be a research-led university, cannot be too developmental in its approach due to structural and historical constraints. However, it can still embrace the challenge of making its curriculum and learning environment friendlier to entrepreneurship-spurring activities and projects that can provide tangible local, regional (i.e. Western Cape) and national benefits. On the other hand, universities like CPUT[7], UWC, Venda could be more project- and community development-oriented. This is because they are younger (and by extension, supposed to be more receptive to new ideas), closer to the community and some, like Venda, can develop expertise in cottage industry entrepreneurship development as they are situated in resource-rich areas. (King, 2006, p. 91)

The rationale for a comparison between EMU and UWC was the idea that these universities were facing similar challenges with regard to embracing a vision in which university-based knowledge is being 'unlocked' to facilitate socio-economic development in society (Cooper, 2001).

It was only later that I decided to include Makerere University (MAK) in my research. I already had two interesting cases with sufficient similarities to make a 'good' case for comparison. Besides the dissimilarities already mentioned, EMU and UWC had inherited different higher education systems. Mozambique, being a former Portuguese colony, inherited a *Luso-European* model of higher education, while UWC inherited an *Anglo-Dutch* model. Yet both were markedly shaped by the local contexts in which they were involved, the colonial and apartheid projects respectively. Whereas the former uses Portuguese as a

[7] CPUT: Cape Peninsula University of Technology, South Africa.

medium of instruction and language of scientific and academic communication, the latter navigates between Afrikaans and English.

Makerere University (MAK) presented an opportunity to amplify the comparison between the two cases. MAK is a relatively large university with an average student enrolment of 35 000 students in 2006. As we have seen above, EMU and UWC are currently also approaching these numbers. MAK also experienced a period of growth in the enrolment of students in the last decade with 21 700 in 2000 to 35 000 in 2006 (Cloete et al., 2009).

As in the cases of EMU and UWC, the number of academic staff at MAK did not grow at the same pace as student enrolment. The average annual growth rate in student enrolment at MAK was 9.1%, while it was only 2.0% for academic staff, thus putting the institution under the same pressures as at EMU and UWC. These are some of the similar features between MAK, EMU and UWC, that would support the study's validity.

However, the fundamental reason for the inclusion of MAK in the sample is its historical background as a once leading African research-based university, which once served the entire East African region. However, reports on the current state of affairs portray the university as facing challenges to live up to its reputation as a research-based university (Lejeune, 2005). This is due to neo-liberal reforms putting pressure on the institution to embrace the ideology and practices of marketization, commercialization and the privatization of higher education (Mamdani, 2007; Musisi & Muwanga, 2003).

The implications of such transformation are still subjects to investigation and this study takes up a particular perspective in that endeavour. I assume that comparing the way academics from different disciplines in different institutions set up ties with different constituencies in society (academic, political, economic and civil society), will enable me to reveal some features of the underlying 'forces' that determine and drive academics to engage in certain networks. The nature of these networks will eventually influence the character of their activities and identity, that is, what knowledge they produce, how they disseminate their product, who they relate to in the process, and so forth.

While acknowledging that the three countries, universities and disciplines selected for the study are in different stages of development, I presume that precisely these differences allow

me to shed light on questions about how academics respond to external demands from society (Cloete et al., 2002).

In summary, this study compares three African universities in three African countries and two regions (Southern and Eastern Africa) with the legacy of different traditions of higher education inherited from their colonial masters. These countries have also experienced internal social transformations and 'crises'[8], which inevitably impacted on the universities' different tasks and shapes.

In the following section I will look at the level of discipline-clusters, which forms the basic unit of analysis in my research.

4.5.3 Cross-Discipline-Cluster Layer

I examine six disciplines at the three institutions; these are paired in three clusters, as follows: Anthropology & Sociology, Political Science & Public Administration and Economics & Management. The notion of sub-fields of discipline-clusters is borrowed from the broader concept of a scientific field, as conceived by Bourdieu (2003, 2004). As extensively discussed in Chapter 3, the scientific field refers to the idea that, on the one hand, there is a minimum unity of science and, on the other, that various disciplines occupy positions in the hierarchical space of disciplines.

What takes place in this space partly depends on the positions of the actors participating in it. Thus, the scientific field is described as "a set of local fields (disciplines) which have in common some interests (for example the interest in rationality, against irrationalism, anti-science etc.) and some minimum principles" (Bourdieu, 2004, p. 66).

I conceive the academic discipline-cluster as a stratified space in academia and operationalize it through a set of constructed indices of scientific capital. More precisely, the unit of analysis comprises academic staff in three discipline-clusters. Baldi (1994) has argued that

[8] The destabilizing influence of many regional and local political events has led to the closing of scientific institutions (universities) in many countries and effectively put science back many decades. Events such as the civil war in Rwanda/Burundi, the Mengistu regime in Ethiopia, Amin's dictatorship in Uganda, the civil wars in Mozambique and Angola are examples (Mouton et al., 2008).

sociological studies of the American higher education system have noted that despite a widespread ideology of egalitarianism, both individuals and departments are highly stratified. Elite graduate programmes protected their prestige against inbreeding.

My main objective here is to analyze the specific differences in the possession of scientific capital (positions) and the tendency (dispositions) of academics in these three discipline-clusters to network with particular constituencies.

Therefore, I compare academics' scientific capital and their track record to link with academic and non-academic constituencies. While the 'mode 2' approach of knowledge production (Gibbons et al., 1994)[9] emphasizes the changes that are taking place outside science, I highlight the particular structure of scientific capital in each disciplinary field and examine how this is related to particular trends in the way academics establish ties with both internal and external constituencies. To what extent the structure of distribution of scientific capital of academics influences the collaborations in the three disciplinary fields is the question that I try to answer in this study.

Moreover, I also assume that a differential and hierarchical structure of authority within unities/departments/faculties and ultimately universities is to some extent due to the degree of autonomy and its expert status and reputation, that is, symbolic capital. Most Bernsteinians would want to formulate the problem in terms of the differences in the internal structures of knowledge fields. It could be a legitimate question and point of departure, but not one I would want to pursue in this study.

Thus, I see the structure of the social space of higher education as one based on struggles between disciplines for the monopoly over the forms of power (capital), although this is not my focus in this study. Here I draw on the concepts of field and capital to shed light on the specific dynamics and power relations among the different actors within the three discipline-

[9] According to Gibbons et al. (1994), knowledge produced in these 'mode 2' forms in an application-context, is oriented towards problem solving, and is transdisciplinary in nature. The search for knowledge is application-driven, i.e. looking at the utilisation of knowledge with a view to solving specific practical problems. Traditionally, truth-oriented scientific quality criteria are being replaced by pragmatic, demand-driven criteria of functionality as defined by the stakeholders. Accordingly, this way of producing knowledge involves a continuous exchange with stakeholders (e.g. the public).

clusters. As argued by Albert (2003), an understanding of such disciplinary dynamics is crucial for comparing the differences in their research practices.

I consider that looking at the nature of connections, which academics establish with different constituencies, can help in an understanding of the logic of the disciplines. In the next section, while providing a rationale for the selection of the disciplines in this study, I also discuss their differences.

4.5.3.1 Disciplinary Differences

Bourdieu (2004, p. 65) regards disciplines as "defined by possession of a collective capital of specialized methods and concepts, mastery of which is the tacit or implicit price of the entry to the field." Bourdieu's definition suggests a discipline culture or ethos (habitus), which is embodied by academics producing historically transcendental systems or schemes of perception and appreciation. This study does not venture into testing the limits of the disciplinary field effect. Yet, I acknowledge that theoretically "the boundaries of the discipline are protected by the more or less codified, strict and high cost of entry; they are more or less sharply defined, and sometimes at issue in struggles with the neighbouring disciplines" (p. 65). For instance, it is common to find disciplines such as An & So sitting together in the same department, as is the case at the University of the Western Cape.

Academics seeking to examine disciplinary characteristics have a choice between several alternative conceptual approaches. These include "cognitive codification" (Zuckerman & Merton, 1972), "paradigm development" (Kuhn, 1962; Lodahl & Gordon, 1972; Pfeffer, Leong, & Strehl, 1977; Pfeffer & Moore, 1980), the "hard vs. soft" distinction (Becher, 1989; Becher & Trowler, 2001; Biglan, 1973a, 1973b; Storer, 1967) and "the structure of knowledge" approach (Hargens & Kelly-Wilson, 1994; Schachter, Christenfeld, Ravina, & Bilous, 1991).

Even though the different approaches emphasize partly distinct aspects of disciplines, these concepts all identify a dimension of variation that pulls fields, such as physics and chemistry towards one pole and the humanities and social sciences towards the other (Hargens et al.,1994).

The positions of fields and sub-fields in these different approaches therefore vary from measure to measure. In the case of this study, I group the six disciplines into three clusters based on the argument that they share a historical identity. As pointed out by Muller (2009, p. 2), disciplines are historical products, "as we know them today [they] only arose in the eighteenth and nineteenth centuries." Muller, in an attempt to delineate the roots of disciplinary differences, outlines the lineaments of two enduring fault lines in the evolution of the disciplines as we now know them.

He first points to "a rift between the disciplines of the so-called *inner* and the disciplines of the *outer* – what we would call the Arts and Humanities on the one hand, and the Sciences on the other." Secondly, he accounts for "the rift between the 'liberal' and 'mechanical' disciplines – what we would call the 'pure' disciplines on the one hand, and the practical 'applied' disciplines on the other." Muller (2009, p. 204) then concludes, "although disciplines have come and gone, although we live now in a time of unprecedented flux and fluidity, with fields of specialisation periodically opening up new regions of interdisciplinary inquiry, these fault lines continue to exert their influence on the pattern of the disciplines in the contemporary university, and on the curriculum."

With that in mind, I make an intuitive, but theoretically informed distinction between the disciplines I intend for comparison. These distinctions, as mentioned earlier, are based on the assumption that they share what I term a certain 'zone of proximal identity' (which I will explain later). I decided to exclude disciplines that would not fit into the category of the social sciences. According to Biglan's (1973a, 1973b) hard/soft and Kolb's (1981) abstract/concrete dichotomy, the excluded disciplines are the hard or the so-called natural sciences.

Although researchers agree that since the mid-1970s the pressure to develop ties with non-academic institutions has had an effect on the dynamics of knowledge production in the social sciences, they remain an area of academia that has not been widely studied (Albert, 2003; Prpić, 2006). Despite the new demand and pressure for a more socially-engaged and "socially robust" legitimation in science, under the label of 'mode 2 Science' (Nowonty, 1993; Nowotny, Scott & Gibbons, 2003) much of the evidence to support such a development is taken from the "Hard Pure" and "Hard Applied" (Biglan,1973a, 1973b), "Abstract Reflective and Abstract Active" (Kolb, 1981) sciences, rather than from the "Soft Pure/Soft

Applied", "Concrete Reflective/Concrete Active" disciplines. The criteria of these studies are selective; and primarily the social sciences and the humanities are neglected.

These disciplines display differences from the natural sciences in terms of possession of capital (power), communication structures, reward and stratification systems and mechanisms for social control, as well as degrees of autonomy from other social spheres. In addition, these variations in the structure of disciplines can be observed at individual, departmental, as well as at the university level. However, this is not a study that seeks to explore in-depth the "nature of the disciplines" as they demarcate discipline-cultures and constitute "academic tribes and territories" (Barnett, 1994; Becher, 1989; Becher & Trowler, 2001).

As mentioned earlier, I group them into pairs of two disciplines based on their epistemic proximity and identity. In other words, they are an example of what Geertz calls blurred genres (1980). I thus presume the existence of a Zone of Proximal Epistemic Identity (ZPEI),[10] referring to the dialectical and negotiated space or boundaries of disciplinary fields. ZPEI denotes the space of identity, which enables two or more different disciplines to negotiate an inter-disciplinary identity. For instance, Shinn (2000) suggests that there are unifying principles of science. I would like to propose an extension of Shinn's idea and consider that there are unifying principles of the boundaries of proximity and separation between disciplines.

These are centripetal and centrifugal forces pushing for the unification or separation, for shared or not-shared identities between two or more disciplines. For instance, shared 'stock of instruments' (Shinn, 2000), 'generic instruments', 'epistemic things', even 'language of description' (Bernstein, 1999) can lead to disciplines sharing elements of their identity and converging in the use of such generic instruments.

I now turn to a discussion of the specific reasons that governed the selection of the three disciplines-clusters under examination. Initially, I intended to compare three disciplines, namely Sociology, Economics and Political Science. Yet, the numbers of academic staff at the three institutions in these disciplines were relatively small. I then decided to bring

[10] My notion of Zone of Proximal Epistemic Identity is inspired by Vygotsky's (1978, 1997) term Zone of Proximal Development (ZPD) to capture the dialectical and sociocultural nature of human learning and development. A discussion on discipline identity can be found in (Butler, 2009; Chandler, 2009; Mowitt, 1999; Sahlins, 2009), to mention just a few.

together disciplines that would not alter significantly the logic behind the selection of the first three disciplines. As a result, Sociology was clustered with Anthropology, Economics with Management and Political Science with Public Administration.

The rationale here is that in some faculties these disciplines do not only simply sit in the same departments; they are sometimes even taught by the same academic staff. While these disciplines may differ in certain respects, they share certain values, specifically a typical respect for knowledge and intellectual inquiry. For instance, the three disciplinary field clusters share proximal objects. Anthropology and Sociology generally study society and culture. Political Science and Public Administration share a proximal object in the study of political organizations, while Economics and Management also share a proximal object in studying the economy and corporations.

Anthropology & Sociology (An & So)

First, my specific competence in the discipline of sociology was one of the reasons for selecting this discipline. I have been a sociology lecturer and researcher for the last eight years with tenure at Eduardo Mondlane University. That experience gave me the privileged position and challenge to turn the familiar into the unfamiliar, as I exercised reflexivity in practice. My social competence, owing to the familiarity with the context, helped open new lines of inquiry. I had developed untested assumptions about how academics in sociology, particularly in Mozambique, respond to pressures from society to become more socially relevant (Langa, 2009).

As noted by Bourdieu (2004, p. vii), "there is every reason to think that the pressures of the economy are growing more intense with each day that passes, especially in areas where the products of research are highly profitable, such as medicine, biotechnology (agriculture in particular) and, more generally, genetics – not to mention military research." In that sense, Bourdieu (2004, p. vii) voices concern that "many research scientists or research teams are falling under the control of large industrial companies seeking to secure a monopoly on commercially very profitable products, through patents; and the boundary, which has long been blurred, between fundamental research, in universities' laboratories, and applied research, is tending to disappear." One might be mistaken to think that this trend does not affect the social sciences since they are not in a position to provide directly usable, that is, marketable, products.

According to Bourdieu, the fact is that sociologists are confronted with an insistent demand to deliver solutions for social ills, increasing the material and symbolic profits of those embracing this (mis)conception of the sociologist's role, yet with negative effects for those "who, just by practising their craft, contribute to unveiling a little of the truth of the social world" (2004, p. viii). This is the main reason why I decided to select sociology and anthropology for my examination.

Political Science & Public Administration (Ps & Pa)

Anthropology, Sociology and Political Science and Economics typically make the quartet of the social science departments. Usually these disciplines are found to be sitting side by side in the same faculty. It is true that social scientists are also facing increasing solicitude to deliver on the expectations of society and political scientists especially have been receiving renewed appeal, particularly in Africa, due to the frequently unstable processes of political transition to democracy since the early 1990s. Studies on the African political landscape and transition to democracy and conflict resolution have contributed towards the popularization of political studies on the continent (Abrahamsson & Nilsson, 1995; Chole & Jibrin, 1995; Shivji, 2000).

With the emergence of the 'New Public Management' (Amaral, Meek, & Larsen, 2003), especially in higher education (Maassen, 2003), Public Administration has become the new partner of Political Science in most departments. Therefore, this technical area almost came as a necessary choice to pair with Political Science in this study.

Economics & Management (Ec & Ma).

The inclusion of Ec & Ma in the sample was also based on what the literature says about the nature of the discipline. It is argued that "Sociology and Economics appear to obey seemingly conflicting logics in regards to the market economy and the '*instrumentalization*' of knowledge because they differ from each other epistemologically. Economics, or at least the currently prevailing neoclassical trend, aspires to produce nomothetical types of knowledge, while sociology, though it strives for generality, does not usually aim at universalist designs" (Albert, 2003, p. 152).

However, as indicated earlier through the lens of Bourdieu, it seems that both disciplines could be facing the same or similar pressures from external forces. This study will help us to assess whether there are variations in the responses to these pressures. In a context where

universities are witnessing the 'emergence of managerialism' (Amaral et al., 2003) with the introduction of new management structures in higher education (Maassen, 2003), looking at how the actual economics and management academics connect with social actors both within and outside the university seemed relevant to me. Nevertheless, the fundamental reason for including management in the sample was explained before and is related to the size of the population.

Eduardo Mondlane University (EMU)

The location of the disciplines at EMU is different from that of MAK and UWC. An & So sit in two different and relatively autonomous departments. Even though they belong to the same Faculty of Letters and Social Sciences, Anthropology traditionally has been sitting in the same building and sharing the same staff with the Archaeology department. The Sociology department, on the other hand, was only established in 2000. A different picture emerges at MAK and UWC, where An & So fall under the same unit/department and sit together with Ps & Pa in the Faculty of Letters and Social Science (FLSS).

Makerere University (MAK)

As already pointed out, the disciplines at MAK do not fall under the same department or faculty. An & So at MAK sit together in the Faculty of Social Sciences with Ps & Pa, Social Work and Social Administration. The department offers both Sociology and Anthropology programmes/courses even though the name of the department remains Sociology.

The Faculty of Economics and Management (FEMA) at MAK, where various courses – including Ec & Ma – are now taught, grew out of the Makerere University Institute of Economics (MUIE), which evolved out of the Department of Economics, formerly the Faculty of Social Sciences until the academic year 1999/2000. The Faculty of Ec & Ma at MAK comprises five departments: the Department of Economic Theory and Analysis, the Department of Development Economics, the Department of Economic Policy and Planning, the Department of Finance and Accounting and finally the Department of Marketing and Management. I decided to leave out the department of Finance and Accounting to maintain comparability between the academic profiles of MAK lecturers when comparing them with those at EMU and UWC, which have a different configuration in terms of the constitution of the departments.

Another reason for not considering the Finance and Accounting Department is that I wanted to bring into the sample discipline-clusters, which are somehow closely related in their identities and practices. Even though some scholars may argue that there is a considerable distinction between management and economics, the decision to group the two together as one cluster was made, as I said earlier, to expand the number of cases observed, as initially only Economics had been considered for the study, but also because they have a similar epistemic object. Consequently, I decided to include Ec & Ma at all three institutions.

University of the Western Cape (UWC)

The organizational structure of the faculties and departments at UWC was different from that at MAK and EMU at the time this study was conducted. The various disciplines sit in distinct units and departments. An & So constitute one academic department under the Faculty of Arts. The rationale for this, according to the institution's website, is that "the two disciplines are seen as providing a sound basis for careers in education, social research, community development, public administration, conflict resolution, heritage management, social services, and a range of other fields where knowledge of how society works is an important factor" (UWC, 2009).

4.5.4 Sample and Response Rates

I have already indicated that the academic staff of six disciplines, grouped into clusters of three, from three African universities constitutes the population of the study. I will now comment on the sample of the study, as well as on the selection of the respondents. A small-scale survey often resorts to the use of non-probabilistic samples. This is because, despite the disadvantages that arise from their non-representativeness, they are far less complicated to set up. They are also considered less expensive, as they can prove perfectly adequate where researchers do not intend to generalize their findings beyond the population in question or where they are simply piloting a survey questionnaire as a prelude to a more substantial study (Cohen & Manion, 1994).

I decided to use a purposive and non-probabilistic sample of respondents. The purposive, in this case, did not imply handpicking the cases to be included in the sample on the basis of my judgment of their typicality (Cohen & Manion, 1994). I selected the universities based on a number of assumptions, which I have described above. I have included the entire population

of academics in my sample. The total response rate at EMU was 50% with a percentage of 53 for An & So, 50 for Ps & Pa and 47.37 for Ec & Ma. In comparison with the other two institutions, the rates at EMU were slightly lower - mainly because the number of academic staff at the institution is significantly higher than it is at MAK and UWC.

Table 4.1: *Eduardo Mondlane University Sample (Mozambique)*

Discipline Cluster	Nº Targeted		Nº responded	Response rates (%)
	N	%	n	%
Anthropology & Sociology	32	100	17	53.13
Political Science & Public Administration	16	100	8	50.00
Economics and Management	38	100	18	47.37
Total	86	100	43	50.00

Source: Fieldwork (list of academics provided by the Departments). UEM. (2009). Faculdades e Escolas. Retrieved July 12, 2009, from http://www.uem.mz/index.php?option=com_content&task=category&sectionid=15&id=60&Itemid=60

The overall response rate for MAK amounted to 64.58%. The number of academics in the category of Ec & Ma considered for this study was 23, of which I managed to get 11 responses, a response rate of 47.83%. The response rates for the other two discipline-clusters are higher with 76.90% for An & So and 80% for Ps & Pa.

Table 4.2: *Makerere University Sample (Uganda)*

Discipline Cluster	Nº Targeted		Nº Responded	Response Rates (%)
	N	%	n	%
Anthropology & Sociology	13	100	10	76.90
Political Science & Public Administration	12	100	10	80.00
Economics and Management	23	100	11	47.83
Total	48	100	31	64.58

Source: Fieldwork and institution's website consulted in 2008 and list of academic staff provided by the university. Visit also: Makerere (2009). Staff directory. Retrieved July 2, 2009, from www. http://directory.mak.ac.ug/

UWC's response rates of the various departments were even higher than those obtained at MAK, with 90.00% for An & So, 80.00% for Ps & Pa and 86.67% for Ec & Ma.

Table 4.3: *University of the Western Cape Sample (South Africa)*

Discipline Cluster	Nº Targeted		Nº Responded	Response Rates (%)
	N	%	n	%
Anthropology & Sociology	10	100	9	90.00
Political Science & Public Administration	5	100	4	80.00
Economics and Management	15	100	13	86.67
Total	33	100	26	78.8

Source: Fieldwork and institution's website in 2008 and list of academic staff provided by the university. See also: UWC (2009). *Staff*. Retrieved July 2, 2009, from http://www.uwc.ac.za/index.php?module=cms&action=showfulltext&id=gen11Srv7Nme54_1417_1210050439&menustate=dept_anthro

The average response rate for the three institutions in the study taken together is 64.46%. The institutional response rates, even the relatively low ones at EMU are, however, more than satisfactory. Debates on the issue of what should be a reasonable response rate, what is a high and what is perhaps an unacceptable level, consider that a response rate of 20-30% is fairly typical for a mail-out survey to a large sample of organizations (Baruch, 1999).

However, these rates should not simply be regarded as indicators of a good or poor response rate. Other factors should be considered as well. One such factor is the possible trend of a reduction in the level of response rates in academic studies as the years pass, with an increasing refusal to participate (Steeh, 1989).

In the case of my study, I will elaborate on some of the possible reasons for non-response. In some cases, the academic staff could be absent from the workplace, due to an overseas assignment, training, a long holiday, sabbatical, or other long-term absence. I adopted the strategy of diversifying the methods of data collection to reduce the impact of these sources for possible non-response. The rates of response increased significantly, but I could not eliminate the impact of such factors.

4.6. Issues of Reliability and Validity

During the course of this research, issues of reliability and validity were constantly kept in mind. While it would be difficult to report on all decisions taken during the course of the research, I nonetheless recall and reflect on some of them in this section. In doing so, I confirm the position that issues of reliability and validity are fundamental in reporting the procedures and results of the research if they are to be taken seriously.

4.6.1 Reviewing the Lists of Academic Staff

One of the many decisions I had to make related to the population of the study, that is, academic staff from the three discipline-clusters of the selected institutions. Often, the faculties and respective departments did not have finalized lists of academic staff. In the very few cases where these lists were available, I found them to be outdated. This situation led me to reconstruct the lists with the help of two sources: the internet websites of the faculties and by contacting the Human Resources (HR) Departments of the respective institutions.

In both cases the process was laborious, if not due to the inoperative state of the websites, then because of the unavailability of the HR personnel. The list of academic staff in the Economics Faculty at EMU, for instance, does not distinguish between permanent and part-time staff. Moreover, as the programmes also offer complementary and elective subjects that are not in the main stream of Economics, such as Sociology of Development, Language, Statistics, History and so on, both permanent and part-time staff teaching these subjects are enlisted as academic staff of the department. Some of these courses are taught on a module basis, sometimes for one term only. Thus, for each term the faculty intermittently arranges someone who can teach the subject. This phenomenon of ad-hoc lecturers is becoming a recurrent feature with the introduction of so-called market-oriented and part-time courses taught after working hours, well documented by authors like Mamdani (2007). It is producing an ‘Ad-hocism’ of ‘cash-crop academics’.

To minimize the unreliability of these lists, I had to produce a new list based on the count of courses directly related to the subject matter of An & So, Ps & Pa and Ec & Ma that were running during the period of my fieldwork; and then combine it with an edited and revised

list available on the internet. Therefore, the number that appears in the tables is an estimate of the actual number of academics, at a particular point in time. This may not reflect the total number of the academics from these particular disciplines over an academic year, but it does reflect the number at the time of the 'snapshot' analysis. This is a potential shortcoming of my study.

4.6.2 Indices and Coefficients

This research is about rankings. I rank academics on various dimensions of their professional activities and identity by using two main constructs to create rankings of scientific capital and forms of engagement. I then conjecture about the possible relationship between these two theoretical constructs. The legitimate question one would expect from the reader is how I arrived at these ratings. They were based on a set of codes and indices of scientific production and productivity, as well as on recognition. In most cases I had to create categories of distinction, while in some I adopted already existing categories, formal academic qualifications, to give some level of tangibility to a number of the abstract concepts I have used in this study.

These indices do not purport to be undisputable measures of the phenomena, but an objectified proxy of positions based on a construct. In each case, I explain below how the points were assigned to the individual categories.

There is a debate about abstract measurement theory developed by mathematicians, physicists and psychologists (Darrigol, 2003) on the use of measurable quantities for abstract phenomena, which I will not revisit in detail here. For instance, Stevens (1946) brings the debate to psychology by defining measurement as the assignment of numerals to objects or events according to rule. I use numbers, but I do not reify them. In other words, these numbers are meaningless unless they are interpreted within the context of the theory which supports them. Changing the value of the numbers without changing the principle behind the value would probably alter the configuration of the charts, but not the results and meaning of the analysis. By the same token, this study tries to avoid 'numerophobia' that is, fear of numbers (Leng, 2009) that characterizes the work of so many social scientists, who therefore use so-called qualitative methods as a substitute.

In doing so, I am also conscious, as Bourdieu was of the shortcoming that particular dominant quantitative methods in the social sciences (especially regression methods) can represent (Robson & Sanders, 2009). The bottom line of this endeavour should be a weight calculated from the described attributes, which will be attached to all dimensions of scientific capital, as well as forms of engagement.

4.7 Assessing the Inquirers: A 'Reflexive Reflex' on My Fieldwork Experience

> In contrast to what happens when one classifies beetles, one is here classifying classifiers who do not accept being classified, who may even dispute the criteria of classification or the very principle of classification, in the name of principles of classification which themselves depend on their positions within the classifications. (Bourdieu, 2004, p. 93)

In his *Sketch for Self-Analysis*, Bourdieu (2004) talks about his frustration for not having had the "reflexive reflex" of keeping a research diary while doing the research which led to the publication of *Homo Academicus* in 1988. I did keep a fieldwork diary, but I also made use of my selective memory. In this section, I present some of my experiences during the fieldwork at the three universities. The central part of this account relates to my retrospective reflection on the experience of having to work with 'my own species' – academics.

I realized at the start that the conscious or unconscious ways, in which I presented myself to my object of study (academics), generated a conscious or unconscious reaction from respondents. Academics, especially those with little academic and symbolic capital, feel very uneasy when they find themselves objectified by study. Therefore, researchers must bolster their levels of confidence and trust, if they want to get usable data. Otherwise, academics will offer a million and one excuses to avoid the inquiry. They will immediately activate an instinctive defence. For example, they will scrutinize your tools until they find something to use as an excuse for not providing information. Certainly, this is a reflexive and generalized picture, which does not account for individual cases. Yet, it is something I have recurrently experienced during my fieldwork.

One of the seminal books in the sociological literature, *An Invitation to Sociology*, by Peter Berger (1963) contains a chapter that refers to "sociology as an individual pastime". In this chapter, Berger delights the reader with various jokes about sociologists based on popular perceptions of the profession in the USA. Amongst the various jokes, one particular joke

about the sociologist as gatherer of statistics about human behaviour came to my mind during my fieldwork. According to Berger, "the sociologist is (. . .) seen essentially as an aide-de-camp to an IBM machine. He goes out with a questionnaire, interviews people selected at random, then goes home, enters his tabulations on to innumerable punch cards, which are then fed into a machine." Furthermore, "[i]ncluded in this image is the implication that the results of all this effort are picayune, a pedantic restatement of what everybody knows anyway" (Berger, 1963, pp. 18-19).

Certainly, this image of the sociologist is contextual, that is, peculiar to the USA of the 1960s, when the use of questionnaires was the dominant technique for data collection. Yet, the point here is that academics in the social sciences and sociologists in particular, are used to being in the position of the *inquirer* and not the *inquired*. In other words, they dislike taking the position of the respondent. As Bourdieu reminds us, they are the classifiers and not the ones to be classified. Often they forget that "the social agents whom the sociologist classifies are producers not only of classifiable acts but also of acts of classification which are themselves classified" (Bourdieu, 1984, p. 467).

This is the experience I had for approximately six months of data collection. There are aspects that marked my experience in studying academics, which I think should be shared and perhaps considered for further investigation:

a) Initially, I used an online questionnaire as a way of generating the data for my research. Yet, I had to learn that academics do not readily respond to online surveys. Even when they insisted that I should send the questionnaire to them electronically, they still did not respond. Despite the extended period (three months) that they were given to respond and periodic reminders, the rates of response were initially extremely low, less than 20%. I thus changed my strategy and provided hard copies, knocked on each door and personally delivered the questionnaire with an earnest plea for them to complete it. This method was much more effective, as it enabled the establishment of a certain relationship that builds trust between the researcher and the respondent. Yet, it is time-consuming, as it may require several visits to the same academics interspersed by a long list of excuses for not yet having completed the questionnaire.

b) Alternatively, the researcher could have, of course, asked the respondents to fill in the questionnaire in his presence, but this was, however, not always feasible.

c) Academics are very suspicious of studies that apparently look at their academic performances, even when it is clear that they are going to be treated as anonymous and aggregated data. Studies about academics that depend on them to provide information about their publication records or related material are always more difficult to collect than those that rely on independent data. Browsing recorded publications on Google or tracking citation indices is probably much easier than directly asking academics to provide such information. The problem with independent sources of data is that they may not do justice to academics in the periphery of the scientific field. The same can be said with regard to access to reputable scientific journals. If one wants to broaden the spectrum, it is indispensable to consider other strategies, such as looking at local publications.

d) When approaching academics personally with the request to complete a questionnaire, the way one introduces oneself may determine the course of the interview. There are circumstances we cannot control or monitor and facts we cannot help. For instance, I could not help the fact that I am a Mozambican studying at the University of Cape Town in South Africa. Introducing myself as a UCT student to my interviewees at Eduardo Mondlane made them more receptive. At Makerere, however, I had to make it clear that although I was studying and living in South Africa, "I was not one of them". It took me some time to realize that the effects of the so-called "xenophobic attacks" in May 2008 in South Africa, which according to reports claimed 62 lives, were still present. Some of the interviewees actually stated that they had refused to complete the questionnaire, thinking that I was a South African researcher. Since South Africans were not treating fellow black Africans with dignity, they saw no reason to respond to them. For me this experience was striking, mostly when these views were expressed by social scientists, especially sociologists, whom I expected not to 'judge the entire herd of cattle by a single cow'.

These notes are presented as accounts of my fieldwork experience and are not supposed to be taken as definitive. However, they may well serve as a cautionary warning.

4.8 Summary of the Chapter

In this chapter, I have outlined the methodological strategies, the research design, the methods for data analysis and some issues related to the fieldwork. First, I discussed the epistemic principles and procedures that guided the construction of the object of study. The basic epistemic and methodological principles are: methodological pluralism, equal epistemic attention to all operations; and methodological reflexivity. While these can be abstract principles, I considered them in concrete methodological operations. For instance, the empirical subjects in the study were all equally treated as epistemic subjects. This was done through a procedure that entailed endowing each academic staff member with a particular amount of scientific capital and therefore locating them in a particular position within the scientific field.

Secondly, I adopted a research design that is aligned with the goals of the study. The study looks at academics from three discipline-clusters and the different trends of engagement with distinct constituencies. Therefore, the design was conceived as a comparative study of academics in their respective disciplines. Although the focus of comparison is based on discipline-clusters at three universities, I also looked at contextual and structural factors at national and institutional levels that characterize the object of study.

An entire section is dedicated to a discussion and explanation of the characteristics of the disciplines in my research and the rationale for their selection. Thirdly, the last part of the chapter is dedicated to issues of reliability and validity. This discussion is related to the previous section in which I presented and discussed the response rates. I close the chapter with a reflexive account of my fieldwork experience.

CHAPTER FIVE
DESCRIPTIVE DATA ANALYSIS

> Theory without evidence is a fatuous self-indulgence. (Brandon, 1986, p. 15)
>
> The social fact is constructed: the forms of empiricist surrender. (Bourdieu et al., 1991, p. 33)

5.1. Introduction

In this chapter, I examine the data that I have generated during my research. In doing so, I seek to make theory speak to data and vice-versa. The analysis consists of multiple procedures for creating indices to measure scientific capital, as well as all the forms of engagement; the latter is defined as networks of connections. The chapter is divided into two main parts. Whereas the first is dedicated to the measurement of scientific capital in its two distinctive forms of scholastic and academic capital, the second focuses on the assessment of one internal as well as three external forms of engagement or networks of connection that academics of the three institutions maintain. Finally, I will provide a summary of the chapter.

5.2. Measuring Scientific Capital

In this section, I descriptively examine the data collected under the category of scientific capital. First, I theoretically outline the measurement of scientific capital in its scholastic form and then proceed to the presentation of my findings in the three operational dimensions of scholastic scientific capital: i) publications, ii) educational qualifications, and iii) supervision of PhD and Master's students.

I will then move on to an analysis of the results achieved by the three universities in the dimension of academic capital, which I establish by looking both at the academic ranking and the administrative or managerial positions of the academic staff.

Bourdieu stoutly avoided essentialist definitions of his concepts – precisely to free the space for creativity in accounting for specific realities. The same applies to the notion of scientific capital, which he rarely defined precisely. Rather, he conceptualized it in a manner that

allows the researcher to vary its operational definition. With direct reference to Bourdieu, Shinn and Ragouet (2005), for instance, operationalize the concept of scientific capital by showing that it is constructed according to two interacting logics. They identify two distinct forms of capital in the scientific field. Whereas *'scholastic or purely scientific'* capital is related to peer recognition, it is less institutionalized and can be challenged. The second form, academic or 'temporal' capital, pertains to some kind of institutional influence on the means of production (loans, for instance) and reproduction of positions (a position in national committees). Other Bourdieuan researchers such as Naidoo (2004) and Maton (2005) also use this form of operationalization.

According to Bourdieu (1988, 2003), different laws of capital formation govern these two forms of capital: while scholastic capital is acquired by the production of recognized contributions to scientific progress, academic capital is obtained by political and institutional strategies. The existence of these two distinct forms of capital proves the relative degree of autonomy in the research field: '*temporal capital'* is a sign of the bureaucratic stranglehold of temporal power on research, as well as on ministries and research management institutions, or on financial and industrial groups and, of course, 'the agora' formed by the media.

Consequently, the relative autonomy of a discipline-field will depend on the degree of differentiation of the hierarchy, according to both the distribution of scientific and temporal capital. For instance, mathematics is a more autonomous discipline than technology because the hierarchy based on scientific research is more important than the one governed by the temporal form of capital.

The reason behind the idea of measuring scholastic and academic forms of scientific capital is to map a space of differential possession of both forms of scientific capital for academic staff. The question underpinning this assumption can be stated in the following manner: On what basis are particular academic positions within specific disciplinary fields occupied in the African scientific field?

I maintain Bourdieu's basic distinction between a scholastic and an academic form of scientific capital. In other words, the scholastic and academic forms constitute two operational dimensions of the concept of scientific capital, which I develop below.

5.2.1. Scholastic Form (Dimension 1)

In this section, scholastic capital is operationalized in the following manner, comprising three components:

i) Publications,
ii) Educational qualifications, and
iii) Supervision of PhD and Master's students.

I used a number of indicators to measure each of these components of the scholastic dimension of scientific capital (see appendix 1).

5.2.1.1. Publications (Component 1)

The publication component is measured by the following indicators:

i) Number of books,
ii) Number of book chapters,
iii) Number of journal articles,
iv) Number of conference papers, and
v) *Number of research reports.*

Evaluations of research performance are becoming increasingly common and frequent in all academic fields, including the social sciences and the humanities, including in the developing world (Adeboye, 1998; Gaillard, Hassan, & Waast, 2002, 2005; Gaillard, Krishna, & Waast, 1997; Godin, 2003; Tijssen, 2006). In this context the basic weighting principle was inspired by recent "innovative scientometric methods for a continuous monitoring of research activities in educational science" (Arvanitis, Waast, & Gaillard, 2000; Dees, 2008).

In this case I also considered categories usually not included in citation indices such as conference proceedings and research reports. For instance, the Social Science Citation Index, published by the Institute for Scientific Information (ISI), does not cover these categories (Kleijnen & Groenendaal, 2000). The ISI uses conventional ways of measuring (bibliometric) research output. This enables large-scale, cross-institutional and international comparison

against a universal criterion. However, the ISI reduces scholastic productivity and research output to peer-reviewed and/or refereed journal publications[11].

In contrast to the ISI Web Knowledge, I did not include student publications. Whereas ISI is limited to journal articles, my study considers more publication types – such as books, chapters in books, conference proceedings and research reports. By including these publication types, which arguably can weaken the index, I intend to account for the specific conditions and limitations of publishing in Africa. If refereed publications, especially in international journals, tell us more about the performance of an academic in the 'global field of publications', in terms of productivity and reputation, non-refereed publications give us more insight into the specific conditions of knowledge production and dissemination in Africa.

This is why I use unconventional ways of measuring research productivity and publications output in my study. There is also the issue of the language of publication. Most if not all ISI publications are from English-speaking countries or from academics who use English as their main language of publication. The academic productivity and research output of countries on the periphery of the World System (Wallerstein, 1974), such as Mozambique, without a considerable number of refereed scientific publications and with a marginal language of scientific communication, namely. Portuguese (Ortiz, 2006), would therefore be misrepresented.

For the purposes of this study, I therefore decided to establish particular code principles to measure scientific capital and forms of academic engagement. These codes can be replicated and tested as to their reliability and validity with the assumptions that derive from the measurements. The advantage of creating particular codes intended for the study is to treat all selected cases equally.

For each indicator a weight index was generated: with books at the top and research reports at the bottom of the scale. The same operation was undertaken for local and international, peer-reviewed and non-peer-reviewed publications. Yet, the last operation was exclusively applied

[11] A referred journal is a publication to which writers submit articles reporting their research, which in turn are then sent out by the editor to be assessed by two or more people who themselves hold academic positions and are considered to have expertise in the area of research with which the article is concerned (Yates, 2004).

to journal articles, that is, a particular weight index was created for local and international publications. The next section elaborates on the issue of the indices I use in the study.

5.2.1.1.1. Ranking Criteria and Publication Coefficients

Table 5.1 below shows the coefficients I use to weight the different types of publications. This form of ranking enabled me to provide each type of publication with a different weight. The assumption is that academic publications can be classified in terms of both the accumulated labour, which was put into their production, as well as the reward that one can gain from publishing, locally or internationally, in peer-reviewed and non-reviewed journals. The ranking is informed by the principles of hierarchical distribution of capital and I present a snapshot score analysis of categorical data to map a space of positions.

Table 5.1: *Coefficients for Weighting Publications*

Concept	**Scientific Capital**		**Coefficient 1 (Weight of Type of Publication)**	**Coefficient 2 (Weight Place of Pub. and Peer Revision)**
Dimension	**Scholastic Form**		----------	----------
Component	Publication		----------	----------
Indicator	Nº of Books		4 pts	----------
	Nº Chapters in Books		2 pts	----------
	Journal Articles	International Peer-reviewed	1.5 pts	4pts
		Local Peer-reviewed		2pts
		Non-reviewed		1pts
	Nº of Conference Papers		1 pts	----------
	Nº of Research Reports		0.5 pts	

In his book *Homo Academicus,* Bourdieu uses a similar, but perhaps more advanced type of correspondence analysis to map the structure of the space of the powers of academics (Bourdieu, 1988). The book also maps the space of universities, the professional affiliations and the background variables of Parisian professors displaying the positions of the professors in a two-dimensional space (Bourdieu, 1988; De Nooy, 2003).

5.2.1.1.2 Analysis of Publication Component

Following these theoretical remarks I now move on to an analysis of the data obtained for academic staff publications. In the next three tables, I display data that have not yet undergone the weight-ranking procedure. In order to do so, I multiply the actual value of publications per academic depicted in each cell with a respective coefficient. I have drawn up three tables that depict operations that led to the measurement and ranking of the three case studies. These measurements have made it possible to establish levels of possession of scientific capital in three discipline-clusters at each of the institutions based on their academic staff publications.

The first table (No. 5.2) shows data for Eduardo Mondlane University (EMU), the second (No. 5.3) depicts data from Makerere University (MAK), while the third (No. 5.4) displays data from the University of the Western Cape (UWC).

Tables 5.2, 5.3 and 5.4 below include information on the number of academics in the three discipline-clusters, who have published a certain number of items in the different categories of publications considered in the study. According to the number of declared publications for each category, they were afterwards assembled into subcategories of *'None'*, *'1-5 publications'*, *'6-10 publications'*, *'11-15 publications'*, *'16-20 publications'* and *'more than 20 publications'*.

I decided to use two different coefficients for the purpose of the measurement. The first coefficient gives a different weighting to each category of publication, book, chapter in a book, journal article, conference paper and research report, as shown in the table (see Table 5.1)**.** The second coefficient is exclusively designated to the category of journal articles. The rationale behind this is to be able to rank journal articles according to a criterion of accreditation and peer-review, as well as place of publication (see Table 5.1).

First, all types of publications were weighted through an operation of multiplication with corresponding coefficients. This operation was performed for each institution and is depicted in Tables 5.2, 5.3 and 5.4. Secondly, the category of journal articles was then submitted to a second weighting, which is intended to confer different values to publications that were locally or internationally peer-reviewed or non-reviewed.

Table 5.2: *Scientific Capital by Academic Staff Publications at Eduardo Mondlane University (EMU)*

Single Authored Category of Publications	Coefficient 1	Discipline-Clusters	Coefficient 2 (Local & Peer Review Weight)		Eduardo Mondlane University (Mozambique)(Nº of academics)												Ratio/n Staff	Total Score	Rank
					None*		1-5		6-10		11-15		16-20		More Than 20				
Books	**4.0**	An & So (n17)			13	***52***	3	***12***	1	***4***	0	***0***	0	***0***	0	***0***	16/17	0.95	**3.34**
		Ps & Pa (n8)			4	***16***	2	***8***	1	***4***	0	***0***	0	***0***	0	***0***	12//8	1.50	
		Ec & Ma (n18)			14	***56***	3	***12***	1	***4***	0	***0***	0	***0***	0	***0***	16/18	0.89	
Chapter in Books	**2.0**	An & So (n17)			11	***22***	3	***6***	1	***2***	1	***2***	0	***0***	1	***2***	12/17	0.71	**1.93**
		Ps & Pa (n8)			3	***6***	1	***2***	1	***2***	1	***2***	0	***0***	1	***2***	8/8	1.00	
		Ec & Ma (n18)			16	***32***	1	***2***	0	***0***	0	***0***	1	***2***	0	***0***	4/18	0.22	
Journal Articles	**1.5**	An & So (n17)	**2**	*Local Peer-Reviewed*	*14*	***42***	2	***6***	0	***0***	1	***3***	0	***0***	0	***0***	9/17	0.53	**2.29**
			4	*International Peer-Reviewed*	*13*	***78***	3	***18***	0	***0***	0	***0***	1	***6***	0	***0***	24/17	1.41	
			1	*Non-Reviewed*	*13*	***19.5***	1	***1.5***	3	***4.5***	0	***0***	0	***0***	0	***0***	6/17	0.35	
		Ps & Pa (n8)	**2**	*Local Peer-Reviewed*	*5*	***15***	2	***6***	0	***0***	0	***0***	0	***0***	0	***0***	6/8	0.75	**3.56**
			4	*International Peer-Reviewed*	*4*	***24***	1	***6***	0	***0***	2	***12***	0	***0***	0	***0***	18/8	2.25	
			1	*Non-Reviewed*	*4*	***6***	0	***0***	2	***3***	0	***0***	0	***0***	1	***1.5***	4.5/8	0.56	
		Ec & Ma (n18)	**2**	*Local Peer-Reviewed*	*14*	***42***	2	***6***	2	***6***	0	***0***	0	***0***	0	***0***	12/18	0.67	**1.08**
			4	*International Peer-Reviewed*	*17*	***102***	0	***0***	0	***0***	0	***0***	1	***6***	0	***0***	6/18	0.33	
			1	*Non-Reviewed*	*17*	***25.5***	0	***0***	1	***1.5***	0	***0***	0	***0***	0	***0***	1.5/18	0.08	
Conference Papers	**1.0**	An & So (n17)			*7*	***7***	2	***2***	2	***2***	1	***1***	2	***2***	3	***3***	9/17	0.53	**1.31**
		Ps & Pa (n8)			*3*	***3***	0	***0***	2	***2***	0	***0***	0	***0***	2	***2***	4/8	0.50	
		Ec & Ma (n18)			*13*	***13***	2	***2***	2	***2***	0	***0***	1	***1***	0	***0***	5/18	0.28	
Research Reports	**0.5**	An & So (n17)			*6*	***3***	1	***0.5***	4	***2***	4	***2***	1	***0.5***	1	***0.5***	5.5//17	0.32	**0.88**
		Pa & Pa (n8)			*3*	***1.5***	0	***0***	2	***1***	1	***0.5***	0	***0***	1	***0.5***	2/8	0.25	
		Ec & Ma (n18)			*7*	***3.5***	3	***1.5***	5	***2.5***	1	***0.5***	2	***1***	0	***0***	5.5/18	0.31	
Total (N43)																			**14.39**

Note: * The ranking excludes 'None' values.

Table 5.3: S*cientific Capital by Academic Staff Publications at Makerere University (MAK)*

Single Authored Category of Publications	Coefficient 1	Discipline-Clusters	Coefficient 2 (Local & Peer Review Weight)		Makerere University (Uganda))												Ratio/n Staff	Total Score	Rank
					None*		1-5		6-10		11-15		16-20		More Than 20				
Books	**4**	An & So (n10)			10	***40***	0	***0***	0	***0***	0	***0***	0	***0***	0	***0***	0/10	0.00	**2.69**
		Ps & Pa (n10)			6	***24***	2	***8***	1	***4***	1	***4***	0	***0***	0	***0***	16/10	1.60	
		Ec & Ma (n11)			8	***32***	2	***8***	0	***0***	0	***0***	1	***4***	0	***0***	12/11	1.09	
Chapters in Books	**2**	An & So (n10)			6	***12***	2	***4***	2	***4***	0	***0***	0	***0***	0	***0***	8/10	0.80	**2.58**
		Ps & Pa (n10)			2	***4***	3	***6***	2	***4***	2	***4***	1	***2***	0	***0***	16/10	1.60	
		Ec & Ma (n11)			10	***20***	1	***2***	0	***0***	0	***0***	0	***0***	0	***0***	2/11	0.18	
Journal Articles	**1.5**	An & So (n10)	**2**	*Local Peer-Reviewed*	5	***15***	2	***6***	2	***6***	0	***0***	1	***3***	0	***0***	15/10	1.50	**4.20**
			4	*International Peer-Reviewed*	6	***36***	2	***12***	1	***6***	0	***0***	1	***6***	0	***0***	24/10	2.40	
			1	*Non-Reviewed*	8	***12***	2	***3***	0	***0***	0	***0***	0	***0***	0	***0***	3/10	0.30	
		Ps & Pa (n10)	**2**	*Local Peer-Reviewed*	6	***18***	1	***3***	2	***6***	0	***0***	1	***3***	0	***0***	12/10	1.20	**3.60**
			4	*International Peer-Reviewed*	6	***36***	1	***6***	1	***6***	1	***6***	0	***0***	1	***6***	24/10	2.40	
			1	*Non-Reviewed*	10	***15***	0	***0***	0	***0***	0	***0***	0	***0***	0	***0***	0/10	0.00	
		Ec & Ma (n11)	**2**	*Local Peer-Reviewed*	11	***33***	0	***0***	0	***0***	0	***0***	0	***0***	0	***0***	0/11	0.00	**2.45**
			4	*International Peer- Reviewed*	7	***42***	2	***12***	1	***6***	1	***6***	0	***0***	0	***0***	24/11	2.18	
			1	*Non-Reviewed*	10	***15***	1	***3***	0	***0***	0	***0***	0	***0***	0	***0***	3/11	0.27	
Conference Papers	**1.0**	An & So (n10)			4	***4***	2	***2***	3	***3***	0	***0***	1	***1***	0	***0***	6/10	0.60	**1.85**
		Ps & Pa (n10)			2	***2***	1	***1***	3	***3***	1	***1***	1	***1***	2	***2***	8/10	0.80	
		Ec & Ma (n11)			6	***6***	0	***0***	4	***4***	0	***0***	0	***0***	1	***1***	5/11	0.45	
Research Reports	**0.5**	An & So (n10)			4	***2***	3	***1.5***	1	***0.5***	0	***0***	1	***0.5***	1	***0.5***	3/10	0.30	**0.83**
		Ps & Pa (n10)			4	***2***	0	***0***	5	***2.5***	0	***0***	0	***0***	1	***0.5***	3/10	0.30	
		Ec & Ma (n11)			5	***2.5***	1	***0.5***	4	***2***	1	***0***	0	***0***	0	***0***	2.5/11	0.23	
Total (n 31)																			**18.2**

Note: * The ranking excludes 'None' values.

Table 5.4: *Scientific Capital by Academic Staff Publications at the University of the Western Cape (UWC)*

Single Authored Category of Publications	Coefficient 1	Discipline-Clusters	Coefficient 2(Local & Peer Review Weight)		University of the Western Cape (South Africa)												Ratio/n Staff	Total Score	Rank
					None*		1-5		6-10		11-15		16-20		More Than 20				
Books	**4.0**	An & So (n9)			8	***32***	1	***4***	0	***0***	0	***0***	0	***0***	0	***0***	4/9	0.44	
		Ps & Pa (n4)			2	***8***	2	***8***	0	***0***	0	***0***	0	***0***	0	***0***	8/4	2.00	**3.06**
		Ec & Ma (13)			11	***44***	1	***4***	1	***4***	0	***0***	0	***0***	0	***0***	8/13	0.62	
Chapters in Books	**2.0**	An & So (n9)			5	***10***	3	***6***	0	***0***	0	***0***	1	***2***	0	***0***	8/9	0.89	
		Ps & Pa (n4)			0	***0***	1	***2***	3	***6***	0	***0***	0	***0***	0	***0***	8/4	2.00	**3.20**
		Ec & Ma (13)			11	***22***	1	***2***	1	***2***	0	***0***	0	***0***	0	***0***	4/13	0.31	
Journal Articles	**1.5**	An & So (n9)	**2**	*Local Peer-Reviewed*	3	***9***	3	***9***	0	***0***	2	***6***	0	***0***	1	***3***	18/9	2.00	
			4	*International Peer- Reviewed*	5	***30***	1	***6***	3	***18***	0	***0***	0	***0***	0	***0***	24/9	2.67	**4.84**
			1	*Non-Reviewed*	8	***12***	0	***0***	1	***1.5***	0	***0***	0	***0***	0	***0***	1.5/9	0.17	
		Ps & Pa (n4)	**2**	*Local Peer-Reviewed*	0	***0***	1	***3***	0	***0***	0	***0***	1	***3***	2	***6***	12/4	3.00	
			4	*International Peer-Reviewed*	1	***6***	1	***6***	1	***6***	1	***6***	0	***0***	0	***0***	18/4	4.50	**8.25**
			1	*Non- Reviewed*	2	***3***	1	***1.5***	0	***0***	1	***1.5***	0	***0***	0	***0***	3/4	0.75	
		Ec & Ma (n13)	**2**	*Local Peer- Reviewed*	11	***33***	1	***3***	1	***3***	0	***0***	0	***0***	0	***0***	6/13	0.46	
			4	*International Peer- Reviewed*	10	***60***	2	***12***	0	***0***	0	***0***	0	***0***	1	***6***	18/13	1.38	**2.19**
			1	*Non- Reviewed*	10	***15***	2	***3***	0	***0***	1	***1.5***	0	***0***	0	***0***	4.5/13	0.35	
Conference Papers	**1.0**	An & So (n9)			0	***0***	3	***3***	2	***2***	0	***0***	1	***1***	3	***3***	7/9	0.78	
		Ps & Pa (n4)			0	***0***	0	***0***	2	***2***	2	***2***	0	***0***	0	***0***	4/4	1.00	**2.40**
		Ec & Ma (13)			5	***5***	0	***0***	2	***2***	4	***4***	2	***2***	0	***0***	8/13	0.62	
Research Reports	**0.5**	An & So (n9)			6	***3***	1	***0.5***	0	***0***	1	***0.5***	0	***0***	1	***0.5***	1.5/9	0.17	
		Ps & Pa (n4)			2	***1***	0	***0***	1	***0.5***	0	***0***	1	***0.5***	0	***0***	1/4	0.25	**0.77**
		Ec & Ma (13)			4	***2***	4	***2***	3	***1.5***	1	***0.5***	0	***0***	1	***0.5***	4.5/13	0.35	
Total (n 26)																			**24.71**

Note: * The ranking excludes 'None' values.

I divided the publications into six subgroups or clusters, (None, 1-5, 6-10, 11-15, 16-20 and more than 20). The ranking excludes 'None' values as they stand for the proportion of academics who declared not to be publishing at all. Yet, by simply looking at the category 'None', it is possible to see which institution employs more academic staff with publications. The higher the value ascribed to the category 'None', the less published are the academic staff members in each category of publications.

In other words, comparatively small values within the 'None' category represent more publications in the subsequent subcategories. However, it is important to point out yet again that the 'None' category was not considered for the final ranking of the discipline-clusters and institutions.

The assessment of scientific capital, however, is based only on the fraction of academics who declared to have published at least in one of the listed categories of publication in the last five years. The higher the number of academic staff with no publications, the lower is the scientific capital in its scholastic form. By looking at which institution and which disciplines have the highest number of academic staff without publications in relation to the size of the population, it is possible to establish which institution stands in a high position in terms of possession of scientific capital.

However, to get a comparative picture of the position of the three institutions, as well as of the three discipline-clusters one needs to aggregate the values. The indices of scientific capital presently held by members of academic staff from the discipline-cluster of An & So in the category of book publication show the following values for each institution: EMU (0.95), MAK (0.00) and UWC (0.44). What do these results tell us? How can we read and interpret these figures?

First, the figures represent the proportion of ranked publications by academic staff in each discipline-cluster for each institution. For instance, EMU's value of (0.95) represents the points academic staff from the discipline-cluster An & So earned from the operation which ascribed each publication with the two weighting coefficients. This procedure was then applied to all types, places and the review status of publications. These indices, already accounting for the weighting coefficients, cannot give an exact idea of the actual number of academics with an (X) amount of a particular type of publication.

The actual number of academics with a particular type of publication is given in the first column of each grouping of publication. Continuing with the example of An & So at EMU, 4 out of 17 academics have published 1-10 books. This number drops to 0 out of 10 in the case of MAK for all groups of publication and to 1 out of 9 in the grouping of 1-5 publications at UWC. The points result from the count of each category of publication with the different weight values. This shows how EMU received a (0.95) rate of scientific capital for the category of books, MAK recorded (0.00) and UWC obtained (0.44).

Indeed, rather than enumerating on a case-by-case basis the different statistical performances of the disciplines in each institution, such as in the example I have just given, I will present the scientific capital for each category of publication for the three discipline-clusters and assess how well each institution has performed. Overall, EMU scored (3.34) for the category of books with the following distribution amongst the discipline-clusters: An & So (0.95), Ps & Pa (1.50), and Ec & Ma (0.89). MAK gained total of (2.69) points An & So (0.00), Ps & Pa (1.60) and Ec & Ma (1.09), while UWC scored (3.06) distributed respectively to An & So (0.44), Ps & Pa (2.00) and Ec & Ma (0.62) (see Tables, 5.2, 5.3 and 5.4).

If the objective of this study was to measure scientific capital in terms of published books by academic staff, ignoring all other factors, then EMU would be at the top of the ranking score. However, the study chooses as its method the combination of different types of publications ascribed with different weights in order to rank the scientific capital of the selected discipline-clusters in each institution.

For the category chapters in books, EMU scored the overall value of (1.93) (An & So (0.71), Ps & Pa (1.00) and Ec & Ma (0.22). MAK scored a total of (2.58) (An & So (0.80), Ps & Pa (1.60), Ec & Ma (0.18), whereas UWC achieved a total of (3.20) points (An & So (0.89), Ps & Pa (2.00), Ec & Ma (0.31). In the first place, this analysis makes it possible to visualize a cross-national space of scientific capital distribution in the selected discipline-clusters. Secondly, one can determine which academics from which discipline-clusters and institutions have produced what kind of publication in the last five years.

For the category of journal article, the procedure to measure scientific capital was slightly different, as a second coefficient was used to distinguish and value local and international publications, as well as peer-reviewed and non-reviewed publications. Again, the rationale

was that the 'effort and prestige' both to publish locally or internationally and to publish a peer-reviewed journal article or a non-peer-reviewed article are quite different. Hypothetically, international and peer-reviewed articles not only require more effort, but also have a higher reward in terms of prestige. The results for the category of journal articles are as follows: Overall, EMU scored (2.29) in An & So (local peer-reviewed (LPR) (0.53), international peer-reviewed (IPR) (1.41) and non-peer-reviewed (NPR) (0.35).

This distinction enabled us to ascribe a relatively higher weight to internationally peer-reviewed journals. In the same category and discipline-cluster, MAK scored a total of (4.20), LPR (1.50), IPR (2.40) and NPR (0.30). Thus, it is already possible to see an interesting pattern from just two cases. Makererian anthropologists and sociologists are more inclined to seek publication in internationally peer-reviewed journal articles (2.40) than the same category at EMU (1.41). Even if we consider locally reviewed journal articles, Makererian academics with (1.50) are more inclined to seek publication in reviewed journals than the same category of academics at EMU with (0.53).

The results look as follows for UWC, which overall received (4.84) points (LPR (2.00), IPR (2.67) and NPR (0.17)). Again, UWC clearly emerges as the leading institution in terms of scientific capital measured by published journal articles for An & So (See Tables 5.2, 5.3 and 5.4)

Looking at the remaining two discipline-clusters, we receive the following picture: In Ps & Pa, EMU scored the sum of **(**3.56) points, respectively distributed as follows: LPR (0.75), IPR (2.25) and NPR (0.56). In the same category**,** MAK obtained a total of **(**3.60)**,** just a few points ahead of EMU (LPR (1.20), IPR (2.40) and NPR (0.00)). Finally, UWC displays an outstanding performance in this particular discipline-cluster with an overall score of (8.25) and the following distribution: LPR (3.0), IPR (4.50) and NPR (0.75).

It is immediately noticeable that UWC's record of publications in Ps & Pa outnumbers that of EMU and MAK. One of the reasons for this rather unlikely sample was the actual number of respondents at UWC. Five members of academic staff constitute the entire population of the department (this was explained in detail in the previous chapter). This feature would represent a measurement bias if we were analyzing actual numbers as opposed to proportions.

Finally, in the category of journal articles, the results for Ec & Ma show that EMU overall obtained (1.08) points – respectively distributed as follows LPR (0.67), IPR (0.33) and NPR (0.08). In the same category MAK gained a total value of (2.45), with the following numbers according to review status: LPR (0.00), IPR (2.18) and NPR (0.27). Moreover, UWC achieved a total of (2.19), with a distribution of (0.46) for LPR, (1.38) for IPR and (0.35) for NPR. This time MAK comes out ahead of both UWC and EMU.

The difference between MAK's result of (2.45) and UWC's (2.19), however, is significantly smaller when compared to EMU's (1.08). Thus, considering the categories of books, chapters in books and journal articles, UWC generally leads in the ranking of scientific capital.

In terms of conference papers EMU scored an overall number of (1.31) point. These were respectively distributed as follows: An & So (0.53), Ps & Pa (0.50) and Ec & Ma 0.28. In the same category MAK scored a total of (1.85) with An & So obtaining (0.60) points, Ps & Pa (0.80) and Ec & Ma (0.45). Finally, UWC gained (2.40) points with a result of (0.78) for An & So, (1.00) for Ps & Pa and (0.62) for Ec & Ma. Once again, UWC appears to be the institution with the highest levels of scientific capital based on academic staff publications, outperforming MAK in the second place and EMU in the third place. This pattern continues to repeat itself even if we break down the analysis into discipline-clusters.

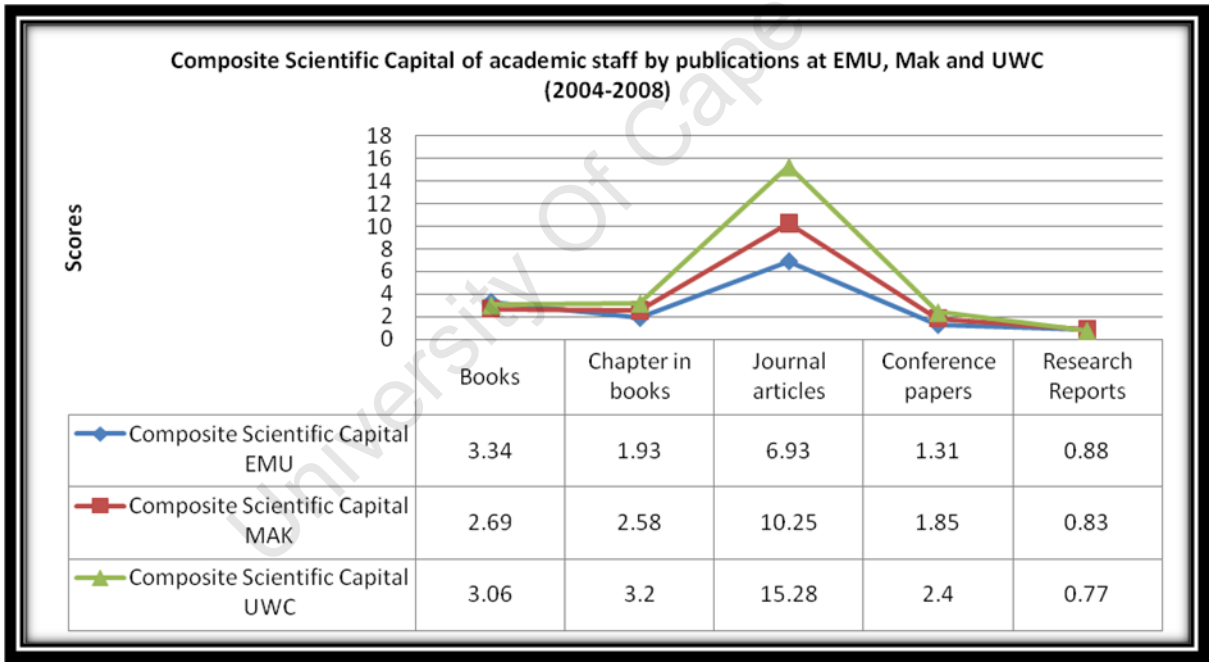
The last category of publications to be analyzed is that of (commissioned or consultant) research reports. It is the lowest category in terms of the weighting criteria applied to all types of publications. Thus far, it is not yet obvious how the weighting is differentiating the position of the discipline-clusters and ultimately that of the institutions in terms of their levels of possession of scientific capital based on the criteria of publication. Looking at the composite scientific capital, we can illustrate these dissimilarities more clearly.

In terms of research reports, EMU scored an overall result of (0.88), respectively distributed as follows: An & So (0.32), Ps & Pa (0.25) and Ec & Ma (0.31). MAK reached a total score of (0.83) with the following subdivision: An & So (0.30), Ps & Pa (0.30) and Ec & Ma (0.23). Finally, UWC obtained a result of (0.77) with An & So scoring (0.17), Ps & Pa (0.25) and Ec & Ma (0.35).

This time, we can observe changes in the order of the rating. UWC (0.77) now ranks bottom in comparison to MAK (0.83) and EMU (0.88). These results are consistent with my assumption that academics with higher scientific capital will seek accredited rather than non-accredited publishing outlets. They will also give priority to academically oriented publications rather than to occasionally commissioned research reports. On that basis, it seems that EMU's higher rank in the category of research reports results from the kind of research in which most EMU academics are involved, that is, occasional, commissioned consultancies.

The outcome of this research rarely turns into scholastic publications. It is a feature particular to what I described hypothetically as 'homo academicus consultans'.

Figure 5.1: *Scientific Capital by Academic Staff Publications*



	Books	Chapter in books	Journal articles	Conference papers	Research Reports
Composite Scientific Capital EMU	3.34	1.93	6.93	1.31	0.88
Composite Scientific Capital MAK	2.69	2.58	10.25	1.85	0.83
Composite Scientific Capital UWC	3.06	3.2	15.28	2.4	0.77

It is not easy to describe in a few sentences all operations that give rise to the statistical correspondence between positions in the space of discipline-clusters in institutions and the dispositions of their occupants. Thus, it is important that the procedures at this point aim at constructing a structured space for the distribution of scientific capital based on a set of indicators. Afterwards, I will attempt to match these positions with particular dispositions, that is, forms of engagement.

Figure 5.1 above comparatively depicts the composite score of scientific capital measured by academic staff publication in three discipline-clusters at the three institutions. One can observe that journal articles constitute the major differentiating category amongst the three institutions in terms of levels of possession of scientific capital. For instance, all institutions display an average number of (3.03) in the category of books. The same holds true for the group of (commissioned and consultancy) research reports.

The significant difference in scientific capital by the publication criterion is attributable to accredited and peer-reviewed journal articles. UWC with an average performance of (15.28) clearly surpasses MAK with a score of (10.25) and EMU with an average of (6.93).

Table 5.5: *Scientific Capital of Academic Staff by Publications for the Three Discipline Clusters*

Type of Publication	Institution		
	EMU	**MAK**	**UWC**
Books			
Anthropology & Sociology	0.95	0.00	0.44
Political Science & Public Administration	1.50	1.60	2.00
Economics & Management	0.89	1.09	0.62
Chapters in Books			
Anthropology & Sociology	0.71	0.80	0.89
Political Science & Public Administration	1.00	1.60	2.00
Economics & Management	0.22	0.18	0.31
Journal Articles			
Anthropology & Sociology	2.29	4.20	4.84
Political Science & Public Administration	3.56	3.60	8.25
Economics & Management	1.08	2.45	2.19
Conference Papers			
Anthropology & Sociology	0.53	0.60	0.78
Political Science & Public Administration	0.50	0.80	1.00
Economics & Management	0.28	0.45	0.62
Research Reports			
Anthropology & Sociology	0.32	0.30	0.17
Political Science & Public Administration	0.25	0.30	0.25
Economics & Management	0.31	0.23	0.35

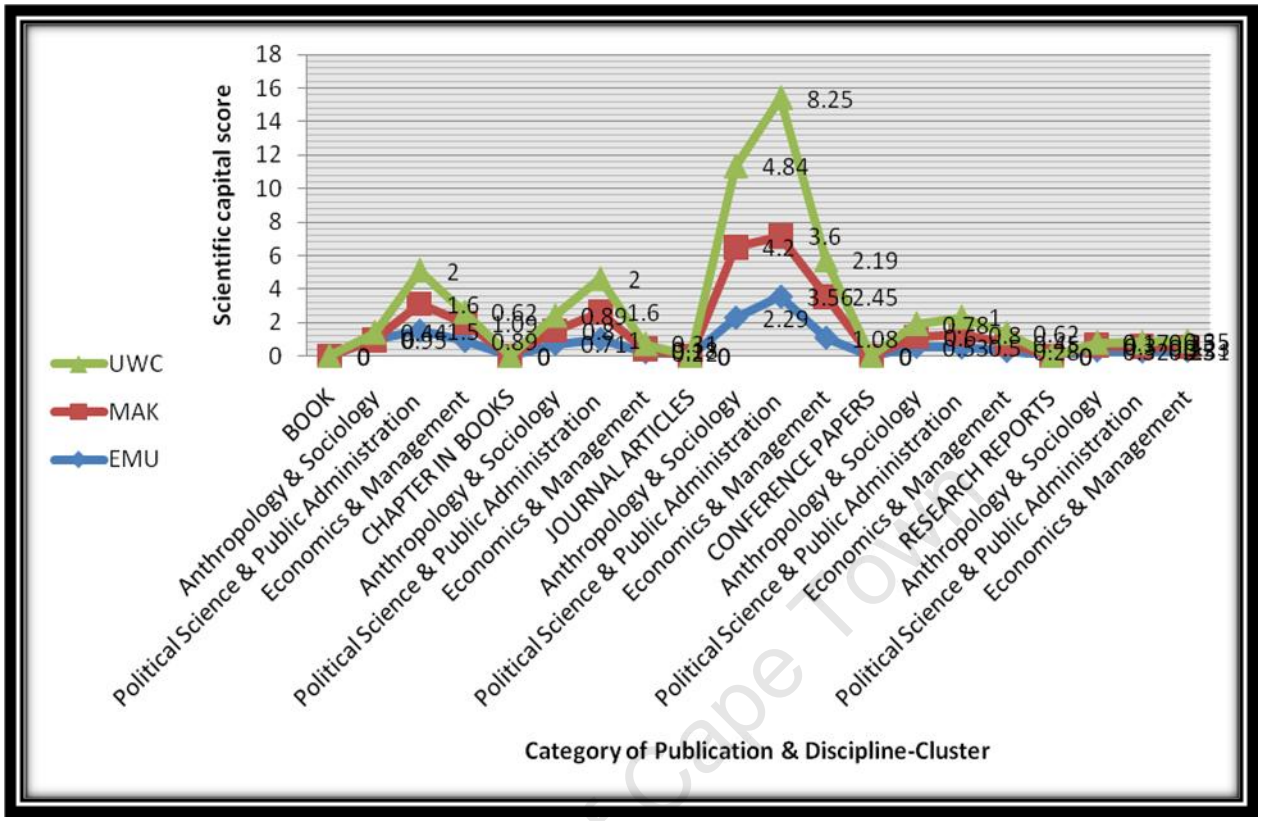
Table 5.5 above shows the scientific capital of academic staff as measured by publications and also breaks it down into type of publication and discipline-clusters. This results tell us about the performance of each discipline-cluster with regards to publications. For instance, the category of journal publications appears to be the one contributing more to the total amount of scientific capital. This is the result of two theoretical reasons. The first reason being that academics reported more on their accredited journal publications than on other types of publications. In fact, Tables 5.2, 5.3 and 5.4 show that journal articles account for more counts than any other types of publications.

That result does not come as a surprise if we consider the assumption that refereed journal publications convey more scholastic and symbolic capital (prestige) than other types of publications. The second reason is related to a deliberate procedure of using an additional coefficient when weighting journal articles. The second coefficient (which I explained before) was used to destinguish publications according to place of publication and peer-review status.

As for the perfomance of the discipline-clusters, if we take for example Ps & Pa , we see that UWC appears to be the institution in which academics are endowed with higher scientific capital by publications with (8.25), oushining MAK with (3.60) and EMU lagging behind with (3.56). In contrast, when we consider the category of research reports, supposedly a less valuable type of scholastic publication, EMU appears to lead in the scores.

For instance, in the discipline-cluster An & So EMU scored (0.32), MAK (0.30) and UWC (0.17). A preliminary conclusion here is that academics with higher scientific capital also display more scholastic publications (refereed publications) than to non-scholastic ones (non-refereed publications). It is precisely in the category of journal articles that it is possible to show more clearly the difference between the discipline-clusters and the institutions in terms of their scientific capital by publications, as shown in Figure 5.2 below.

Figure 5.2: *Scientific Capital of Academic Staff by Publications for the Three Discipline-Clusters*



5.2.1.2 Educational Qualifications (Component 2)

In this section, I proceed with the analysis of scholastic capital, but consider its second component, academic staff qualifications, at the three institutions under examination. Before moving to the details of the data analysis, I will briefly explain Bourdieu's conception of educational qualifications as a dimension of cultural capital. For Bourdieu and Wacquant (1992), cultural capital is regarded as *informational capital* to represent its full generality, which exists in three forms: embodied, objectified, or institutionalized.

This study considers educational qualifications as an institutionalized form of cultural capital, that is, the informational assets in the form of knowledge and skills acquired through formal education. The indicator of cultural capital, therefore, is assessed through staff academic qualifications. The institutionalized state of cultural capital is that most closely associated with education and the world of academe.

Although academic degrees are not the only form of institutionalized cultural capital, they are a ready and instructive proxy, one that Bourdieu relies on heavily (Smart, 2006).

This form of capital is "academically sanctioned by legally guaranteed qualifications" and exists "formally independent of the person who possesses the qualification" (Bourdieu, 1986, p. 247; Smart, 2006, p. 380). It is worth noting that institutionalized cultural capital represents officially sanctioned, guaranteed competence. In that sense, it differs, for instance, from simple cultural capital that is constantly required to prove itself. An implication of this feature is an evident "performative magic of the power of instituting, the power to show forth and secure belief or, in a word, to impose recognition" (Bourdieu, 1986, p. 248).

Scientific capital is also regarded in this study as one subtype of cultural capital. Bourdieu acknowledges various forms of cultural capital, but never makes it explicit that scientific capital constitutes one of them. He usually adopts a more holistic, rather than a specific perspective, conceiving cultural capital as including such "'soft' dimensions as language use, manners and dispositions, dress and the like" (Smart, 2006, p. 380).

However, in his empirical works, such as *Homo Academicus* and *State Nobility*, he often uses academic qualifications, for instance the number of degrees held in a specific field and institution, as a proxy for cultural capital.

Like the notion of intellectual capital, scientific capital can be gained through peer recognition (scholastic form) and the occupation of managerial positions within academe (academic or 'political' form). As Smart (2006, p. 380) notes, "the desire to objectify such a malleable concept as cultural capital is understandable and can legitimately be done to some extent. Bourdieu's work suggests too many possibilities to be hamstrung by a reliance on only quantifiable measures."

According to Bourdieu (1986), by conferring institutional recognition on the cultural capital possessed by any given agent, the academic qualification makes it possible to compare qualifications and their holders. Academic credentials can be exchanged for other forms of capital. That is to say, it is possible to establish conversion rates between cultural and economic capital by establishing the monetary value of a given academic.

Nevertheless, in this study no conversions are made from one type of capital to another. Institutional credentials, such as the diplomas and certificates of Bachelor Honours Degree, Master's Degree and Doctor of Philosophy Degree (PhD) were the indicators used to collect data on educational qualification. The academic degree, certificate or diploma represents an institutionally endorsed credential and confirmation of individual competence. The assumption made here is that: The higher the number of academic staff holding academic credentials, the higher the scientific capital of the institution. The higher the level of academic qualification, the higher the amount of scientific capital of a particular institution.

A weighting scale was established for each postgraduate academic qualification (Bachelor Honours, Master's and Doctor of Philosophy). It consisted of creating a coefficient based on the minimum number of years one would need to complete the respective degrees at any university under normal circumstances without interruption, delay or failure. The minimum number of years for accomplishing a degree was established from an interpretation of the Higher Education Qualification Framework in use in the Southern and Eastern African regions. To recall, this study compares universities in three countries located in two regions, namely Mozambique and South Africa, located in the Southern African Development Community (SADC) region and Uganda in the East African Community (EAC) region.

5.2.1.2.1 Regional Harmonization of Qualifications

The SADC Protocol on Education and Training provides the policy framework for regional co-operation and integration of the entire education sector. One of the central issues in this protocol is the curricular co-operation in undergraduate and postgraduate studies, that is, joint design, development, production and use of learning and teaching materials, joint or integrated programmes, joint teaching, exchange of students and teachers within collaborative programmes (Hahn, 2005; SADC, 1997).

While in the beginning priority was given to the development and facilitation of National Qualification Frameworks within the member states, in the last few years major efforts have been targeted at the development of a Regional Qualification Framework (RQF). It is thought that it would facilitate mobility to develop an overall qualification framework for the region. The harmonization of the study and degree structures is one of the long-term goals of the regional integration process in higher education (Hahn, 2005).

Until recently, there was a considerable heterogeneity of study and degree structures, both at an international, as well as at an intra-national level. However, in 2001 the Technical Committee on Accreditation and Certification carried out an assessment of the existing structures, degrees and qualifications offered by universities and colleges within the region to get an overview of the status quo and identify regional incompatibilities. What seems to be a common feature at least of those countries with Anglo-Saxon traditions and in Mozambique, is the two-tier structure in higher education, undergraduate and postgraduate.

Some of the systems only provide courses at undergraduate level (often leading to a Bachelor's Degree) or below (Certificate or Diploma). Only a few have a developed post-graduate sector providing Master's and Doctoral Degrees. The length of study varies broadly, even within some countries. The creation of structural convergence in order to facilitate intra-regional mobility is one of the major challenges for regional integration of the SADC Higher Education sector (Hahn, 2005; Materu, 2007; SADC, 1997; TCCA, 2005).

The same process is also taking place in East African countries, where there is a concern to ensure that higher education in Africa measures up to acceptable international standards, embracing comparability and compatibility of curricula regionally, as well as internationally, in a bid to promote cross-border education within and beyond the African continent. Such a drive is also expected to address the need for labour mobility for Africa's graduates, within the continent and beyond (Nkunya, Bienefeld, & Hansert, 2007).

Efforts to harmonize the length of study periods within the SADC and EAC regions, has led public institutions to undertake curricular reforms. Currently, the process is still ongoing in most of the countries. In Mozambique, the length of study for the Bachelor Honours Degree was reduced from five (UEM, 1999) to four years. Even though there are still some adjustments being made, I decided to use four years as the indicator of minimum length of years to complete Bachelor Honours Degrees in the three case studies and for calculating the subsequent coefficients to weight scientific capital based on academic qualifications.

5.2.1.2.2 Analysis of Academic Qualifications Component

In the case of the Master's Degree, a student would need to hold a Bachelor Honours Degree, that is, they would have spent a minimum of four years studying at a university in addition to

an extra two years for the Honours. Furthermore, the acquisition of a PhD Degree would require a minimum of three further years of studying, which I take as the indicator for the degree of PhD. This does not mean that students in practice do not take more than three years to complete their degrees. If fact, most students end up spending more than the minimum length of time required for the finalization of their degrees.

In the case of Mozambique, most Mozambican students studying abroad would generally spend more time (six months or even a year) mastering the language of instruction of the hosting country, in the event of it not being Portuguese. Establishing the minimum number of years of study to acquire a degree, enabled me to create a coefficient that assigns a proportional weight to each chosen category of academic qualification. This yields the following ratio, which in turn allows for the establishment of a weighted coefficient for each qualification:

Table 5.6: *Coefficient of Educational Capital*

Qualification	PhD	Master's	Bachelor Honours
Minimum Years of Study	**4**+2+3= 9	**4**+ 2= 6	**Base = 4**
Ratio	9/4 = 2.2	6/4= 1.4	**4/4= 1.0**
Coefficients	**2.25**	**1.5**	**1.0**

In other words, a Master's Degree counts (0.5) units more than a Bachelor Honours Degree, whereas a PhD counts (0.75) units above a Master's and (1.25) above Bachelor Honours Degree. This scale of academic qualification weights is basic, but it provides one answer to the problem of ranking the institutions, since it allows us to differentiate between the institutions according to the amount of cultural capital possessed for each category of academic qualification.

On this basis, the cultural capital of each institution is measured by the sum of scores multiplied for each academic qualification (Bachelor Honours, Master's and PhD) by the corresponding coefficients (1, 1.5 and 2.25). The scientific capital index is then given by the following formula: [N. staff with (Bachelor Honours, Master's, or PhD Degree) x coefficient (1, 1.5 and 2.25)].

Table 5.7: *Scientific Capital by Academic Qualifications of Staff*

Institution Educational Qualification & Discipline-Clusters	Coefficient	EMU	Score	UWC	Score	MAK	Score
PhD or Equivalent							
An & So		2	4.5	6	13.5	5	11.25
Ps & Pa	**2.25**	3	6.75	3	6.75	6	13.5
Ec &Ma		6	13.5	5	11.25	5	11.25
Sub-total		11	24.75	14	31.50	16	36.00
Master's or Equivalent		Score	0.58	Score	1.21	Score	1.16
An & So	**1.5**	11	16.5	3	4.5	5	7.5
Ps & Pa		3	4.5	0	0.0	3	4.5
Ec & Ma		7	10.5	8	12	6	9.0
Sub-total		21	31.5	11	16.5	14	21.00
Bachelor Honours or Equivalent		Score	0.73	Score	0.63	Score	0.68
An & So		4	4	0	0	0	0
Ps & Pa		2	2	1	1	1	1
Ec & Ma	**1**	5	5	0	0	0	0
Sub-total		11	11	1	1	1	1
		Score	0.26	Score	0.04	Score	0.03
Total staff		43	67.25	26	49	31	58
Ranking			1.56		1.88		1.87
Expanded Rank * 10			15.6		18.8		18.7

Note: * The ranking excludes 'None' values.

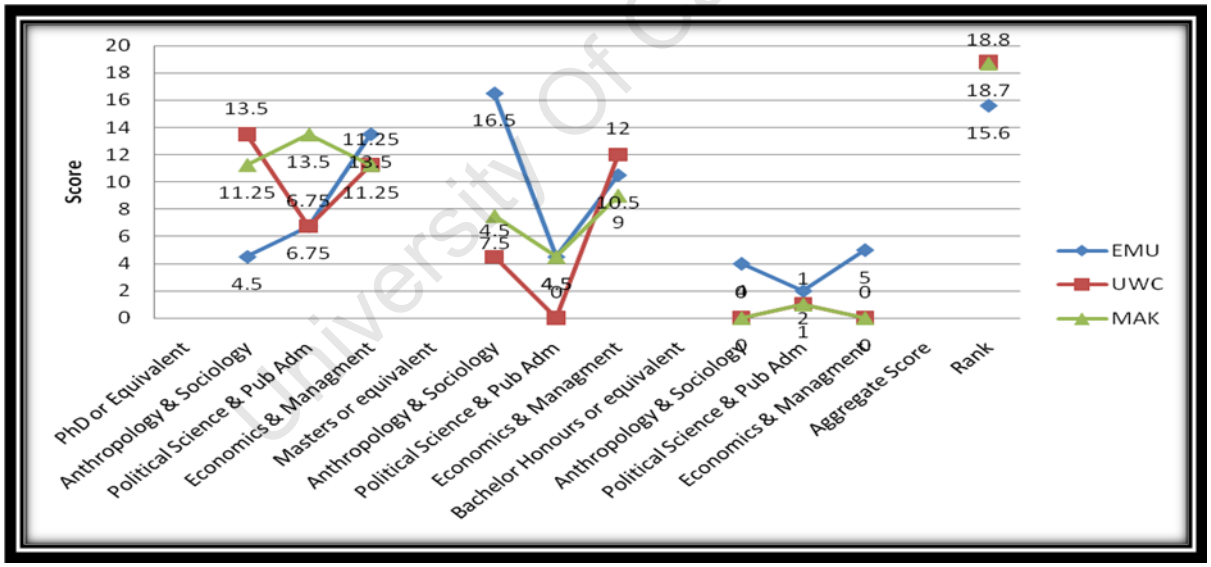
Table 5.7 shows the academic staff qualifications at the institutions in the study, as I used them in an attempt to construct a space of distribution for scientific capital. The results show, as expected, different levels of possession of scientific capital. Following the pattern that emerged in the previous section, UWC appears overall as the institution with the highest level of scientific capital, as far as the academic qualifications of staff is concerned. UWC scored (1.88) with the following distribution among the different degree levels or their equivalents: (1.21) for PhD, (0.63) for Master's and (0.04) for Bachelor Honours. MAK follows very closely with (1.87), respectively distributed as follows: (1.16) for PhD, (0.68) for Master's and (0.03) for Bachelor Honours. Finally, EMU scored (1.56) with a division of (0.58) for PhD, (0.73) for MA and (0.26) for BA Honours.

Nevertheless, if we split up the results and read the individual achievement of each discipline-cluster, we can observe some noteworthy cases where MAK and EMU either outperform UWC or gain the same results. For instance, EMU's Ec & Ma scored higher in the category of PhD and equivalent than both UWC and MAK, who obtained exactly the

same number of points. The same occurs at Master's level, where EMU surpasses the performance of both UWC and MAK with a noteworthy difference in score (EMU (16.5), UWC (4.50) and MAK (7.50)). These differences in the accumulation of scientific capital based on academic qualification may reflect the specific dynamics of these disciplines in their particular contexts. If we take the case of Bachelor Honours Degree as an example, it becomes clear that it constitutes a prevalent category of academic staff at EMU. This feature, in turn, would hypothetically have an impact on the nature of the research that the academic staff of these discipline-clusters undertake and ultimately on the nature of their engagement with different constituencies in the larger society.

Figure 5.3 below shows more expressively the scores and positions of each discipline-cluster at the three institutions in terms of distribution of scientific capital based on educational and academic qualifications.

Figure 5.3: *Scientific Capital by Academic Qualifications of Staff*



The significance of these results is threefold: First, it allows for drawing a distinctive positioning of academics in a space of distribution of educational capital. Educational capital here is the second concept of the operational dimensions of scientific capital, the first being research output measured by publications. Secondly, it enables us to envisage, which discipline and institution has more qualified academics. In this case, Sociologists and Anthropologists from UWC with (13.50) are proportionally more qualified with PhD Degrees than their counterparts at MAK with (11.50) and EMU with (4.50).

However, in the discipline-cluster of Ps & Pa, MAK scored more in the category of PhDs than UWC and EMU – who share the same score of (6.75). For Ec & Ma the positions are inverted, EMU scores (13.50), while EMU and MAK share the same score of (11.25). I assume that this picture only provides a snapshot score, namely, is valid only for the particular period of time in which this study was conducted.

The configuration may change slightly under different circumstances. As for the category of Master's, EMU scored higher comparatively in the discipline-cluster of An & So, as I already pointed out above. In the discipline-cluster Ps & Pa EMU and MAK display the same scores (4.50), whereas UWC has none. Moving on to the last category of qualifications, we observe that EMU overall has more Bachelor Honours Degrees (see Table 5.7) in their academic staff than MAK and UWC. This, however, only indicates the possible negative impact this feature may have in terms of lower research output of the academic staff.

Finally, in the discipline-cluster of Ec & Ma UWC is stronger scoring (12.00), followed by EMU with (10.50) and MAK with (9.00) in the last position.

The third significant aspect of these results lies in the fact that they reflect an instant (that is, snapshot) portrait of the distribution of educational capital amongst academics of the discipline-clusters under examination. I use these results as a proxy for educational capital that together with research output and supervision constitute the three operational dimensions of the scholastic forms of scientific capital. These results provide us with characteristics of the academic staff in the various disciplines under examination in terms of their different academic qualifications.

5.2.1.3 Supervision of PhD and Master's Students (Component 3)

The third and last component of the scholastic dimension for measuring scientific capital in this study is the supervision of PhD and Master's students by academic staff. There is a considerable diversity of judgment on the principles that should characterize universities, academic work or the specifics of their roles (Clark, 1997; Gottlieb & Keith, 1997; Hattie & Marsh, 1996, Mash & Hattie, 2002). Particularly, the relationship between research and teaching has been under scrutiny (Kreber, 2000; Neumann, 1992; Ramsden & Moses, 1992; Rowland, 1996). Nevertheless, "there is a general agreement that universities are institutions

which deal with the production of new knowledge, the conservation, critical testing and refinement of existing knowledge and the development of knowledgeable understanding in students" (Coaldrake & Stedman, 1999, p. 17).

The link between research and teaching, in general and the supervision of research students in particular, was one activity largely perceived to be an indicator of the integration of teaching and research. However, research has shown that "although there is a popular conception that research enhances teaching; evidence of such synergistic relationships is inconclusive" (Coate, Barnett, & Williams, 2001, p. 158). There are a range of relationships – both positive and negative – between teaching and research. Coate et al. (2001) argue that while the ideal relationship might be perceived by many academics to be a positive one, there are a number of factors that shape the ways in which teaching and research can have a negative influence on each other, or even be driven apart.

Some of "these factors include pressures to compartmentalize teaching and research through accountability and funding mechanisms, management strategies of academic staff time that treat teaching and research separately, as well as the competition for scarce resources. If teaching and research are to complement each other, new ways of managing the teaching and research relationship need to be considered" (Coate et al., 2001, p. 158).

The idea of considering the supervision of research students as an indicator for scientific capital is based on the assumption that it might have an impact on the networks academics establish, both with academic peers and non-academic constituencies, and ultimately with the differential levels of possession of scientific capital. For instance, a study by Kyvik and Smeby (1994) examines the relationship between the supervision of graduate students and university faculty research performance. They found that the supervision of PhD students with projects related to their supervisor's research has an independent effect on faculty members' scientific productivity in the natural and medical sciences and technology. However, this is not necessarily the case in the humanities and social sciences.

In many Western and Northern European countries, doctoral candidates are not thought of as students, but traditionally have a status as junior researchers or research assistants (Kehm, 2007).

The relationship between the supervision of project-related major subject students and the faculty members' productivity is only significant in the social sciences. These results are generally supported by data on faculty attitudes towards the supervision of graduate students. Those who have supervised PhD students gave a considerably more favourable assessment of the importance of supervision for their own research than those who only supervised major subject students.

The proportion of faculty members who answered that the supervision of PhD students was to a great extent a part of their own research was significantly higher in the natural and medical sciences and technology than in the humanities and social sciences (Kyvik & Smeby, 1994).

There is a disparity across countries and systems in the ways supervision is regarded as an indicator for academic achievement and rewards. In some countries even funding schemes for researchers at universities, as well as promotion systems depend on the supervision of research students. As pointed out by (Kehm, 2007, p. 118):

> Despite a number of differences between Europe and North America in terms of the forces and forms of change in doctoral education, there is one shift which is clearly similar and which might constitute a challenge to the academic profession depending on interpretation. This is the more or less advanced shift from the individual and/or departmental responsibility in reforming doctoral education (i.e., self-governance of academic affairs) to the institutional level. Well-reputed doctoral education and training programmes more and more contribute to the overall reputation and profile of an institution, attract best talent and funding and thus, begin to play a more important and extended role than serving the extension of the knowledge base in any given discipline. Therefore, doctoral education and training seems increasingly to become an object of institutional management and strategic policy-making.

The rationale behind my analysis is that academics supervising PhD and Master's students are sometimes involved in research networks through their projects and may employ their students in these projects. Supervision can therefore be a proxy to measure their scientific capital. Academics with higher scientific capital would rather supervise research students, as they find it intellectually challenging and acknowledge that it helps generate new data, and also contributes to knowledge production much more so than simple classroom teaching.

Table 5.8 below displays data for the three discipline-clusters in the three institutions concerning supervision of PhD and Master's students. In line with the analysis of the two previous components, a ranking coefficient was established to distinguish PhD from Master's

supervision. A number of (3.00) points was granted for each PhD supervision and (1.00) point for Master's supervision. The supervision of undergraduate students was not considered in the study. Once more, the results show some noteworthy inter-institutional and intra-institutional, as well as discipline-cluster differences. Overall, UWC, with a score of (2.96), is the institution displaying the highest scientific capital, as far as supervision is considered. Displaying the same pattern as the previous dimensions of scholastic capital, MAK appears in second place having scored (1.57), while EMU comes last with the score of (0.54).

In terms of the discipline-cluster in PhD supervision, Table 5.8 below shows how the three institutions performed: An & So from MAK with a value of (0.90) displays a significantly higher performance level in the supervision of PhD students than UWC with (0.33) and EMU with (0.18). Here it is important to mention that EMU until 2008 had not yet introduced any PhD courses. This may explain in part why EMU presents the lowest levels of scientific capital based on the supervision of students. For Ps & Pa, UWC is the sole institution with a record of PhD supervision. Three quarters of UWC academics have supervised at least one to four PhDs in the last five years. The same accounts for Ec & Ma, where once again UWC academic staff have supervised at least one to four PhDs.

When looking at the supervision of Master's students, this picture changes considerably. Even though the training of Master's students at EMU is a fairly recent phenomenon, the number of Master's programmes has grown significantly in the last three or four years. Nevertheless, UWC maintains its leading position in almost all discipline-fields considered in the study. An & So at UWC achieved a total of (0.67) in the supervision of Master's in comparison with MAK with (0.30) points and EMU with (0.12). In Ps & Pa, UWC once again comes first with (0.75), outperforming MAK's score of (0.10) and EMU's of (0.13).

Finally, MAK takes the lead in Ec & Ma with (0.27) followed by UWC with (0.23) and EMU with (0.11). The significance of these results is twofold: On the one hand, they enable us to draw a distinctive positioning of academics in a space of distribution of scientific capital by using the supervision of postgraduate students as a proxy. Supervision, in this case, is regarded as an academic activity. On the other hand, the higher the amount of PhD and MA supervision, the higher tends to be the scientific capital of an academic and the respective discipline. Therefore, the supervision of postgraduate students is ultimately an indication of the scientific and symbolic capital an institution may possess.

Table 5.8: *Scientific Capital Measured by Supervision of PhD and Master's Students*

Institutions	Discipline-Clusters	Coefficient	None*		1-4 Supervision		5-8 Supervision		9-14 Supervision		More than 14 Supervision		Ratio	Total score	Rank
Eduardo Mondlane University	An & So (n17)	PhD (cf3)	16	48	1	3	0	0	0	0	0	0	3/17	0.18	
		Master's (cf.1)	15	15	0	0	1	1	1	1	0	0	2/17	0.12	
	Ps & Pa (n8)	PhD (cf3)	8	24	0	0	0	0	0	0	0	0	0/8	0.00	
		Master's (cf.1)	7	7	1	1	0	0	0	0	0	0	1/8	0.13	**0.54**
	Ec & Ma (n18)	PhD (cf3)	18	54	0	0	0	0	0	0	0	0	0/18	0.00	
		Master's (cf.1)	16	16	0	0	0	0	0	0	2	2	2/18	0.11	
Makerere University	An & So (n10)	PhD (cf3)	9	27	0	0	0	0	1	9	0	0	9/10	0.90	
		Master's (cf.1)	7	7	2	2	0	0	1	1	0	0	3/10	0.30	
	Ps & Pa (10)	PhD (cf3)	10	30	0	0	0	0	0	0	0	0	0/10	0.00	
		Master's (cf.1)	4	4	0	0	0	0	1	1	0	0	1/10	0.10	**1.57**
	Ec & Ma (n11)	PhD (cf3)	11	33	0	0	0	0	0	0	0	0	0/11	0.00	
		Master's (cf.1)	7	7	0	0	1	1	2	2	1	1	3/11	0.27	
University of the Western Cape	An & So (n9)	PhD (cf3)	6	18	1	3	0	0	0	0	0	0	3/9	0.33	
		Master's (cf.1)	3	3	2	2	3	3	1	1	0	0	6/9	0.67	
	Ps & Pa (n4)	PhD (cf3)	3	9	0	0	0	0	0	0	1	3	3/4	0.75	
		Master's (cf.1)	1	1	0	0	1	1	2	2	0	0	3/4	0.75	**2.96**
	Ec & Ma (n13)	PhD (cf3)	12	36	1	3	0	0	0	0	0	0	3/13	0.23	
		Master's (cf.1)	10	10	1	1	1	1	0	0	1	1	3/13	0.23	

Note: * The ranking excludes 'None' values.

5.2.2 Academic Form (Dimension 2)

Taking the cue from Bourdieu's work (1975, 2003), I have presented an operationalization of scientific capital which distinguishes between a scholastic and an academic form. Whereas the first part of this analysis dealt with the scholastic form, I now turn to the analysis of the academic form. The academic form of scientific capital is described as 'temporal' (political) as it pertains to the institutional influence over the means of scientific production (contracts, credit) and reproduction (power to nominate for positions). Deans of faculties, heads of departments or laboratories, membership of professional and academic associations, boards and evaluation committees constitute examples of this type of capital.

The scholastic form of scientific capital also differs from the academic form in the process of accumulation. The 'pure' scientific capital is essentially acquired through acknowledged contributions to the progress of science and scientific inventions or discoveries (publications, especially with the more selective and more prestigious publishers, are the best index). The academic form, on the other hand, is primarily acquired by specific political strategies, which all require *time* – the participation in committees, examination boards, conventional symposia, colloquiums, graduation and other official ceremonies (Bourdieu, 2003, 2004). However, in actual practice these two forms of capital are almost impossible to separate.

It is an analytical endeavour to clearly distinguish them, as it is difficult to establish under which circumstances a professor is pursuing political purposes and when pure scientific authority and legitimacy constitute the main motive in his/her research. The two forms of scientific capital rely on different forms of transmission. The scholastic form, or 'pure' scientific capital, is more difficult but not impossible to objectify. It remains somehow imprecise and relatively undetermined, and has some charismatic features (in the common sense, it is attached to the holder, to their 'natural' and personal gifts). In that sense, it is extremely difficult to pass on to a successor.

However, different from a prophet or a pastor, the great researcher can pass on to his followers the more formalized part of his scientific competency, through a long and slow process of training, or better still, of collaboration (Bourdieu, 2003, 2004). It can happen that his collaborators benefit from the symbolic capital of the 'consecrated' researcher, passing on

his reputation and prestige, for instance, in co-authored publications, recommending them to the instances of 'consecration'.

Bourdieu himself is a good example to illustrate this phenomenon. Scholars paid more attention to the works of Loïc Wacquant, Patrick Champagne and Ettienne Landais, to mention a few, once their collaboration with Bourdieu became known. They somehow got a 'ride on the shoulders of a giant', as expressed "in the aphorism that Newton made his own in that famous letter to Hooke where he wrote: '*If I have seen further, it is by standing on the shoulders of Giants*'" (Merton, 1988, p. 621 emphasis added; Scotchmer, 1991). "The very form of the scientific article as it has evolved over the last three centuries normatively requires authors to acknowledge on whose shoulders they stand, whether these be the shoulders of giants or, as is often the case, those of men and women of science of approximately average dimensions for the species *scientificus*" (Merton, 1988, pp. 621-622).

The academic form of scientific capital, on the other hand, follows almost the same transmitting rules as any other form of bureaucratic capital. That happens even in cases where some kind of public advertisement is made to fill open job vacancies at universities. The holders of academic capital tend to organize the selection process and recruitment of new researchers based on the logic of bureaucratic procedures, while the holders of scholastic capital tend to follow the logic of charismatic recruitment. Nonetheless, the two forms coexist in the same scientific milieu and often in the same scientific body (researcher) (Shinn, 1988).

The relation of symbolic forces within the scientific field is always somewhat vague, making it difficult to quantify intangible properties, such as international reputation. The study proposes an analysis of the duality of these two forms of scientific capital, so as to understand how they inform the kind of networks in which academics are engaged.

In this section, I focus on examining the academic form of scientific capital. The academic form has been conceptualized as a dimension of scientific capital containing two components: academic and administrative or managerial position. I will first focus on academic ranking and in a second step outline the contribution that administrative or managerial positions, which academics hold at the three institutions, make towards their overall achievement of scientific capital.

5.2.2.1 Academic Seniority Ranking

For the purposes of measurement, I use the following five categories of academic ranking: 'Teaching Assistant', 'Lecturer', 'Senior Lecturer', 'Associate Professor' and 'Full Professor'. The categories or equivalents are present in all three institutions of this study, even when they have a different designation.

Table 5.9 below shows the distribution of academic ranks at the three institutions and in the three discipline-clusters under examination. Following the same rationale as in my previous analysis, five categories were established to differentiate between the different levels of 'effort and prestige'. The assumption is that the effort one has to put into becoming 'Teaching Assistant', 'Lecturer', 'Senior Lecturer', and 'Associate Professor' or 'Full Professor' differs significantly.

The higher the academic position, the more effort is required and the more prestige is attached to it. To capture this difference, I have established the following four-point grading scale: I assign a weight of (0.50) to Teaching Assistants as they are aspiring academics (half-academics); (1.00) point is allocated to Lecturers, who have been formally admitted to the body of academic staff; Senior Lecturers receive a weighting of (2.00) and Associate and Full Professors (3.00) and (4.00) points respectively.

This weighting is based on a somewhat fuzzy and simple criterion. The criterion consisted of assigning to each phase of the academic career progression a proxy number for the respective position. Hence, phase one is would-be lectureship position (1.00), phase two senior lectureship (2.00) and so forth. The only exception was introduced for the position of teaching assistant, which is not considered as a permanent position, but rather as an aspiring academic career. The position was therefore assigned a weight of (0.50).

I adopted these criteria, according to the different procedures and regulations in the institutions under examination concerning academic career development. The only aspect that is relatively similar at all three institutions is the designation and the number of the different stages in the hierarchy of the academic career.

Table 5.9: *Scientific Capital Measured by Academic Seniority Rank*

Institutions	Discipline-Clusters	Academic Rank													
		Full Professor		Associate Professor		Senior Lecturer		Lecturer		Teaching Assistant		Total			
Coefficient		**4**	**Score**	**3**	**Score**	**2**	**Score**	**1**	**Score**	**0.5**	**Score**	**Staff**	**Score**	**Ratio/n**	Rank
Eduardo Mondlane University	An & So	0	0	0	0	2	4	10	10	5	2.5	17	16.5	0.97	
	Ps & Pa	0	0	0	0	1	2	5	5	2	1	8	8	1.00	**2.89**
	Ec & Ma	0	0	1	3	1	2	7	7	9	4.5	18	16.5	0.92	
Makerere University	An & So	0	0	1	3	2	4	4	4	3	1.5	10	12.5	1.25	
	Ps & Pa	0	0	2	6	4	8	2	2	2	1	10	17	1.70	**3.72**
	Ec & Ma	0	0	0	0	1	2	3	3	7	3.5	11	8.5	0.77	
University of the Western Cape	An & So	0	0	5	15	0	0	0	0	4	2	9	17	1.89	
	Ps & Pa	1	4	1	3	2	4	0	0	0	0	4	11	2.75	**5.79**
	Ec & Ma	0	0	2	6	2	4	1	1	8	4	13	15	1.15	

Note: * The ranking excludes 'None' values.

Table 5.9 above compares the three universities and particularly the three discipline-clusters in terms of establishing which institution employs academics with higher levels of academic power (capital). An assumption is that those with higher academic capital will not simply secure and exercise their influence on the issuing of (academic) rewards (praise, awards, distinctions etc.) in the scientific field, but also select favourable networks according to their *vision* of what constitutes the core mission of academia[12].

In terms of scientific capital measured by the amount of academic seniority rank, UWC scored 5.79. This was distributed to the discipline-clusters as follows**:** An & So (1.89), Ps & Pa (2.75) and Ec & Ma (1.15). MAK reached an overall result of (3.72) with the following distribution amongst the discipline-clusters: An & So (1.25), Ps & Pa (1.70) and Ec & Ma (0.77). Finally, EMU gained (2.89) points**,** divided between the three discipline-clusters as follows: An & So (0.97), Ps & Pa (1.00) and Ec & Ma (0.92).

Once again, the pattern that emerged in the analysis of the scholastic form of scientific capital prevails in the outcome of the academic form based on academic positions. UWC, the institution with the highest level of scholastic capital in comparison with MAK and EMU, also ranks first in the achievement of academic capital. This trend is furthermore present at the level of the discipline-clusters where UWC academics in all three clusters generally hold higher academic positions than MAK and EMU.

It is somewhat difficult to establish exactly why UWC academics appear to have more academic capital than their peers at MAK and EMU. However, considering the level of discipline-clusters, we can see that UWC scores high in Ps & Pa. One possible reason could be the small size of the department. Of the five members of the department, one holds the rank of a full professor, one is an associate professor and two are senior lecturers.

The fifth member did not participate in the study, leaving us without any information regarding the academic rank. One would have to study the individual trajectories of these members of staff to develop a better understanding of the dynamics of the department.

[12] It would be interesting to study the Mertonian "Matthew effect" with regard to the relation between recognition and networks.

5.2.2.2 Administrative or Managerial Position

The second component of the academic form of capital is measured by administrative or managerial positions, which are more bureaucratic and political than academic rank. I have identified five administrative or managerial positions. I also considered the category of 'other' to cater for all those administrative positions, which do not fall under the five categories considered in the study. Since the study is delimited to discipline-cluster level, I decided to consider the categories of *'Dean of Faculty'*, *'Deputy Dean'*, *'Head of Research Centre'*, *'Head of Department'*, *'Course or Programme Convener'* and *'Other'*.

The principles used for weighting the administrative or managerial categories followed those applied in the analysis of academic or professional positions. Hence, the ranking scale in ascending order looks as follows: the category 'Other' weights (0.50), Course or Programme Convener (1.00), Head of Department (2.00), Head of Research Centre (3.00), Deputy Dean of Faculty (4.00) and Dean of Faculty (5.00).

Table 5.10: *Scientific Capital Measured by Academic Staff Management Positions*

Institutions	Discipline -Clusters	Current Administrative Position Rank															
		Dean of Faculty		Deputy Dean of Faulty		Head of Research Centre or Unit		Head of Department		Course or Programme Convener		Other		Total			
Coefficient		**5.0**	**Score**	**4.0**	**Score**	**3.0**	**Score**	**2.0**	**Score**	**1.0**	**Score**	**0.5**	**Score**	**Staff**	**Score**	Ratio/n	Rank
Eduardo Mondlane University	An & So	0	0	1	4	1	3	1	2	3	3	1	0.5	17	10.5	0.62	**3.09**
	Ps & Pa	0	0	0	0	2	6	1	2	2	2	0	0	8	10	1.25	
	Ec & Ma	0	0	4	16	1	3	1	1	2	2	0	0	18	22	1.22	
Makerere University	An & So	0	0	0	0	0	0	0	0	3	3	1	0.5	10	3.5	0.35	**1.67**
	Ps & Pa	0	0	1	4	0	0	0	0	1	1	1	0.5	10	5.5	0.55	
	Ec & Ma	0	0	0	0	1	3	2	4	1	1	1	0.5	11	8.5	0.77	
University of the Western Cape	An & So	0	0	1	4	0	0	1	2	4	4	1	0.5	9	10.5	1.17	**3.61**
	Ps & Pa	0	0	0	0	0	0	1	2	3	3	0	0	4	5	1.25	
	Ec & Ma	1	5	0	0	0	0	2	4	6	6	1	0.5	13	15.5	1.19	

Table 5.10 above shows the results received from the analysis of the distribution of scientific capital measured by academic staff administrative or managerial position in the three discipline-clusters, as well as in the three institutions. Overall, UWC scored (3.61) (An & So (1.17), Ps & Pa (1.25) and Ec & Ma (1.19)). EMU comes second with a total of (3.09) divided between the discipline-clusters as follows: An & So (0.62), Ps & Pa (1.02), Ec & Ma (1.22).

Finally, MAK appears in the last position with an overall score of (1.67) and the following results for the various discipline-clusters: An & So (0.35), Ps & Pa (0.55) and Ec & Ma (0.77).

It does not come as a surprise that EMU, usually ranking last in other forms of scientific capital, suddenly appears with a sizeable performance in administrative capital. My assumption is that institutions and disciplines, in which academics have weaker scholastic capital, will strive more for the accumulation of academic capital as a way to benefit from the prerogatives of the symbolic capital (prestige and power) of the field. This can undermine the epistemic conditions necessary to produce innovation. Demonstrating this, however, goes beyond the scope of this study. Nonetheless, it seems a possible explanation as to why EMU academics with lower levels of scholastic capital appear to possess comparatively higher levels of academic (political) capital.

As Bourdieu (2003) argues, one has to examine the effects of the duality of powers (scholastic and academic, prestige and power) functioning in each field to be able to understand the logic of accumulation in that specific field. Would the scientific field be more efficient if the more prestigious were also the most powerful? The premise underlying this study is that possibly the levels of scientific capital (in its various subtypes) inform the nature of networks or forms of engagement academics from particular discipline-fields establish with different constituencies, both academic and non-academic. The next section focuses on the measurement of the forms of engagement.

5.3 Measuring Forms of Engagement by Networks of Connection

In the literature review, I have suggested that the notion of engagement bears different meanings. In this study it is considered as networks of connection, which social actors, institutions and academics in particular, establish among themselves and with a range of other different constituencies in the wider society. The approach of engagement adopted by Gibbons et al. (1994) has been criticized for its utilitarian and normative assumptions, especially for its unsuitability as a tool for comparative study and typologies (Langa, 2009; Muller, 2000), and the emphasis it places on the production of applied knowledge and its commercialization (Prpić, 2006).

Among the several critiques of the engagement discourse, especially the new mode of production and the 'Triple Helix', there is a warning that some of these ideas are becoming a social fact or a self-fulfilling prophecy (Elzinga, 2003).

Social network theory views social relationships in terms of nodes and ties. Whereas nodes represent the individual actors within the networks, ties stand for the relationships between the actors. There can be many kinds of ties between the nodes. In its most simple form, a social network is a map of all the relevant ties between the nodes under examination. The network can also be used to determine the social capital of individual actors. These concepts are often displayed in a social network diagram, where nodes are the points and ties are the lines (Castells, 1996, 2000, 2009; Monge & Contractor, 2003).

In this study, I conceptualize engagement through social networks to examine how academics collaborate with peers, and with other constituencies outside the university. This approach shows the connections that link academics with their peers, as well as with other social actors in the economic, political and civil society spheres. These networks provide ways for academics to gather information for their research, but also to subsidize their research projects and perhaps their general lifestyles.

5.3.1 Academic Networks

In the next sections, I examine the types of networks of connections by using a set of dimensions and indicators. In his study of social systems of science, the influential sociologist Robert Merton introduces models for interpreting scientific activity in relation to competition and rewards (Merton, 1968, 1988). Cole and Cole (1973), against the background of Merton, study the social stratification of science and the effects of elite structures in science. Like Merton and the Coles, Bourdieu (1975, 1988) was a master in the use of economic rhetoric for analyzing the social world including the academic milieu (Lebaron, 2004).

Dissociating himself from an approach that perceives academic activities to be working like primitive "stone age economies" of the abundant "original affluent society" (Sahlins, 1972), where reciprocity informs the norms of academic collaborations, Bourdieu describes the scientific field as a battle-ground. For him, it constitutes a space of struggle for the monopoly of the assets (reputation, prestige, power) at stake in the field. Academic collaboration does not come as a free "gift" (Laidlaw, 2000; Mauss, 1990), as academics hierarchically located in a stratified and structured scientific field compete for the monopoly over symbolic capital.

5.3.1.1 Co-Authored Publications

The production of knowledge is one of the central functions of research and science (Jansen, von Görtz, & Heidler, 2009). I thus first of all considered looking at how academics in the three discipline-clusters from the three institutions performed with regard to networking with their academic peers. Co-authored publications were taken as an indicator for collaboration amongst academics. They, to some extent, point towards the nature of the ties academics establish with their peers. These networks are regarded interchangeably as academic networks.

The extent to which academics are connected with their peers, I presume, is associated with the position they occupy in a structured space of distribution of capital. In other words, I hypothesize that academics with higher scientific capital, both scholastic and academic, will tend to develop a strong academic that is geared towards the production of knowledge or to the improvement of the conditions of knowledge production – in the case of relations with

non-academic constituencies. In opposition to that, academics with less scientific capital, scholastic as well as academic, will be likely to develop academic networks.

The next three tables (5.11, 5.12 and 5.13) comparatively depict the forms of engagement measured by academic networks of the three discipline-clusters in the three institutions examined in this study. The tables have the same features as the tables measuring scientific capital in the previous section. However, the present tables measure the forms of engagement based on academic collaboration for publications. Whereas the former only considered single-authored publications, the focus in the current section is on co-authored publications.

There are other forms of academic collaboration that do not lead to publications such as joint research projects. However, fruitful and scientifically meaningful collaborations tend to be recorded in terms of publications. This is the reason behind the preference for co-authored publications as a means of capturing the activity in academic networks.

Table 5.11: *Engagement Measured by Academic Co-Authored Publications (EMU)*

Co-authored Publications	Coeffi cient 1	Discipline - Clusters	Coefficient 2		Eduardo Mondlane University												Ratio/n Staff	Total Score	Rank
					None*		1-5		6-10		11-15		16-20		More Than 20				
Books	**4.0**	An & So (n17)			16	64	1	4	0	0	0	0	0	0	0	0	4/17	0.24	**3.13**
		Ps & Pa (n8)			3	12	1	4	1	4	1	4	1	4	0	0	16/8	2.00	
		Ec & Ma (n 18)			14	56	3	12	1	4	0	0	0	0	0	0	16/18	0.89	
Chapters in Books	**2.0**	An & So (n17)			16	32	1	2	0	0	0	0	0	0	0	0	2/17	0.12	**1.09**
		Ps & Pa (n8)			4	8	1	2	1	2	0	0	0	0	1	2	6/8	0.75	
		Ec & Ma (n 18)			16	32	0	0	1	2	0	0	1	2	0	0	4/18	0.22	
Journal Articles	**1.5**	An & So (n17)	**2**	*Local Peer-Reviewed*	16	48	0	0	0	0	1	3	0	0	0	0	3/17	0.18	**0.62**
			4	*International Peer- Reviewed*	16	96	1	6	0	0	0	0	0	0	0	0	6/17	0.35	
			1	*Non- Reviewed*	16	24	1	1.5	0	0	0	0	0	0	0	0	1.5/17	0.09	
		Ps & Pa (n8)	**2**	*Local Peer- Reviewed*	7	21	0	0	0	0	0	0	0	0	0	0	0/8	0.00	**0.94**
			4	*International Peer- Reviewed*	6	36	0	0	1	6	0	0	0	0	0	0	6/8	0.75	
			1	*Non-Reviewed*	6	4.5	0	0	0	0	1	1.5	0	0	0	0	1.5/8	0.19	
		Ec & Ma (n18)	**2**	*Local Peer- Reviewed*	18	54	0	0	0	0	0	0	0	0	0	0	0/18	0.00	**0.22**
			4	*International Peer- Reviewed*	17	102	0	0	0	0	1	4	0	0	0	0	4/18	0.22	
			1	*Non- Reviewed*	18	27	0	0	0	0	0	0	0	0	0	0	0/18	0.00	
Conference Papers	**1.0**	An & So (n17)			14	14	1	1	2	2	0	0	0	0	0	0	3/17	0.18	**0.67**
		Ps & Pa (n8)			4	4	0	0	2	2	0	0	1	1	0	0	3/8	0.38	
		Ec & Ma (n 18)			16	16	1	1	0	0	1	1	0	0	0	0	2/18	0.11	
Research Reports	**0.5**	An & So (n17)			9	4.5	2	1	3	1.5	2	1	1	1	0	0	3.5/17	0.21	**0.59**
		Ps & Pa (n8)			4	2	0	0	1	0.5	0	0	0	0	2	1	1.5/8	0.19	
		Ec & Ma (n 18)			11	5.5	1	0.5	3	1.5	1	0.5	2	1	0	0	3.5/18	0.19	
Total (N43)																			**7.26**

Note: * The ranking excludes 'None' values.

Table 5.12: *Engagement Measured by Academic Co-Authored Publications (MAK)*

Co-authored Publications	Coefficient 1	Discipline-Cluster	Coefficient 2	Makerere University												Ratio /n staff	Total score	Rank
				None*		1-5		6-10		11-15		16-20		More Than 20				
Books	**4.0**	An & So (n10)		10	*40*	0	*0*	0	*0*	0	*0*	0	*0*	0	*0*	0/10	0.00	
		Ps & Pa (n10)		9	*36*	0	*0*	1	*4*	0	*0*	0	*0*	0	*0*	4/10	0.40	**0.40**
		Ec & Ma (n11)		11	*44*	0	*0*	0	*0*	0	*0*	0	*0*	0	*0*	0/10	0.00	
Chapters in Books	**2.0**	An & So (n10)		7	*14*	3	*6*	0	*0*	0	*0*	0	*0*	0	*0*	6/10	0.60	
		Ps & Pa (n10)		9	*18*	1	*2*	0	*0*	0	*0*	0	*0*	0	*0*	2/10	0.20	**0.80**
		Ec & Ma (n11)		11	*22*	0	*0*	0	*0*	0	*0*	0	*0*	0	*0*	0/11	0.00	
Journal Articles	**1.5**	An & So (n10)	**2** *Local Peer-Reviewed*	7	*21*	2	*6*	1	*3*	0	*0*	0	*0*	0	*0*	9/10	0.90	
			4 *International Peer-Reviewed*	7	*42*	1	*6*	0	*0*	1	*6*	1	*6*	0	*0*	18/10	1.80	**2.85**
			1 *Non- Reviewed*	9	*13.5*	0	*0*	1	*1.5*	0	*0*	0	*0*	0	*0*	1.5/10	0.15	
		Ps & Pa (n10)	**2** *Local Peer-Reviewed*	10	*30*	0	*0*	0	*0*	0	*0*	0	*0*	0	*0*	0/10	0.00	
			4 *International Peer-Reviewed*	10	*60*	0	*0*	0	*0*	0	*0*	0	*0*	0	*0*	0/10	0.00	**0.00**
			1 *Non- Reviewed*	10	*15*	0	*0*	0	*0*	0	*0*	0	*0*	0	*0*	0/10	0.00	
		Ec & Ma (n11)	**2** *Local Peer-Reviewed*	11	*33*	0	*0*	0	*0*	0	*0*	0	*0*	0	*0*	0/11	0.00	
			4 *International Peer-Reviewed*	9	*54*	2	*8*	0	*0*	0	*0*	0	*0*	0	*0*	8/11	0.73	**0.73**
			1 *Non-Reviewed*	11	*1.5*	0	*0*	0	*0*	0	*0*	0	*0*	0	*0*	0/11	0.00	
Conference Papers	**1.0**	An & So (n10)		6	*6*	0	*0*	1	*1*	3	*3*	0	*0*	0	*0*	4/10	0.40	
		Ps & Pa (n10)		9	*9*	1	*1*	0	*0*	0	*0*	0	*0*	0	*0*	1/10	0.10	**0.60**
		Ec & Ma (n11)		10	*10*	1	*1*	0	*0*	0	*0*	0	*0*	0	*0*	1/10	0.10	
Research Reports	**0.5**	An & So (n10)		3	*1.5*	0	*0*	3	*1.5*	0	*0*	0	*0*	0	*0*	1.5/10	0.15	
		Ps & Pa (n10)		10	*5*	0	*0*	0	*0*	0	*0*	0	*0*	0	*0*	0/10	0.00	**0.35**
		Ec & Ma (n11)		7	*3.5*	2	*1*	2	*1*	0	*0*	0	*0*	0	*0*	2/10	0.20	
Total (N31)																		**5.73**

Note: * The ranking excludes 'None' values.

Table 5.13: *Engagement Measured by Academic Co-Authored Publications (UWC)*

Co-authored Publications	Coefficient 1	Discipline-Clusters	Coefficient 2		University of the Western Cape												Ratio/n Staff	Total Score	Rank
					None*		1-5		6-10		11-15		16-20		More Than 20				
Books	**4.0**	An & So (n9)			9	36	0	0	0	0	0	0	0	0	0	0	0/9	0.00	**1.31**
		Ps & Pa (n4)			3	12	1	4	0	0	0	0	0	0	0	0	4/4	1.00	
		Ec & Ma (n13)			12	48	0	0	0	0	0	0	1	4	0	0	4/13	0.31	
Chapters in Books	**2.0**	An & So (n9)			6	12	2	4	0	0	1	2	0	0	0	0	6/9	0.67	**1.63**
		Ps & Pa (n4)			3	6	0	0	0	0	0	0	0	0	1	2	2/4	0.50	
		Ec & Ma (n13)			10	20	2	4	0	0	0	0	1	2	0	0	6/13	0.46	
Journal Articles	**1.5**	An & So (n9)	2	*Local Peer- Reviewed*	7	10.5	1	3	1	3	0	0	0	0	0	0	6/9	0.67	**2.84**
			4	*International Peer-Reviewed*	6	6	2	12	0	0	0	0	1	6	0	0	18/9	2.00	
			1	*Non- Reviewed*	8	12	1	1.5	0	0	0	0	0	0	0	0	1.5/9	0.17	
		Ps & Pa (n4)	2	*Local Peer- Reviewed*	2	6	0	0	2	6	0	0	0	0	0	0	6/4	1.50	**6.63**
			4	*International Peer-Reviewed*	1	6	1	4	2	12	0	0	0	0	0	0	18/4	4.5	
			1	*Non- Reviewed*	2	3	0	0	1	1.5	1	1	0	0	0	0	2.5/4	0.63	
		Ec & Ma (n13)	2	*Local Peer- Reviewed*	11	33	1	3	0	0	1	3	0	0	0	0	6/13	0.46	**1.96**
			4	*International Peer-Reviewed*	10	66	1	6	1	6	0	0	1	6	0	0	18/13	1.38	
			1	*Non- Reviewed*	12	18	0	0	0	0	0	0	0	0	1	1.5	1.5/13	0.12	
Conference Papers	**1.0**	An & So (n9)			6	6	3	3	0	0	0	0	0	0	0	0	3/9	0.33	**1.54**
		Ps & Pa (n4)			1	1	0	0	2	2	1	1	0	0	0	0	3/4	0.75	
		Ec & Ma (n13)			7	7	2	2	4	4	0	0	0	0	0	0	6/13	0.46	
Research Reports	**0.5**	An & So (n9)			8	4	0	0	0	0	1	1	0	0	0	0	1/9	0.11	**0.57**
		Ps & Pa (n4)			1	0.5	1	0.5	1	0.5	0	0	0	0	1	0.5	1.5/4	0.38	
		Ec & Ma (n13)			11	5.5	1	0.5	1	0.5	0	0	0	0	0	0	1/13	0.08	
Total (N26)																			**16.48**

Note: * The ranking excludes 'None' values.

In terms of measuring academic, that is, academic collaborations that have resulted in co-authored publications, I have established six subcategories detailing the number of co-authored publications by academics: 'None', '1-5', '6-10', '11-15', '16-20' and 'more than 20'. Academics provided me with lists of their publications from which the co-authored ones were selected. I then grouped them according to the scale above.

I have followed the subdivision of publications also chosen for the measurement of scientific capital into the five categories: 'books', 'chapters in books', 'journal articles', 'conference papers' and 'research reports'. Additionally, two weighting coefficients were attached to each category: While one coefficient ascribes different weights to the various publication categories, the other considers different points for publications, as well as peer-review status.

Overall, EMU scored (7.26), MAK (5.73) and UWC (16.48) in the measurement of academic networks. How can we interpret these numbers? They simply represent the degree to which academics from the three institutions that have produced academic publications in the period under consideration have collaborated with peers in producing co-authored publications. UWC academics demonstrate the highest level of academic engagement, namely, academic networks, followed by EMU and MAK in the last place.

I will now disaggregate the data to determine how each institution performed in terms of discipline-clusters and categories of publication.

For the category of books, EMU academics from the three discipline-clusters with a score of (3.13) engaged more in co-authorship than their peers at UWC with (1.31) and MAK with (0.40). However, if we break the results down and consider the performance of the individual discipline-clusters, then the results look different: EMU's result of (3.13) is distributed to the three discipline-clusters as follows: An & So (0.24), Ps & Pa (2.00) and Ec & Ma (0.89). UWC's (1.31) points are made up of the following results in the respective discipline-clusters: An & So (0.00), Ps & Pa (1.00) and Ec & Ma (0.31). MAK's total of (0.40) is composed of (0.00) in An & So, (0.40) in Ps & Pa and (0.00) in Ec & Ma.

It appears that EMU's academics from Ps & Pa top the other discipline-clusters in terms of producing co-authored publications, followed by their peers from Ec & Ma. UWC is relegated to the second position this time, however, still surpassing MAK's performance of a

mere (0.40) in Ps & Pa. The data I gathered do not allow us to make an argument about the reasons why it appears to be much easier to publish books for EMU academics than for their colleagues at UWC and MAK. However, Ps & Pa at EMU consistently publish more than their peers at EMU, and at times more than the other institutions, as we can see in the category of chapters in books.

In the category of chapters in books, UWC claims back its position as the leading institution. Overall, UWC scored (1.63); EMU, now moving to second position, achieved a total of (1.09) and MAK remains last with a result of (0.80). These general scores are distributed among the discipline-clusters in the following manner: UWC: An & So (0.67), Ps & Pa (0.50) and Ec & Ma (0.46). EMU: An & So (0.12), Ps & Pa (0.75), Ec & Ma (0.22). MAK: An & So (0.60), Ps& Pa (0.20) and Ec & Ma (0.00). Again, Ps & Pa at EMU appears as the discipline-cluster with the highest scores in terms of co-authorship of book chapters both in inter-institutional as well as in intra-institutional comparison.

The results in the category of journal articles contain the second coefficient, weighting the place of publication, as well as the peer-review status. UWC appears to consolidate its position as the leading institution with strong academic networks. Overall, UWC scored (11.43) for the three discipline-clusters**.** However, if we consider single discipline-clusters An & So scored (2.84) with a subdivision into (0.67) for Locally Peer-Reviewed (LPR), (2.00) for Internationally Peer-Reviewed (IPR) and (0.17) for Non-Peer- Reviewed (NPR).

In the discipline-cluster of Ps & Pa, UWC reached 6.63, with the following distribution: LPR (1.50), IPR (4.50) and NPR (0.63). Finally, UWC gained (1.96) points in the discipline-cluster of Ec & Ma, made up of (0.46) for LPR, (1.38) for IPR and (0.12) for NPR publications.

The results of the other universities in the category of journal articles, provide us with the following data: MAK scored (3.58) for all three discipline-clusters, while An & So obtained an overall result of (2.85) with (0.90) for LPR, (1.80) for IPR and (0.15) for NPR, Ps & Pa received (0.00) in all three categories of peer-review status. Ec & Ma scored (0.73) for IPR and (0.00) both for LPR and NPR publications.

Finally, EMU reached an overall number of (1.78) point in all the discipline-clusters. The score is respectively distributed to each discipline-cluster as follows: An & So scored (0.62), which in turn consists of (0.18) for LPR, (0.35) for IPR and (0.09) for NPR. Ps & Pa received (0.94) with the following distribution amongst the varying types of review status: LPR (0.00), IPR (0.75) and NPR (0.19). Finally, Ec & Ma at EMU obtained a score of (0.22), (0.00) for LPR, (0.22) for IPR and (0.00) for NPR.

Moving to the category of conference papers, UWC remains in the first position. Overall, UWC scored (1.54) that can be split up in (0.33) points for An & So, (0.75) for Ps & Pa and (0.46) for Ec & Ma. In the same category, EMU falls in the second place with an overall score of (0.67) and the following subdivision: An & So (0.18), Ps & Pa (0.38) and Ec & Ma (0.11). Finally, MAK comes in the last position with a result of (0.60) that can be split up amongst the discipline-clusters into (0.40) for An & So and (0.10) for both Ps & Pa and Ec & Ma.

Research reports constitute the last category of co-authored publications used to assess the level of academic engagement with peers. EMU now moves to the forefront with an overall score of (0.59) and (0.21) in An & So, (0.19) in both Ps & Pa and Ec & Ma. UWC comes in the second place with a total of (0.57) points and the following subdivision amongst the various discipline-clusters: An & So (0.11), Ps & Pa (0.38) and Ec & Ma (0.08). MAK comes last in this category, reaching a score of (0.35) in total with a distribution of (0.15) for An & So, (0.00) for Ps & Pa and (0.20) for Ec & Ma.

The reader here is reminded that what counts in the final analysis are the aggregate values. In this particular case, the aggregate values show that UWC with an overall score of (16.48) is the institution that produced the largest number of co-authored publications. UWC is followed by EMU, with a total number of (7.26) point, while MAK comes last with a result of (5.73). If we break down the general scores according to the various discipline-clusters, as well as into publication and review status, some differences clearly emerge, both at the level of inter-discipline-clusters and intra-discipline-clusters, as well as at an inter-institutional level.

An in-depth analysis of the departments, as well as of the discipline-clusters (fields) in their specific academic milieus would be necessary to understand the logic behind such fluctuating performances.

This analysis has focused on mapping differences. At a later stage, I will attempt to establish whether there is any relationship between the levels of possession of scientific capital, scholastic as well as academic, and various forms of engagement (I will explore this issue further in the following sections).

5.3.1.2 Collaborative Research Projects

Collaborative research projects constitute another indicator that I used to establish the extent according to which academics engage in academic networks. The assumption behind this is that academics do not just get together to write co-authored publications, but also collaborate in various projects. In fact, a considerable number of the co-authored publications are an outcome of collaborations in research projects. Thus, collaborative research projects appear to be a suitable indicator for the level of engagement academics establish with their local and international peers.

Table 5.14 below shows the results obtained in the measurement of collaborative research projects, in which academics have been involved during the last five years. Following the previous analysis, the count of the actual individual research projects was subjected to a score based on certain criteria. Once again, I have chosen the local of publication, local or international, as a significant factor in the weighting of the collaboration in research projects. Hereby, one is able to distinguish between local and international collaborations.

As before, each of the two categories received a different weighting coefficient. This weighting is based on the assumption that local collaborations generally required less effort and are less prestigious than collaborations at an international level. Certainly, there are exceptions to this principle, such as cases where one of the local partners in the collaboration team possesses high symbolic capital. However, the exception does not make the rule.

For analytical purposes, the following five-point scale was installed: 'No projects', '1-3 projects', '4-6 projects', '7-10 projects' and 'more than 10 projects'. Overall, UWC scored (3.40), respectively distributed to the three discipline-clusters as follows: An & So (1.21), Ps & Pa (1.50) and Ec & Ma (0.69). In the same category, EMU comes second, having achieved a total number of (2.95) points and (1.18) points in An & So, (1.50) in Ps & Pa and (0.27) in Ec & Ma. Finally, taking the third place, MAK received a total result of (2.26) with the following division between the various disciplines: An & So (1.70), Ps & Pa (0.20) and Ec & Ma (0.36).

Table 5.14: *Collaborative Research Projects of Academics*

Discipline-Clusters	Coefficient	None*		1-3 Projects		4-6 Projects		7-10 Projects		More than 10 Projects		Total Staff	Score	Collaboration Index (1 & 2)	Aggregate Collaboration Index	Total Rank
		Eduardo Mondlane University (EMU)														
An & So (n 17)	Local (cf.1)	5	5	6	6	5	5	0	0	1	1	17	12/17	0.71	1.18	**2.95**
	International(cf.2)	13	26	3	6	1	2	0	0	0	0	17	8/17	0.47		
Ps & Pa (n 8)	Local (cf.1)	4	4	0	0	2	2	2	2	0	0	8	4/8	0.50	1.5	
	International(cf.2)	4	8	1	2	1	2	2	4	0	0	8	8/8	1.00		
Ec & Ma (n 18)	Local (cf.1)	15	15	1	1	1	1	0	0	1	1	18	3/18	0.16	0.27	
	International(cf.2)	17	34	1	2	0	0	0	0	0	0	18	2/18	0.11		
		Makerere University (MAK)														
An & So (n 10)	Local (cf.1)	3	3	2	2	3	3	1	1	1	1	10	7/10	0.70	1.70	**2.26**
	International(cf.2)	5	10	2	4	2	4	1	2	0	0	10	10/10	1.00		
Ps & Pa (n 10)	Local (cf.1)	8	8	1	1	1	1	0	0	0	0	10	2/10	0.20	0.20	
	International(cf.2)	10	20	0	0	0	0	0	0	0	0	10	0/10	0.00		
Ec & Ma (n 11)	Local (cf.1)	7	7	2	2	2	2	0	0	0	0	11	2/11	0.18	0.36	
	International(cf.2)	10	20	1	2	0	0	0	0	0	0	11	2/11	0.18		
		University of the Western Cape (UWC)														
An & So (n 9)	Local (cf.1)	6	6	1	1	2	2	0	0	0	0	9	3/9	0.33	1.21	**3.4**
	International(cf.2)	5	10	4	8	0	0	0	0	0	0	9	8/9	0.88		
Ps & Pa (n 4)	Local (cf.1)	2	2	1	1	0	0	0	0	1	1	4	2/4	0.50	1.50	
	International(cf.2)	2	4	1	2	0	0	0	0	1	2	4	4/4	1.00		
Ec & Ma (n 13)	Local (cf.1)	8	8	1	1	3	3	1	1	0	0	13	5/13	0.38	0.69	
	International(cf.2)	11	22	2	4	0	0	0	0	0	0	13	4/13	0.31		

Note: * The collaborative research project index excludes 'None' values.

To sum up, UWC academics are generally more engaged in collaborative research projects than their counterparts at EMU and MAK. However, if we look at the results in terms of discipline-clusters, there are cases in which the emerging ranking pattern of the three institutions changes. For instance, Makererian academics in An & So with (1.70) have engaged more with their peers than UWC with (1.21) and EMU with (1.18). UWC's and EMU's Ps & Pa have the same level of collaboration in joint research projects. Regarding Ec & Ma, UWC again takes the lead with (0.69), followed by MAK (0.36) and EMU in the last position with (0.27).

Looking more closely at the results, Ps & Pa at EMU with (1.50), the same score as UWC, appear to engage more in collaborative research projects than their local peers in the other discipline-clusters. This pattern is becoming systematic for this discipline-cluster, reinforcing the presumption that Ps & Pa comparatively is a highly productive department. A further example of Ps & Pa's noteworthy performance at EMU is its level of international collaboration in research projects. Again, the discipline-cluster has the highest score (1.00) amongst its local peers. It stands at the same level as its counterpart at UWC.

The results in Table 5.14 also present the performance of each discipline-cluster. However, a simple operation of addition gives us the values for the different institutions. Starting from the top to bottom, UWC scored (2.19)[13] for international collaboration in research projects, with the following results for the three discipline-clusters: An & So (0.88), Ps & Pa (1.00) and Ec & Ma (0.31). In the same category, EMU comes next with a sum of (1.58) points, consisting of (0.47) points for An & So, (1.00) for Ps & Pa and (0.11) for Ec & Ma. MAK displays the lowest performance, with an overall score of (1.18) respectively distributed as follows: An & So (1.00), Ps & Pa (0.00) and Ec & Ma (0.18).

In the category of local collaboration, EMU performed best with a sum of (1.32) points and the following subdivision into the three discipline-clusters: An & So (0.71), Ps & Pa (0.50) and Ec & Ma (0.11). UWC comes next with a total result of (1.21) and (0.33) for An & So, (0.50) for Ps & Pa and (0.31) for Ec & Ma. Finally, MAK, in the last position in terms of local collaboration in research projects, gained an overall score of (0.88), respectively

[13] This number is not included in Table 5.14

distributed to the three discipline-clusters as follows: An & So (0.70), Ps & Pa (0.00) and Ec & Ma (0.18).

Once again, the numbers speak for themselves when portraying the different performances of the discipline-clusters. The reasons behind the differences, however, require further investigation, as they depend on the particular dynamics of the fields in their contexts.

5.3.1.3 Affiliation to Professional Societies

I use the affiliation of academics to professional bodies as an indication of their engagement with these particular academic entities. The general question I posed to academics was whether they have belonged to an academic or professional association in the last five years. My intention is to assess the level of their entrenchment in one of the aspects of the academic lifestyle. Therefore, I did not consider it relevant to distinguish between institutional, occupational or disciplinary professional bodies.

There is a considerable amount of literature on the study of the professions, which makes distinctions based on various approaches dominated by Marxist, Weberian and Durkheimian perspectives. For instance, Rhoades (2007) indicates that a substantial amount of work has been published on the academic profession over the last 30 years. However, in the 1980s concern was expressed that the decline and near disappearance of papers on the professions would make it appear that the category of occupations was no longer meaningful to sociologists (Abbott, 1993; Hall, 1983; Macdonald, 1995).

While this study does not attempt to reclaim the study of the professions, the examination of the level of academic engagement in professional bodies is based on the assumption that belonging to certain professional bodies can be a platform and a way to connect with definite networks. As Perkin (2002, p. 2) argues, "[w]e live, in fact, in an increasingly professional society." Such societies are made up of career hierarchies of specialized occupations, selected by merit and based on trained expertise.

In his study 'the sociology of professions', Macdonald (1995) introduces a range of concepts that account for the various dimensions of social closure in professions. A concept such as

'regulative bargain', for instance, refers to his idea that to achieve a monopoly, or at least a licensure, an occupation must have a special relation to the state.

Table 5.15 below shows the extent to which academics from the three discipline-clusters were affiliated with professional bodies in 2008/09. I distinguish between national and international professional bodies. 'Effort and prestige' again are applied to assign different weighting coefficients to the two dimensions of affiliation. I assume that the membership in an international professional body, e.g. the International Sociological Association, requires more effort and renders more prestige than the membership in local bodies, such as the Mozambican Sociological Association.

Overall, MAK appears as the institution with comparatively higher levels of affiliation to professional bodies than do EMU and UWC. MAK reached a score of (1.27) with the following subdivision among the discipline-clusters: An & So (0.60), Ps & Pa (0.40) and Ec & Ma (0.27). EMU overall scored (0.69), with An & So receiving (0.41), Ps & Pa (0.00) and Ec & Ma (0.28). UWC got a total of (0.55) and the following results in each discipline-cluster: An & So (0.22), Ps & Pa (0.25) and Ec & Ma (0.08).

Table 5.15 below also shows discrepancies between the levels of national and international affiliation for each discipline-cluster. Academics from An & So at MAK with (0.40) display a higher degree of affiliation to international professional bodies than do their counterparts at EMU with (0.35) and UWC with (0.22) points. Ps & Pa follows the same trend with MAK scoring (0.40) against no stated affiliations at EMU and UWC. Finally, academics from Ec & Ma at EMU with (0.22) are more affiliated with international bodies than their colleagues at MAK with (0.18) and UWC with (0.00).

Overall, the levels of affiliation to professional bodies are relatively low in all three institutions. This is probably because these disciplinary fields are relatively new in some cases. For instance, at EMU sociology only started to function as an institutionalized discipline at the beginning of the century, more precisely in 2000 (Baloi, 2003; Manuel, 2003). Prior to that, all Mozambican sociologists were trained elsewhere, out of the country.

Table 5.15: *Affiliation of Academics to Professional Bodies in 2008/9*

Discipline-Clusters	Location & Coefficient	None*		1-3 Affiliations		4-5 Affiliations		More than 6 Affiliations		Total Score		Aggregate Membership (Index) Rank	Total Rank
		Eduardo Mondlane University (EMU)											
An & So (n 17)	National (1)	16	16	0	0	1	1	0	0	1/17	0.06	0.41	
	International (2)	14	28	2	4	1	2	0	0	6/17	0.35		
Ps & Pa (n 8)	National (1)	8	8	0	0	0	0	0	0	0/8	0.00	0.00	**0.69**
	International (2)	8	16	0	0	0	0	0	0	0/8	0.00		
Ec & Ma (n 18)	National (1)	17	17	1	1	0	0	0	0	1/18	0.06	0.28	
	International (2)	16	32	1	2	0	0	1	2	4/18	0.22		
		Makerere University (MAK)											
An & So (n10)	National (1)	8	8	0	0	2	2	0	0	2/10	0.20	0.60	
	International (2)	8	16	1	2	0	0	1	2	4/10	0.40		**1.27**
Ps & Pa (n 10)	National (1)	10	10	0	0	0	0	0	0	0/10	0.00	0.40	
	International (2)	8	16	0	0	1	2	1	2	4/10	0.40		
Ec & Ma (n11)	National (1)	10	10	0	0	1	1	0	0	1/11	0.09	0.27	
	International (2)	10	20	1	2	0	0	0	0	2/11	0.18		
		University of the Western Cape (UWC)											
An & So (n9)	National (1)	9	9	0	0	0	0	0	0	0/9	0.00	0.22	
	International (2)	8	16	0	0	0	0	1	2	2/9	0.22		
Ps & Pa (n4)	National (1)	3	3	1	1	0	0	0	0	1/4	0.25	0.25	**0.55**
	International (2)	4	8	0	0	0	0	0	0	0/4	0.00		
Ec & Ma (n13)	National (1)	12	12	1	1	0	0	0	0	1/13	0.08	0.08	
	International (2)	13	26	0	0	0	0	0	0	0/13	0.00		

Note: * The ranking excludes 'None' values.

5.3.2 Political Networks

The theme of academic engagement in '*Realpolitik*' or the relationship between academics and politics has been a 'hot topic' and the reason for many publications over the centuries. Topics like '*Academic freedom and autonomy*', '*Ivory towerism*' and its critics, '*Political meddling in academia*' are just a few examples of the issues which continue to fuel the debates. This study, however, limits the analysis to a simple mapping of the forms of engagement or networks of connections that academics from the three discipline-clusters under examination have established with two types of political entities or actors, 'Government' and 'Political Parties'.

The assumption behind this choice is to examine whether there is a relationship between the levels of possession of scientific capital and the forms of engagement with specific political entities or actors. I measure the extent to which academics are connected with these political entities, by looking – on the one hand – at research contracts and consultancy work that academics undertake for these two political entities and – on the other hand – by assessing their affiliation with political organizations (that is, party membership).

5.3.2.1 Research Contracts and Consultancy

The study looked at the proportion of research contracts and consultancy academics from the three discipline-clusters established with government and political parties. From the results, we can establish – in a comparative manner – which academics from which discipline-clusters established more ties with a particular political entity or actor. The two types of political entities or actors, government and political parties also represent different levels of political engagement.

If academics establish strong linkages with government and political parties, that is, if they have quite a considerable number of research contracts or consultancies with government bodies, the chances are that they possess high scientific capital (both scholastic and academic) in their respective fields. It is very likely that they have made a significant impact on their field of studies. The levels of engagement with political party structures will not necessarily be as high. If academics show weak scientific capital (especially in the scholastic dimension), but have strong linkages with government and political parties, that is, if they

have quite a considerable number of research contracts or consultancies with these three political entities, they are also likely to be strongly involved in political party structures.

The two identified types of political actors received different weighting coefficients reflecting an assumption on the different levels of autonomy or constraints that they might impose on academics. Whereas Government obtained the weighting coefficient (1), political parties were assigned the coefficient of (3). In other words, I presumed that an academic with high scientific capital is more likely to secure research contracts or consultancies with government without being constrained to a direct involvement with political party structures.

My expectation, therefore, was that academics with high scientific capital would establish more connections (research contracts and consultancies) with government bodies than with political parties. Conversely, academics with low scientific capital would build more connections (research contracts and consultancies) with political parties than with government bodies.

Table 5.16 below shows the proportion of contracts and consultancies academics carried out for governments and political parties. One should note that these contracts and consultancies might have been listed before in the category of research reports or collaborative research projects. However, what is important here is that they do not add up, as each category is treated separately in the analysis. If a report was mentioned before as a collaborative research project, this does not prevent it form appearing again in the category of political engagement.

This is because the reports and other publication types are simply being used as a proxy for a network of connections. In the questionnaire, the data for each category of engagement was gathered separately (see appendices II & III).

Table 5.16: *Research Contracts and Consultancy by Academics for Government and Political Parties.*

Discipline-Clusters	Entity & Coefficient	None*		1-5 RC		6-10 RC		11-15 RC		16-20 RC		Total Score * Cf	Aggregate Score	Total / Rank
Eduardo Mondlane University (EMU)														
An & So (n 17)	Government (cf.1)	12/17	0.70	3/17	0.18	2/17	0.12	0/17	0.00	0/17	0.00	0.30	0.30	**1.16**
	Political Party (cf.3)	17/17	1.00	0/17	0.00	0/17	0.00	0/17	0.00	0/17	0.00	0.00		
Ps & Pa (n 8)	Government (cf.1)	6/8	0.75	1/8	0.13	0/8	0.00	0/8	0.00	1/8	0.13	0.25	0.64	
	Political Party (cf.3)	7/8	0.87	0/8	0.00	1/8	0.13	0/8	0.00	0/8	0.00	0.39		
Ec & Ma (n 18)	Government (cf.1)	14/18	0.78	2/18	0.11	0/18	0.00	2/18	0.11	0/18	0.00	0.22	0.22	
	Political Party (cf.3)	18/18	1.00	0/18	0.00	0/18	0.00	0/18	0.00	0/18	0.00	0.00		
Makerere University (MAK)														
An & So (n 10)	Government (cf.1)	10/10	1.00	0/10	0.00	0/10	0.00	0/10	0.00	0/10	0.00	0.00	0.00	**0.19**
	Political Party (cf.3)	10/10	1.00	0/10	0.00	0/10	0.00	0/10	0.00	0/10	0.00	0.00		
Ps & Pa (n 10)	Government (cf.1)	9/10	1.00	0/10	0.00	0/10	0.00	0/10	0.00	1/10	0.10	0.10	0.10	
	Political Party (cf.3)	10/10	1.00	0/10	0.00	0/10	0.00	0/10	0.00	0/10	0.00	0.00		
Ec & Ma (n 11)	Government (cf.1)	10/11	0.91	1/11	0.09	0/11	0.00	0/11	0.00	0/11	0.00	0.09	0.09	
	Political Party (cf.3)	11/11	1.00	0/11	0.00	0/11	0.00	0/11	0.00	0/11	0.00	0.00		
University of the Western Cape (UWC)														
An & So (n 9)	Government (cf.1)	9/9	1.00	0/9	0.00	0/9	0.00	0/9	0.00	0/9	0.00	0.00	0.00	**0.81**
	Political Party (cf.3)	9/9	1.00	0/9	0.00	0/9	0.00	0/9	0.00	0/9	0.00	0.00		
Pse & Pa (n 4)	Government (1)	2/4	0.50	¼	0.25	0/4	0.00	1/4	0.25	0/4	0.00	0.50		
	Political Party (3)	4/4	1.00	0/4	0.00	0/4	0.00	0/4	0.00	0/4	0.00	0.00	0.50	
Ec & Ma (n 13)	Government (cf.1)	9/13	0.69	1/13	0.08	2/13	0.15	1/13	0.08	0/13	0.00	0.31		
	Political Party (cf.3)	13/13	1.00	0/13	0.00	0/13	0.00	0/13	0.00	0/13	0.00	0.00	0.31	

Note: * The ranking excludes 'None' values.

Overall, EMU emerges as the institution that has established more political networks than both MAK and UWC, reaching the total of (1.16) as against UWC's performance of (0.81) and MAK's of (0.19). In other words, in aggregate, academics at EMU are more inclined to undertake research contracts or consultancy work for government and political parties than their peers at UWC and at MAK.

If we break down the data and consider each discipline-cluster, as well as the type of political body, the results look as follows: In terms of discipline-clusters, EMU's (1.16) is respectively distributed to An & So, with (0.30), Ps & Pa with (0.64) and Ec & Ma with (0.22). These scores demonstrate that academics from Ps & Pa at EMU show a higher level of political connection (when it comes to research contracts and consultancy work) than their counterparts in Ec & Ma and An & So.

If we break down the data and take a look at the type of political entity or actor to which academics are connected, we obtain the following results: In the case of EMU, academics from Ps & Pa took up more contracts and consultancy work with political parties ranking (0.39) points than with government with (0.25). An & So came second in this category with an overall score of (0.30) for government contracts and consultancy, followed by Ec & Ma with a number of (0.22) points for government work.

The latter two discipline-clusters do not engage at all with political parties for the purposes of contracts and consultancy.

UWC holds the second position in terms of the general classification of political engagement. Here, academics from Ps & Pa with the result of (0.50) once again appear to be more engaged with political entities or actors than do their counterparts in Ec & Ma, with (0.31) and An & So with (0.00). The situation of MAK, with the lowest score, follows this general trend, as Ps & Pa continues to be the leading discipline-cluster with a total score of (0.10) out of (0.19). Ec & Ma received the remaining (0.09) points.

Again, all contracts or consultancies are exclusively related to government bodies and political parties. These results suggest two preliminary readings: First, the nature of the discipline plays a crucial role when it comes to political networks. In a hierarchy of engagement, academics in Ps & Pa are more likely to establish connections with political

entities or actors than are their counterparts in Ec & Ma and An & So. Secondly, academics from An & So somehow avoid political entities.

5.3.2.2 Affiliation with Political Organizations

Whereas the previous table (No. 5.16) shows the proportion of research contracts and consultancy work done for different types of political bodies, the next table (No. 5.17) depicts the extent to which academics are involved in political party structures. There are two variables in the table: The first concerns the form of engagement, specifically, academics were asked about their affiliations to a political party. In the case of a positive answer, they were further asked whether the party was in power or not. The second variable in the table concerns the level of engagement within party structures. I distinguished between three levels of engagement: simple membership, leadership position and senior leadership position.

The final ranking is based only on 'yes' answers. That is, academics without party membership were not considered in the ranking. Among the anthropologists and sociologists (n17) at EMU, for example, only four declared being affiliated to a political party, which represents a value of (0.24), while a high proportion of (0.71) denied their affiliation to any party. The level of engagement, which constitutes the second variable of the table, is only applicable to academics with party affiliations.

In the case of An & So at EMU, the whole sample answered the question regarding their political party affiliation, as well as whether the party was in power. In other cases, the respondents chose not to answer the question. Those questions considered missing cases and were thus not included in the ranking. In the table, the column count shows the proportion of respondents for both categories of answers 'yes' and 'no'.

Table 5.17: *Political Networks by Affiliation and Level of Engagement in Political Parties*

Discipline-Clusters	Form of Engagement	Count		Score		Level of Engagement	Count		Score		Rank
		Yes	No	Yes	No						
		Eduardo Mondlane University (EMU)					Yes	No	Yes	No	
An & So (n 17)	Member of political party?	4/17	12/17	0.24	0.71	Simple member (cf.1)	2/17	1	0.12	1	**0.12**
						Leadership position (cf.2)	0/17	0	0	0	
						Senior leadership position (cf.3)	0/17	0	0	0	
	Is party in power?	3/17	1/17	0.18	0.06						
Ps & Pa (n 8)	Member of political party?	2/8	5/8	0.25	0.63	Simple member (cf.1)	0/8	0	0	0	**0.00**
						Leadership position (cf.2)	0/8	0	0	0	
						Senior leadership position (cf.3)	0/8	0	0	0	
	Is party in power?	1/8	0/8	0.13	0.00						
Ec & Ma (n 18)	Member of political party?	13/18	5/18	0.72	0.28	Simple member (cf.1)	9/18	2	0.5	2	**0.78**
						Leadership position (cf.2)	1/18	2	0.11	4	
						Senior leadership position (cf.3)	1/18	2	0.17	6	
	Is party in power?	12/18	0/18								
		Makerere University (MAK)									
An & So (n10)	Member of political party?	2/10	7/10	0.20	0.70	Simple member (cf.1)	1/10	0	0.1	0	**0.10**
						Leadership position (cf.2)	0/10	4	0	8	
						Senior leadership position (cf.3)	0/10	4	0	12	
	Is party in power?	1/10	2/10	0.10	0.20						
Ps & Pa (n10)	Member of political party	4/10	5/10	0.40	0.50	Simple member (cf.1)	2/10	2	0.2	0	**0.20**
						Leadership position (cf.2)	0/10	0	0	4	
						Senior leadership position (cf.3)	0/10	0	0	6	
	Is party in power?	2/10	2/10	0.20	0.20						
Ec & Ma (n11)	Member of political party	3/11	8/11	0.27	0.30	Simple member (cf.1)	1/11	0	0.09	0	**0.82**
						Leadership position (cf.2)	4/11	4	0.73	8	
						Senior leadership position (cf.3)	0/11	4	0	12	
	Is party in power?	0/11	3/11	0.00	0.27						

Discipline-Clusters	Form of Engagement	Count		Score		Level of Engagement	Count		Score		Rank
		University of the Western Cape (UWC)									
An & So (n9)	Member of political party	3/9	6/9	0.33	0.67	Simple member (cf.1)	1/9	0	0.11	0	**0.11**
						Leadership position (cf. 2)	0/9	0	0	0	
						Senior leadership position (cf.3)	0/9	0	0	0	
	Is party in power?	2/9	0/9	0.22	0.00						
Ps & Pa (n4)	Member of political party	1/4	¾	0.25	0.75	Simple member (cf.1)	1/4	0	0.25	0	**0.25**
						Leadership position (cf.2)	0/4	0	0	0	
						Senior leadership position (cf.3)	0/4	0	0	0	
	Is party in power?	1/4	0/4	0.25	0.00						
Ec & Ma (n13)	Member of political party	2/13	11/13	0.67	0.85	Simple member (cf.1)	1/13	0	0.08	0	**0.08**
						Leadership position (cf.2)	0/13	0	0	0	
						Senior leadership position (cf.3)	0/13	0	0	0	
	Is party in power?	4/13	0/13	0.31	0.00						

Note: The ranking is based only on 'YES 'answers. The level of engagement applies only to the fraction of those academics who claimed to have affiliations with a political party. Hence, overall the majority of academics in all three discipline-clusters in the three universities declared not to have any political affiliation. The ranking, therefore, depicts the intensity of political engagement (networks) rather than its density.

Still looking at the case of EMU and the discipline-cluster of An & So, four out of 17 academics answered the question inquiring as to whether their party was in power or not during the last five years; three respondents gave a positive answer, and one gave a negative answer. If (0.24) corresponds to 100% of the 'yes' answers, (0.18) accounts for the proportion of academics whose party was in power, while (0.06) for those whose party was not in power. The same analysis applies to the other discipline-clusters in Table 5.17 above. For brevity and clarity, I will not describe these results in detail.

The second variable in the table, however, requires more detailed discussion. This variable concerns the level of engagement in political party structures by academics. Again, only the 'yes' answers were considered in the ranking. 'Yes' answers refer to the proportion of academics who claimed to be affiliated to a political party. All negative answers were taken as an expression of non-affiliation or were treated as missing cases.

If we add up the values of each discipline-cluster, we receive the overall affiliation rank of each institution. For instance, EMU's total affiliation rank comes to (0.90)[14] respectively distributed to the discipline-clusters as follows: An & So (0.12), Ps & Pa (0.00) and Ec & Ma (0.78). These results can be broken down in order to determine the predominant category of membership. In the case of An & So, the entire amount of (0.12) points goes to simple membership.

That means, in other words, that none of EMU's academics from An & So hold a leadership or senior leadership position in political party structures. The same applies to Ps & Pa. Yet, amongst the (0.78) proportion of academics from Ec & Ma at EMU who are affiliated to political parties, (0.50) are simple members, (0.11) hold leadership and (0.17) hold senior leadership positions.

In the same category, MAK's overall affiliation rank is (1.12) and shows the following distribution: An & So (0.10), Ps & Pa (0.20) and Ec & Ma (0.82). If we disaggregate the results, (0.10) academics from An & So are simple members, and none of them holds a leadership or senior leadership position. A proportion of (0.20) academics from Ps & Pa at MAK are simple members of a political party. Finally, a proportion of (0.09) academics from

[14] This number is not included in Table 5.17

Ec & Ma at MAK hold simple membership and (0.73) hold leadership positions in political party structures.

In general, UWC's affiliation value is (0.44), positioning it as the institution with the lowest level of political party affiliation when compared with EMU with (0.90) and MAK with (1.12). In terms of discipline-clusters, a fraction of (0.11) academics from An & So have a simple membership position in political party structures. For Ps & Pa that proportion is doubled to (0.25), but still made up of academics holding simple membership. Finally, a proportion of (0.08) academics from Ec & Ma also have a simple membership position in political party structures.

This brief presentation of political affiliation by academics of the three institutions at the centre of this study reveals that the levels of political involvement are not as high as I might have assumed. Nevertheless, one should note that the proportion of 'No' answers was also considerably high, which may veil the real political affiliation status of many academics. In the presentation of my methodology in Chapter Four, I discussed that most academics felt uncomfortable answering the question about their party affiliation. The results presented here, thus reflect the answers of those academics that did not hide their political affiliations.

5.3.3 Economic Networks (Funding and Grant Source)

Modern higher education systems exhibit a high degree of financial dependence. There are different possible sources of connection between higher education and financial institutions, both public and private. For instance, governments are directly connected through mutual negotiations on the budget allocation to the institutions. Likewise, industries, in the cases where this sector is relevant, as well as the 'industry of developmental aid', that is, international aid agencies, establish direct or indirect linkages with universities for financial purposes.

By providing means to model the specifics of economic interactions, correspondence and network analysis can better explain certain academic phenomena. In this particular case, the interest is to ascertain whether levels of possession of scientific capital influence academic ties with financial institutions. In other words, does scientific capital convert into economic capital? If yes, at what rate do these conversions occur?

Worldwide, the proportion of governmental funding in the overall budgets of public universities (in real terms) continues to decline (Johnstone, 1998, 2001; Marginson & Considine, 2000; Slaughter & Leslie, 1997; Sporn, 1999; Wangenge-Ouma, 2007, 2008). Universities across the globe are thus faced with what Johnstone (2001, p. 2) describes as ‘‘creeping austerity: a slow but unrelenting worsening of the financial condition of most universities and other institutions of higher education, particularly as they are dependent on governmental, or tax-generated revenue.’’ There are some exceptions to this trend. In continental Europe no proportional or real term decline in public funding of universities since early 1990s has been recorded (Bonaccorsi & Daraio, 2007), yet this makes the exception, not the rule.

Restraints in state funding threaten the existence of higher education institutions, thus prompting them to undertake various adaptive responses to ensure their continued survival (Wangenge-Ouma, 2008). As Sporn (1999, p. 68) points out, ‘‘given pressing problems of resource supply, institutions of higher education need to find adequate strategies to meet the needs for this new situation.’’

Although not the central theme of this study, higher education marketing, which, from a funding point-of-view refers to university strategies and processes for generating revenue from private sources (Nafukho, 2004; Oketch, 2003; Slaughter & Leslie, 1997; Slaughter & Rhoades, 2004; Wangenge-Ouma, 2007, 2008) has often been suggested as the solution to the declining resource supply to public universities from governmental sources. Advocates of higher education marketing strategies have consistently argued that large-scale public funding of higher education is regressive and no longer reasonable and that generous public funding of higher education undermines equitable access, efficiency and even the quality of higher education (Barr, 2004; Johnstone, 1998, 2001; Wangenge-Ouma, 2008; World Bank, 1994).

Again, a detailed engagement with this argument is not the objective of this study. It rather seeks to show that marketing, while helping to mitigate the funding conundrum facing many public universities in certain contexts, has created a space for individual academics, academic units, and disciplines to seek their own ways of funding research.

My premise is that by tracking and tracing the networks of connection which academics establish with financial institutions, we should be able to identify which academics receive

which kind of financial resources from what kind of sources. In other words, I hypothesize that specific levels of scientific capital will lead academics to initiate relations with different financial institutions.

On the one hand, this differentiation will help to inform us which individual academics, institutions, academic units and disciplines will succumb to the 'logic of the sponsor and thereby risk losing the autonomy of the scholarly nature of their work. This leads to a situation in which academics become, what I call, *'survival academics'*, or *'cash-crop academics'*, only conducting research whenever some external *'client'*, driven by non-scholarly logic, asks them to legitimize their intervention with the signature of an academic. Mouton et al. (2008, p. 200) characterizes this practice as the "subsistence mode" of knowledge production.

Burawoy astutely captures this point in his analysis of the challenges of the sociological profession: "In many parts of the world the only way for sociologists to survive is to become a consultant for one or another international organization, but that access, too, is only for the privileged elite and depends on Western academic credentials (. . .). Where sociologists do exist, their survival often depends on multiple jobs, including where possible, contract work with international agencies and non-governmental organizations" (Burawoy, 2009, pp. 39-40). In other words, the characteristics of academics mentioned here remind us of the type I defined as *'homo academicus consultans.'*

On the other hand, the differentiation of the funding sources will determine the institutions, academic units, disciplines, and academics who are in better positions to bargain for money, while keeping the autonomy of their scholarly work alive, as well as the so-called core mission of the university as a site of knowledge production, scientific and technological innovation resembling the 'Republic of Science' (Polanyi, 1962).

From the literature, I have identified three major sources of funding in African higher education, these are: *'Governments'*, *'International Non-Governmental Organizations (NGOs)'* and the so-called *'Industry'* (Banya & Elu, 2001; Nafukho, 2004; Wangenge-Ouma, 2007, 2008). In some cases, the so-called national or local NGOs also provide funds for some research. Mostly, these scholars state, "in many African countries, resources for higher education have steadily declined through the years. The decline has invariably been ascribed

inter alia to inflation, devaluation of the currency exchange rate, huge external debts, economic and political turmoil, intersectoral competition for public funds and the World Bank and International Monetary Fund's macro-economic principles of budget deficit reduction and restricted social spending" (Wangenge-Ouma, 2008, p. 459).

The following table (No. 5.18) displays the networks of connection academics have established with four sources of funding: Government, International and Local NGOs and Industries in the last five years. The results depict the performance of each discipline-cluster for each institution considered in this study.

Table 5.18: *Economic Networks Measured by Source of Research Projects Funding*

Discipline-Clusters	Funding Source	None*		1-5 Grant		6-10 Grant		11-15 Grant		16-20 Grant		Total Score	Rank	Aggregate Score
Eduardo Mondlane University (EMU)														
An & So (n 17)	Government	12/17	0.71	2/17	0.12	2/17	0.12	1/17	0.06	0/17	0.00	0.30		
	International NGO	7/17	0.41	4/17	0.24	4/17	0.24	2/17	0.12	0/17	0.00	0.60	**1.20**	
	Local NGO	15/17	0.88	0/17	0.00	1/17	0.06	0/17	0.00	1/17	0.06	0.12		
	Industry	15/17	0.88	1/17	0.06	0/17	0.00	0/17	0.00	1/17	0.06	0.18		
Ps & Pa (n 8)	Government	5/8	0.63	0/8	0.00	1/8	0.13	1/8	0.13	1/8	0.13	0.38		
	International NGO	4/8	0.50	0/8	0.00	3/8	0.38	1/8	0.13	0/8	0.00	0.50	**1.38**	
	Local NGO	4/8	0.50	1/8	0.13	3/8	0.38	0/8	0.00	0/8	0.00	0.50		**3.11**
	Industry	8/8	1.00	0/8	0.00	0/8	0.00	0/8	0.00	0/8	0.00	0.00		
Ec & Ma (n 18)	Government	17/18	0.94	1/18	0.06	0/18	0.00	0/18	0.00	0/18	0.00	0.06		
	International NGO	11/18	0.61	2/18	0.11	3/18	0.12	1/18	0.06	0/18	0.00	0.29	**0.53**	
	Local NGO	16/18	0.88	1/18	0.06	1/18	0.06	0/18	0.00	0/18	0.00	0.12		
	Industry	17/18	0.94	0/18	0.00	1/18	0.06	0/18	0.00	0/18	0.00	0.06		
		Makerere University (MAK)												
An & So (n 10)	Government	9/10	0.90	0/10	0.00	1/10	0.10	0/10	0.00	0/10	0.00	0.10		
	International NGO	3/10	0.30	2/10	0.20	3/10	0.30	2/10	0.20	0/10	0.00	0.70	**1.10**	
	Local NGO	8/10	0.80	1/10	0.10	0/10	0.00	1/10	0.10	0/10	0.00	0.20		
	Industry	9/10	0.90	0/10	0.00	1/10	0.10	0/10	0.00	0/10	0.00	0.10		
Ps & Pa (n 10)	Government	9/10	0.90	0/10	0.00	0/10	0.00	0/10	0.00	1/10	0.10	0.10		
	International NGO	5/10	0.50	1/10	0.10	2/10	0.20	0/10	0.00	1/10	0.10*	0.10		
	Local NGO	10/10	1.00	0/10	0.00	0/10	0.00	0/10	0.00	0/10	0.00	0.00	**0.20**	**1.66**
	Industry	10/10	1.00	0/10	0.00	0/10	0.00	0/10	0.00	0/10	0.00	0.00		
Ec & Ma (n 11)	Government	10/11	0.91	0/11	0.00	0/11	0.00	0/11	0.00	1/11	0.09	0.09		
	International NGO	9/11	0.82	1/11	0.09	1/11	0.09	0/11	0.00	0/11	0.00	0.18	**0.36**	
	Local NGO	9/11	0.82	0/11	0.00	1/11	0.09	1/11	0.09	0/11	0.00	0.18		
	Industry	10/11	0.91	1/11	0.09	0/11	0.00	0/11	0.00	0/11	0.00	0.09		

Discipline-Clusters	Funding Source	None*		1-5 Grant		6-10 Grant		11-15 Grant		16-20 Grant		Total Score	Rank	Aggregate Score
	University of the Western Cape (UWC)													
An & So (n 9)	Government	9/9	1.00	0/9	0.00	0/9	0.00	0/9	0.00	0/9	0.00	0.00		
	International NGO	5/9	0.56	1/9	0.11	1/9	0.11	1/9	0.11	1/9	0.11	0.44	**0.55**	
	Local NGO	8/9	0.89	1/9	0.11	0/9	0.00	0/9	0.00	0/9	0.00	0.11		
	Industry	9/9	1.00	0/9	0.00	0/9	0.00	0/9	0.00	0/9	0.00	0.00		
Ps & Pa (n 4)	Government	3/4	0.75	1/4	0.25	0/4	0.00	0/4	0.00	0/4	0.00	0.25		**1.76**
	International NGO	3/4	0.75	1/4	0.25	0/4	0.00	0/4	0.00	0/4	0.00	0.25	**0.75**	
	Local NGO	3/4	0.75	1/4	0.25	0/4	0.00	0/4	0.00	0/4	0.00	0.25		
	Industry	4/4	1.00	0/4	0.00	0/4	0.00	0/4	0.00	0/4	0.00	0.00		
Ec & Ma (n 13)	Government	10/13	0.78	0/13	0.00	2/13	0.15	1/13	0.08	0/13	0.00	0.23		
	International NGO	10/13	0.78	3/13	0.23	0/13	0.00	0/13	0.00	0/13	0.00	0.23	**0.46**	
	Local NGO	13/13	1.00	0/13	0.00	0/13	0.00	0/13	0.00	0/13	0.00	0.00		
	Industry	13/13	1.00	0/13	0.00	0/13	0.00	0/13	0.00	0/13	0.00	0.00		

Note: Ranking excludes 'None' values as it represents the proportion of academics who declared not having received funding from any of the listed sources. The level of engagement in economic networks is based only on the fraction of academics who declared to have received funding/grants from at least one of the listed funding sources in the last five years.

(*) One missing case.

Table 5.18 above shows the sources of funding received by academics at the respective universities. EMU is the institution that has established the most ties with the four sources of funding, as far as grants for research projects are concerned. Overall, EMU scored (3.11), respectively distributed to by the three discipline-clusters as follows: An & So (1.20), Ps & Pa (1.38) and Ec & Ma (0.53).

If we look at the sources of funding, the value of (1.20) achieved by EMU's An & So can be split up between the four sources of funding as follows: Government caters for (0.30), International NGOs for (0.60), Local NGOs for (0.12) and Industry for (0.18). We can observe that (0.60) of the funding academics from An & So at EMU receive as external research grants comes from International NGOs. If we now consider Ps & Pa, the figures are as follows: Overall, Ps & Pa is the leading discipline-cluster at EMU with a score of (1.38) for grants received from different sources. The score can be divided among the four funding sources as follows: Government (0.38), International NGOs (0.50), Local NGOs (0.50) and Industry (0.00).

Again, a considerable proportion is coming from International NGOs. Finally, Ec & Ma appears to be the discipline-cluster, which received the least grants compared with its counterparts in An & So and Ps & Pa. It gained an overall score of (0.53) with the following subdivision: Government (0.06), International NGOs (0.29), Local NGOs (0.12) and Industry (0.06). International NGOs continue to be the primary source of research grants. Overall EMU's international NGO score is (1.39), of which An & So obtains (0.60), Ps & Pa (0.50) and Ec & Ma (0.29).

UWC comes in the second place in terms of the general score as far as research grants are concerned. In total, UWC received (1.76) points with the following subdivision: An & So (0.55), Ps & Pa (0.75) and Ec & Ma (0.46). In terms of the source of research grants for each discipline-cluster, An & So's performance of (0.55) is distributed as follows: from Government (0.00), International NGOs (0.44), Local NGOs (0.11) and Industry (0.00).

Interestingly, the results show that all the research grants for An & So at UWC come from International and Local NGOs. Ps & Pa receives (0.75) of the grants at UWC, which are divided equally between Government, Local and International NGOs. Industry did not contribute any funds. Finally, Ec & Ma achieved 0.46, with (0.23) points both for

Government funding and International NGOs. Local NGOs and Industry did not make any funds available for research grants.

MAK displays the lowest performance in the category of research grants with an overall result of (1.66) that can be split up as follows: An & So (1.10), Ps & Pa (0.20) and Ec & Ma (0.36). As far as the source of funding is concerned, An & So's value of (1.10) shows the following distribution: Government (0.10), International NGOs (0.70), Local NGOs (0.20) and Industry (0.10). The only funders contributing to the value for Ps & Pa are Government with (0.10) and International NGOs with (0.10). Finally, the (0.36) score of Ec & Ma can be subdivided as follows among the different sources: Government (0.09), International NGOs (0.18), Local NGOs (0.18) and Industry (0.09).

The picture that clearly emerges is that all three institutions rely hugely on the funding of International NGOs for their research grants. This is revealed by the declared source of research grants by individual academics from each and all discipline-clusters under examination. The second major source of financial support is Government; Local NGOs have some stake, particularly at EMU. Industry is almost insignificant in its contributions towards research funding – in all three cases.

The next table (No. 5.19) depicts the distribution of the amount of research funding from diverse sources. The comparative representation of the results enables us to see, which discipline-clusters from which institution raised or received more funding. For instance, An & So at EMU with a (0.94) score outperforms its counterparts at UWC with (0.84) and MAK with (0.78). Ps & Pa at UWC with a score of (1.00) surpasses both MAK's performance of (0.70) and EMU's of (0.57).

UWC once again performs best in the discipline-cluster Ec & Ma with a value of (0.77); MAK and EMU achieve a score of (0.72) and (0.62) respectively. Even though UWC seems to have a more diverse source of funding, the real amount (1.76) received from the various sources is not enough to make it the leading institution in terms of the value received from these sources. In that regard UWC comes first, MAK second and EMU takes the last position.

Table 5.19: *Economic Networks Measured by Total Amount of Research Funding from Diverse Sources*

Discipline-Clusters	None*		Less than 10 000$		10 000 - 24 999$		24 999 – 49 999 $		50 000 – 99 999 $		More than 100 000$		Total Score	Rank
	Eduardo Mondlane University (EMU)													
An & So (n 17)	1/17	0.06	7/17	0.41	5/17	0.29	2/17	0.12	1/17	0.06	1/17	0.06	0.94	**2.13**
Ps & Pa (n 8*)	3/7	0.43	1/7	0.14	0/7	0.00	0/7	0.00	1/7	0.14	2/7	0.29	0.57	
Ec & Ma (n 18)	7/18	0.39	5/18	0.28	2/18	0.11	3/18	0.17	0/18	0.00	1/18	0.06	0.62	
	Makerere University (MAK)													
An & So (n 10*)	0/9	0.00	2/9	0.22	3/9	0.33	3/9	0.33	0/9	0.00	1/9	0.11	0.78	**2.20**
Ps & Pa (n 10)	3/10	0.30	1/10	0.10	2/10	0.20	4/10	0.40	0/10	0.00	0/10	0.00	0.70	
Ec & Ma (n 11)	3/11	0.27	3/11	0.27	3/11	0.27	1/11	0.09	1/11	0.09	0/11	0.00	0.72	
	University of the Western Cape (UWC)													
An & So (n 9)	1/9	0.11	4//9	0.44	1/9	0.11	1/9	0.11	1/9	0.11	1/9	0.11	0.84	**2.61**
Ps & Pa (n 4)	0/4	0.00	2/4	0.50	0/4	0.00	0/4	0.00	1/4	0.25	1/4	0.25	1.00	
Ec & Ma (n 13)	3/13	0.23	5/13	0.38	2/13	0.15	1/13	0.08	1/13	0.08	1/13	0.08	0.77	

Note: The ranking excludes 'None' values as it represents the proportion of academics who declared not having received any funding. The level of engagement in economic networks is based only on the fraction of academics who declared to have received funding/grants from at least one of the listed funding sources in the last five years.

(*) One missing case.

5.3.4 Civil Society Networks (Research Contracts & Membership)

In social sciences, there is no consensus as to the theoretical and empirical separation of political, economic and social relations. The shifting meaning of the concept of 'civil society' indicates changing theoretical attitudes towards the relationship between the economy, society and the state (Abercrombie, Hill, & Turner, 2006). In sociology, for instance, the notion of civil society was brought into discussion mostly through the works of Hegel (1872) and Marx (1938).

Currently, the concept still entertains and fuels the debate about its definitions and delimitations. However, a more Durkheimian approach has prevailed. On the one hand, civil society is regarded as a protective barrier between the individual and his or her family. On the other hand, civil society is defined as the "sphere of social life outside the state and the economy that is organized around principle or solidarity and that encompasses such organizations, voluntary associations, and mediating bodies of occupational groups" (Emirbayer, 2003, p. 217).

The well-being of a society, it is believed, depends on a viable civil society in the shape of a network of these institutions. The idea of civil society at this point is associated with the concept of social capital. Two main forms to gather information on academic connections with civil society organizations were based on research or the number of consultancy contracts and the degree of affiliation to such organizations. The results are presented in the next two tables, No. 5.20 and No. 5.21.

I use the term civil society to refer to a collection of non-governmental institutions, defined as a realm of free activity and association that is not organized by the state. In this study, I particularly make a distinction between national or local and international NGOs.

Table 5.20: *Civil Society Networks Measured by Research Contracts or Consultancy*

Discipline-Clusters	International/Local NGO	None**		1-5 Contracts		6-10 Contracts		11-15 Contracts		16-20 Contracts		Total Score *cf	Aggregate Score	Rank
		Eduardo Mondlane University (EMU)												
An & So (n 17)	International NGO (cf.2)	9/17	0.53	2/17	0.12	5/17	0.29	1/17	0.06	0/17	0.00	0.94	**1.53**	**3.79**
	Local NGO (cf.1)	7/17	0.41	5/17	0.29	1/17	0.06	2/17	0.12	2/17	0.12	0.59		
Ps & Pa (n 8)	International NGO (cf.2)	4/8	0.5	1/8	0.13	2/8	0.25	0/8	0.00	1/8	0.13	1.00	**1.75**	
	Local NGO (cf.1)	2/8	0.25	1/8	0.13	5/8	0.63	0/8	0.00	0/8	0.00	0.75		
Ec & Ma (n 18)	International NGO (cf.2)	15/18	0.83	2/18	0.11	1/18	0.06	0/18	0.00	0/18	0.00	0.34	**0.51**	
	Local NGO (cf.1)	15/18	0.83	2/18	0.11	0/18	0.00	0/18	0.00	1/18	0.06	0.17		
		Makerere University (MAK)												
An & So (n 10)	International NGO (cf.2)	6/10	0.60	3/10	0.30	1/10	0.10	0/10	0.00	0/10	0.00	0.80	**1.40**	**1.77**
	Local NGO (cf.1)	5/10	0.50	1/10	0.10	3/10	0.30	1/10	0.10	0/10	0.00	0.50		
Ps & Pa (n 10)	International NGO (cf.2)	10/10	1.00	0/10	0.00	0/10	0.00	0/10	0.00	0/10	0.00	0.00	**0.10**	
	Local NGO (cf.1)	9/10	0.90	1/10	0.10	0/10	0.00	0/10	0.00	0/10	0.00	0.10		
Ec & Ma (n 11)	International NGO (cf.2)	10/11	0.91	0/11	0.00	0/11	0.00	1/11	0.09	0/11	0.00	0.18	**0.27**	
	Local NGO (cf.1)	10/11	0.91	0/11	0.00	1/11	0.09	0/11	0.00	0/11	0.00	0.09		
		University of the Western Cape (UWC)												
An & So (n 9)	International NGO (cf.2)	7/9	0.78	1/9	0.11	1/9	0.11	0/9	0.00	0/9	0.00	0.44	**0.55**	**1.45**
	Local NGO (cf.1)	8/9	0.89	0/9	0.00	0/9	0.00	0/9	0.00	1/9	0.11	0.11		
Ps & Pa (n 4)	International NGO (cf.2)	¾	0.75	0/4	0.00	0/4	0.00	1/4	0.25	0/4	0.00	0.50	**0.75**	
	Local NGO (cf.1)	¾	0.75	0/4	0.00	0/4	0.00	1/4	0.25	0/4	0.00	0.25		
Ec & Ma (n 13)	International NGO (cf.2)	13/13	1.00	0/13	0.00	0/13	0.00	0/13	0.00	0/13	0.00	0.00	**0.15**	
	Local NGO (cf.1)	10/13	0.77	1/13	0.08	2/13	0.15	0/13	0.00	0/13	0.00	0.15		

*** cf.:** Ratio with weighting coefficient.
****Note:** The ranking excludes 'None' values.

Table 5.20 above shows academic networks with civil society, as they have been measured by research or consultancy contracts in the last five years. In line with the previous cases, a principle based on 'effort and prestige' was used to assign different weights to the contracts with local and international organizations. Contracts with local civil society organizations received a weighting coefficient of (1), international civil society organizations that of (2). This principle also accounts for the cases, in which international civil society is operating from a national site. A category scale was implemented to group the contracts, including the following groups: 'None', '1-5 contracts', '6-10 contracts', '11-15 contracts' and '16-20 contracts'.

The category of 'None' was excluded from the analysis, as well as from the ranking, as it represents the proportion of those academics who declared not having established any connection with civil society organizations.

This analysis enables us to see the intensity of these connections in a comparative manner. Overall, academics from EMU appear as those who have established the strongest connections with civil society organizations for research or consultancy purposes. EMU scores (3.79) in the ranking of connections with the following distribution among the discipline-clusters: An & So (1.53), Ps & Pa (1.75) and Ec & Ma (0.51). In terms of intra-institutional and inter-discipline-cluster analysis, An & So emerges as the discipline-cluster at EMU with the highest tendency to connect with civil society organizations.

This is an interesting result if we recall that Ps & Pa was the discipline-cluster most likely to connect with political constituencies. Is this because of the nature of the subject matter of the disciplines? The data do not enable me to answer this question.

The scope of the civil society organization, whether local or international, enables us to foresee the prestige and reputation of the academic who establishes ties with such entities. An & So at EMU scored (0.94) for connections with international civil society, Ps & Pa received the top score with (1.00) and Ec & Ma with (0.34) comes in the last position. This pattern could mirror a trait of most African societies heavily subject to external "*interventionism*" to bring about so-called development (Macamo, 2003, 2005).

Most of the developmental agencies operating in Sub-Saharan Africa legitimize their intervention with a rapid social appraisal (Rispel, Sousa, & Molomo, 2008) type of study carried out by 'survival or cash-crop academics'. As previously mentioned, these are academics working as consultants.

Looking at local civil society organizations, An & So at EMU claims a score of (0.59), followed by Ps & Pa with (0.75) and Ec & Ma with the lowest result of (0.17). This outcome also allows us to distinguish, even if loosely, between institutions that employ academics, who spend more time engaging in scholarly related networks and institutions, where academics are more socially engaged in non-academic networks. In other words, civil society organizations are 'franchising' their own research efforts by using university-based academics.

Looking at the performance of MAK, we get a total score of (1.77) in connection with contracts or consultancy research for civil society organizations. The score is distributed to the three discipline-clusters under examination as follows: An & So (1.40), Ps & Pa (0.10) and Ec & Ma (0.27). Regarding the scope of the civil society organization An & So at MAK scored (0.80), Ps & Pa (0.00) and Ec & Ma (0.18) for international organizations, whereas An & So obtained (0.50), Ps & Pa (0.10) and Ec & Ma (0.09) at the local level. Again, An & So appears to be the discipline-cluster that attracts more contracts with civil society organizations than the remaining two discipline-clusters. Perhaps a note can be added by mentioning the dominance of international NGOs over local ones. This feature is probably related to the greater resources available to international rather than to local NGOs.

I presume that the reason why An & So appears to have more contracts with civil society organizations than the other two discipline-clusters at MAK reflects a version of the commonly held misconception of the discipline as a provider of solutions to social malaises. This misconception is probably behind the increasing solicitude professionals from this discipline-cluster receive from civil society organizations, whose core business is the alleviation of social problems. Sociologists themselves contribute to the perpetuation of this subverted image of their profession, as suggested by Bourdieu (2004, p. viii): "[S]ocial scientists, and especially sociologists, are the object of very great solicitude, whether it be positive – and often very profitable, materially and symbolically, for those who opt to serve the dominant vision (. . .) or negative, and malignant, sometimes even destructive, for those

who, just by practising their craft, contribute to unveiling a little of the truth of the social world." In other words, what he provides is another portrait of what I have termed 'homo academicus consultans'. In Sub-Saharan Africa, civil society, not necessarily the universities, seems to be competing with universities in the production of knowledge about the social world. There is an ongoing process of social research being moved from university departments to the offices of civil society organizations.

Finally, UWC with (1.45) appears to be in the last position in terms of connections with civil society organizations. UWC, which appears to have, overall, more scientific capital than its counterparts at EMU and MAK also does not privilege connections with civil society organizations to such an extent as do EMU and MAK. UWC's score is respectively distributed to the three discipline-clusters as follows: An & So (0.55), Ps & Pa (0.75) and Ec & Ma (0.15). The smaller number of the UWC sample may be responsible for the high score of Ps & Pa.

The next table (No. 5.21) shows the status and level of academic affiliation to civil society organizations. The characteristics of the table are similar to the one presented previously (Table 5.20). However, instead of looking at the connections through research or consultancy contracts, it considers the size of connection through the membership in civil society organizations. Five categories of affiliations were considered. The first is 'None', which is excluded from the ranking, as it represents the proportion of academics that do not have any affiliation with such organizations. The remaining categories are '1-3 affiliations', '4-6 affiliations', '7-10 affiliations', and 'more than 10 affiliations'.

Again, two levels of affiliation were taken into account, namely those with local and international civil society organizations. The principle of 'effort and prestige' was furthermore applied once again in this case. The assumption is that being a member of a local civil society organization requires less effort and brings with it less prestige than the membership in an international civil society organization. This assumption is valid even in cases where the international civil society organization operates within the national context.
The differentiation between local and international levels is indicated by a coefficient, which ascribes the weight of (1) to local and the value (2) to international organizations.

Table 5.21: *Affiliation of Academics with Civil Society Organizations*

Discipline-Clusters	Local & Coefficient	None*		1-3 Affiliation		4-6 Affiliation		7-10 Affiliation		More than 10 Affiliation		Total Score * cf	Aggregate Score	Rank
		Eduardo Mondlane University (EMU)												
An & So (n 17)	International (cf. 2)	17/17	1.00	0/17	0.00	0/17	0.00	0/17	0.00	0/17	0.00	0.00	0.06	**0.06**
	Local (cf. 1)	16/17	0.94	0/17	0.00	0/17	0.00	1/17	0.06	0/17	0.00	0.06		
Ps & Pa (n 8)	International (cf. 2)	8/8	1.00	0/8	0.00	0/8	0.00	0/8	0.00	0/8	0.00	0.00	0.00	
	Local (cf. 1)	8/8	1.00	0/8	0.00	0/8	0.00	0/8	0.00	0/8	0.00	0.00		
Ec & Ma (n 18)	International (cf. 2)	18/18	1.00	0/18	0.00	0/18	0.00	0/18	0.00	0/18	0.00	0.00	0.00	
	Local (cf. 1)	18/18	1.00	0/18	0.00	0/18	0.00	0/18	0.00	0/18	0.00	0.00		
		Makerere University (MAK)												
An & So (n 10)	International (cf. 2)	9/10	0.90	0/10	0.00	0/10	0.00	0/10	0.00	1/10	0.10	0.20	0.40	**0.76**
	Local (cf. 1)	8/10	0.80	2/10	0.20	0/10	0.00	0/10	0.00	0/10	0.00	0.20		
Ps & Pa (n 10)	International (cf. 2)	10/10	1.00	0/10	0.00	0/10	0.00	0/10	0.00	0/10	0.00	0.00	0.00	
	Local (cf. 1)	10/10	1.00	0/10	0.00	0/10	0.00	0/10	0.00	0/10	0.00	0.00		
Ec & Ma (n 11)	International (cf. 2)	10/11	0.91	1/11	0.09	0/11	0.00	0/11	0.00	0/11	0.00	0.18	0.36	
	Local (cf. 1)	9/11	0.81	2/11	0.18	0/11	0.00	0/11	0.00	0/11	0.00	0.18		
		University of the Western Cape (UWC)												
An & So (n 9)	International (cf. 2)	9/9	1.00	0/9	0.00	0/9	0.00	0/9	0.00	0/9	0.00	0.00	0.00	**0.75**
	Local (cf. 1)	9/9	1.00	0/9	0.00	0/9	0.00	0/9	0.00	0/9	0.00	0.00		
Ps & Pa (n 4)	International (cf. 2)	¾	0.75	0/4	0.00	0/4	0.00	0/4	0.00	1/4	0.25	0.50	0.75	
	Local (cf. 1)	¾	0.75	0/4	0.00	0/4	0.00	0/4	0.00	1/4	0.25	0.25		
Ec & Ma (n 13)	International (cf. 2)	13/13	1.00	0/13	0.00	0/13	0.00	0/13	0.00	0/13	0.00	0.00	0.00	
	Local (cf. 1)	13/13	1.00	0/13	0.00	0/13	0.00	0/13	0.00	0/13	0.00	0.00		

* Note: Ranking excludes 'None' values as it represents the proportion of academics who declared not having received any funding. The level of engagement in economic networks is based only on the fraction of academics who declared to have received funding/grants from at least one of the listed funding sources in the last five years.
****** cf: Ratio with weighting coefficient

The results of the analysis show that Makererian academics are more affiliated to civil society organizations than are academics at the other institutions. This is the case, even when the size of a membership network is still very small. MAK scored (0.76) in terms of affiliation, respectively distributed to the three discipline clusters as follows: An & So (0.40), Ps & Pa (0.00) and Ec & Ma (0.36). It is interesting to note that academics from An & So are not just getting commissioned research and consultancy, but also show a higher level of participation in such organizations than do their counterparts in Ps & Pa, as well as Ec & Ma.

Academics from Ps & Pa appear to establish fewer ties with civil society intended for commissioned research and consultancy, thus participating less in activism. This result is unusual, as it seems to suggest that political scientists may be conscious of the methodological need to keep an epistemological distance from their objects of study. Another reading could be that political scientists have less of a social conscience and thus engage less with society. Regarding the scope of affiliation, MAK's result for An & So splits up equally between local and international affiliations with both achieving a result of (0.20). The same occurs with the discipline-cluster of Ec & Ma at MAK, scoring (0.18) both in local and international affiliation with civil society organizations.

The second position in terms of affiliation with civil society organizations is taken by UWC, with an overall score of (0.75), just one point behind MAK. That means that the extent to which Makererian academics affiliate with civil society organizations is slightly more than that of UWC academics. In terms of the discipline-clusters, An & So at UWC scores (0.00). In other words, it means that none of the academics from UWC who participated in the study are affiliated with a civil society organization. In that sense, they cannot be called engaged or activist academics.

The same applies to academics from Ec & Ma, who are not actively involved in any civil society organization either. However, Ps & Pa, in this case, makes the exception. The levels of engagement for Ps & Pa appear to be significant; a total score of (0.75) can be attributed to this discipline-cluster. A score of (0.75) in this case does not represent 3/4 of the respondents, but the score achieved by academics of Ps & Pa at UWC. Therefore, UWC academics from Ps & Pa scored (0.50) for affiliations with international and (0.25) for affiliations with local civil society organization. Finally, EMU has the lowest level of affiliation obtaining (0.06).

An & So is the sole discipline-cluster with academics affiliated to civil society organizations at the local level.

5.4 Summary of the Chapter

In this chapter, I have described and discussed the data generated by my research. The analysis consisted of multiple procedures that create indices of scientific capital, as well as forms of engagement or networks of connections. The chapter is divided into two main subsections. Whereas the first part is dedicated to the measurement of scientific capital, the second focuses on measuring forms of engagement by networks of connections academics of the three discipline-clusters at the three institutions have established, both with internal as well as with external constituencies.

In the first subsection I have thus embarked on the descriptive analysis, interpretation and discussion of particular constructs of the two forms of scientific capital. First, I established a set of criteria to measure scientific capital of academics in three selected discipline-clusters, An & So, Ps & Pa and Ec & Ma. The measurements enabled me to represent graphically and in tables the levels of possession of scientific capital by academics in these disciplines. I considered two main operational dimensions of scientific capital. On the one hand, I discussed the scholastic form of capital, which in my analysis comprises publication, educational qualifications and the supervision of postgraduate students (PhD and Master's).

On the other hand, I used the academic form of capital to rank academics in the three discipline-clusters in terms of political or temporal positions in academia, that is to say, academic seniority ranking, as well as administrative or managerial positions.

In the second subsection, I applied a similar procedure to measure forms of engagement or academic networks of connections. I constructed a typology of four forms of engagement or networks of connections, namely, academic, political, economic and civil society networks. The construction of this typology of forms of engagement enabled me to emphasize typical characteristics of what, for instance, I call 'homo academicus consultans', based on the patterns of networks of connections of academics.

Finally, I have also indicated patterns in the relationship between the different levels of possession of the two main forms of scientific capital and the four forms of engagement or networks of connections. In Chapter Six I will make these relationships more explicit by discussing them in the light of the general hypothesis of the study.

CHAPTER SIX
RELATING SCIENTIFIC CAPITAL AND FORMS OF ENGAGEMENT

6.1 Introduction

In this study, I investigate two sets of variables. On the one hand, I examine the distribution of scientific capital of academics in three discipline-clusters in three African institutions. I first focus on constructing indices that would enable me to map a hierarchical space for the distribution of scientific capital amongst academics from three discipline-clusters: Anthropology & Sociology, Political Science & Public Administration and Economics & Management at the three African universities under examination. The results show that there are various levels of possession of scientific capital, both scholastic and academic.

On the other hand, I also study the level of engagement between academics from these discipline-clusters and various constituencies. I subsequently construct indices for forms of engagement to map out disciplinary networks with different actors within the four dimensions of social space, namely: academic, political, economic and civil society. I address these two main constructs with the purpose of showing the possible effect the differential amounts of scientific capital would have on the type of networks these discipline-clusters establish with different publics in these four social spheres.

6.2 Discussion of the Research Results

This section provides an interpretation of the results of the study. In the following section, I will explore the results of the snapshot score analysis of the positional data based on the distribution of scientific capital and the various forms of engagement. Tables 6.1 and 6.2 summarize the findings for the two sets of variables in the study. In other words, the tables present a summary of the disciplinary-clusters' scores for scientific capital and the different forms of engagement. Tables 6.1 to 6.11 display a series of analyses of the disciplinary-cluster differences.

First, I look at disciplinary-cluster differences in the distribution of scientific capital. The analysis considers inter-disciplinary and intra-disciplinary as well as institutional differences. The same procedure is undertaken in the case of the forms of engagement. The objective of

this analysis is to be able to ultimately relate the two main sets of variables of this study in a meaningful way.

Table 6. 1: *Scientific Capital and Forms of Engagement*

CONSTRUCTS				EMU			MAK			UWC		
Concept	**Dimension**	**Component**		An & So	PS & PA	EC & MA	An & So	PS & PA	EC & MA	An & So	PS & PA	EC & MA
Scientific Capital	Scholastic Form	Publication		4.80	6.81	2.78	5.90	7.90	4.40	7.12	13.50	4.09
		Education		1.50	1.70	1.60	1.90	1.90	1.80	2.0	1.90	1.80
		Supervision of Graduate Students		0.30	0.13	0.11	1.20	0.10	0.27	1.0	1.50	0.46
	Academic Form	Academic Rank		0.97	1.0	0.92	1.25	1.70	0.77	1.89	2.75	1.15
		Administrative or Managerial Rank		0.59	0.94	0.86	0.35	0.45	0.59	1.0	1.13	1.03
Forms of Engagement	Academic	Academic Networks	a)	1.37	4.26	1.63	4.0	0.70	1.03	3.95	9.26	3.27
			b)	1.18	1.50	0.27	1.70	0.20	0.36	1.21	1.50	0.69
			c)	0.41	0.0	0.28	0.60	0.40	0.27	0.22	0.25	0.08
	Political	Academic Networks with Political Entities	i)	0.30	0.64	0.22	0.0	0.10	0.09	0.0	0.50	0.31
			ii)	0.12	0.0	0.78	0.10	0.20	0.82	0.11	0.25	0.08
	Economic	Academic Networks with Economic Entities	1)	1.20	1.38	0.53	1.10	0.20	0.36	0.55	0.75	0.46
			2)	0.94	0.57	0.62	0.78	0.70	0.72	0.84	1.0	0.77
	Civil Society	Academic Networks with Civil Society Organizations	I)	1.53	1.75	0.51	1.40	0.10	0.27	0.55	0.75	0.15
			II)	0.06	0.0	0.0	0.40	0.0	0.36	0.0	0.75	0.0

a) Co-authored publications
b) Collaborative research projects
c) Affiliation to professional bodies
i) Research contracts and consultancy for government bodies, political parties and politicians
ii) Affiliation to political parties
1) Source of research funding
2) Amount of research funding from indiscriminate sources
I) Research and consultancy contracts
II) Affiliation to civil society organizations

Table 6.2: *Scientific Capital and Forms of Engagement (abridged)*

CONSTRUCTS		EMU			MAK			UWC		
Concept	**Dimension**	An & So	Ps & Pa	Ec & Ma	An & So	Ps & Pa	Ec & Ma	An & So	Ps & Pa	Ec & Ma
Scientific Capital (A)	Scholastic Form	6.6	8.64	4.49	9.0	9.9	6.47	10.12	16.9	6.35
	Academic Form	1.56	1.94	1.78	1.60	2.15	1.36	2.89	3.88	2.18
	Aggregate	8.16	10.58	6.27	10.60	12..5	7.83	13.01	20.78	8.53
Engagement (B)	With Academic Entities	2.96	5.76	2.18	6.30	1.30	1.66	5.38	11.01	4.04
	With Political Entities	0.42	0.64	1.0	0.10	0.30	0.91	0.11	0.75	0.39
	With Economic Entities	2.14	1.95	1.15	1.88	0.90	1.08	1.39	1.75	1.23
	With Civil Society Entities	1.59	1.75	0.51	1.8	0.10	0.63	0.55	1.50	0.15

Table 6.2 is an abridged version of the previous table. It merges the scores of the two dimensions of scientific capital, namely scholastic and academic, into one aggregated score. It also does the same for the various components of the variable of engagement. My purpose in amalgamating these dimensions and components is to make the reading of the tables and the analysis more accessible.

The data in Table 6.2 show the positions of the discipline-clusters in a space of distribution of scientific capital and the disciplinary-cluster level of engagement with different constituencies. Initially, the primary objective of my research was to establish whether there is any kind of association between the different levels of possession of scientific capital (A) and the various forms of engagement or networks of connections (B).

However, in the event of an association between (A) and (B) variables, the degree of association is not the subject of my concern; neither do I perform any form of statistical test to establish it. My primary objective here is not to validate the results of my research through testing levels of statistical significance in traditional terms that is based on correlation techniques. The punctual and categorical nature of the data would not allow this kind of procedure. Therefore, I do not claim any causal relationship between the variables. Instead, I

have opted for a methodological posture that allows me to capture the dynamic patterns in the relationship between scientific capital and forms of engagement or networks of connections. Yet this apparent shortcoming is balanced by the strength of a more reflective analysis of the data, by exploring and representing data beyond formal hypothesis testing (Ivy, 2001).

I also examine and compare weighted scores for the various indicators of the two main conceptual construct variables (see strategy for data analysis in the methodology chapter).
This procedure makes it possible to visualize disciplinary-cluster differences in terms of the possession of scientific capital and the level of engagement both *within* and *across* institutions. For instance, if we look at the scholastic capital scores within the institutions we can see that for EMU, Ps & Pa has the highest capital (8.64) compared to (6.60) for An & So and (4.49) for Ec & Ma.

The significance is that the discipline-cluster Ps & Pa at EMU is most likely a strong discipline-cluster with its academics publishing considerably more than their peers in other disciplines. At Makerere again, Ps & Pa with (9.90) is the discipline-cluster possessing more scholastic capital than An & So (9.00) and Ec & Ma (6.47). The same pattern is present at UWC, where Ps & Pa with (16.90) is the discipline-cluster with a higher scholastic capital than An & So (10.12) and Ec & Ma (6.35). So: what does that tell us?

By the same token, if we now look at the same variable in a cross-institutional comparison, this is what we observe: Ps & Pa, with (16.90) at UWC has more scholastic capital than their peers at MAK (9.90) and at EMU (8.64). Ps & Pa thus appears to be the most productive discipline-cluster at all three institutions. In a cross-institutional comparison, however, UWC's Ps & Pa appears to be even more productive than their peers. If we consider that I used the same criterion to measure scholastic capital productivity in all institutions, then it seems legitimate to state that Ps & Pa is the most productive discipline-cluster, and UWC the most productive institution. Yet, when we look at the levels of engagement, it is not in all institutions that Ps & Pa appears to have strong connections with different constituencies, as I will demonstrate further in this section.

For now, I turn to another noteworthy feature emerging from this analysis that is related to Ec & Ma. In terms of scholastic capital, Ec & Ma appears to be the discipline-cluster that scores the lowest, both within institutions (comparing different discipline-clusters in one institution)

and across institutions (comparing similar discipline-clusters in different institutions) (see the scores in Tables 6.1 and 6.2). Perhaps, the fact that Ec & Ma scores lower in scholastic capital is related to the assumption that it is generally a lower publishing discipline by character (Gans, 2000; Harzing, 2005).

If we look at the level of engagement, we can see which discipline-clusters have strong or weak ties with different constituencies. Whether the results are directly connected to the amount of scientific capital is not possible to determine with the kind of data and analysis that I have. What I can state, however, is that not all discipline-clusters with higher levels of scientific capital necessarily have academics establishing strong ties with different constituencies. Perhaps this feature suggests that engagement is a more context-dependent category.

This becomes evident when I consider, for example, Ps & Pa in terms of engagement with academic entities. Ps & Pa at UWC scored (16.90) in scientific capital and (11.01) in engagement, the results for MAK and EMU are (9.90), (1.30) and (8.64), (5.76) respectively (see Tables 6.1 and 6.2). As we can see, the highest score in scholastic capital corresponds to the highest score in engagement with academic entities, but only at UWC and EMU. At MAK, Ps & Pa scored highest in scholastic capital, yet it had the lowest rate in engagement with academic entities.

The significance of this result is that not all discipline-clusters with higher scholastic capital will display correspondingly higher levels of engagement with academic entities, even if that is what one might expect.

We can see this even at a cross-institutional level. Ps & Pa at EMU scored (8.76) in scholastic capital and (5.76) in engagement with academic entities. Comparing this result with MAK, the same picture emerges with the institution scoring (9.90) in scholastic capital and only (1.30) in engagement with academics. So MAK's engagement is idiosyncratic. These variations occur even when other forms of engagement are considered, as I will demonstrate in the course of the analysis.

Hypothetically, I have assumed that discipline-clusters possessing higher levels of scholastic capital would also display higher levels of engagement than do those with lower levels of

capital. Yet, this is not necessarily the case. I suppose there are other factors, possibly contextual to the institutions or even disciplines, related to the dynamics of the field, which go beyond the level of scientific capital and the scope of this study.

The macro-institutional context in which the discipline operates and where academics are located seems to play an important role in the patterns of engagement. Examining these would probably be the way forward in this research. Nevertheless, I will to explore further the analysis of the disciplinary differences in the possession of scientific capital and its relation to engagement.

Table 6.3: *Differences of Distribution of Scientific Capital at Institutional Level*

Institutions	Institutional Inter-Disciplinary Differences	Result	∑ Difference
UWC	Ps & Pa (20.78) – An & So (13.01)	7.77	**∑24.50**
	Ps & Pa (20.78) – Ec & Ma (8.53)	12.25	
	An & So (13.01) – Ec & Ma (8.53)	4.48	
MAK	Ps & Pa (12.50) – An & So (10.60)	1.90	**∑9.34**
	Ps & Pa (12.50) – Ec & Ma (7.83)	4.67	
	An & So (10.60) – Ec & Ma (7.83)	2.77	
EMU	Ps & Pa (10.58) – An & So (8.16)	2.42	**∑8.62**
	Ps & Pa (10.58) – Ec & Ma (6.27)	4.31	
	An & So (8.16) – Ec & Ma (6.27)	1.89	

Table 6.3 shows the differences in the distribution of scientific capital at institutional level. These differences make it possible to go beyond simply mapping the positions of the discipline-clusters in a structured space of distribution of scientific capital, and to compare the performance of the discipline-clusters both within the institution as well as across institutions.

The principle behind the sequence of the discipline-clusters and institutions in the tables is based on the varying degrees of possession of capital, considering first those displaying higher levels of capital. This principle was also maintained in the analysis of the levels of engagement. From the table we can read that the differences between Ps & Pa and Ec & Ma at UWC are greater than are the differences between Ps & Pa and An & So, on the one hand, and the differences between An & So and Ec & Ma on the other.

It seems fair to conclude that Ps & Pa is a very strong discipline at UWC in terms of scientific capital. This pattern repeats itself as we move from UWC to MAK and EMU. Yet

in the two subsequent institutions, the scale of difference between Ps & Pa and the other two discipline-clusters is also less visible. Overall, this result suggests that the higher the scientific capital of a discipline-cluster within an institution, the greater will be the sum of inter-disciplinary differences.

In other words, highly productive discipline-clusters tend to be at the top of the ranking. Later, I will compare these scores with the levels of engagement in order to determine whether there is any noteworthy connection.

Table 6.4: *Differences of Distribution of Scientific Capital across Discipline-Clusters and Institutions*

Institutions	Intra-Disciplinary Differences across Institutions	Result	∑ Difference
UWC & MAK	Ps & Pa [UWC (20.78) – MAK (12.5)]	8.28	**∑11.39**
	An & So [UWC (13.01) – MAK(10.60)]	2.41	
	Ec & Ma [UWC (8.53) – MAK (7.83)]	0.70	
UWC & EMU	Ps & Pa [UWC (20.78) – EMU (10.58)]	9.42	**∑16.53**
	An & So [UWC (13.01) – EMU (8.16)]	4.85	
	Ec & Ma [UWC (8.53) – EMU (6.27)]	2.26	
MAK & EMU	Ps & Pa [MAK (12.5) – EMU (10.58)]	1.92	**∑5.92**
	An & So [MAK(10.60) – EMU (8.16)]	2.44	
	Ec & Ma [MAK (7.83) – EMU (6.27)]	1.56	

Table 6.4 depicts the results gained from the analysis of the differences in the distribution of scientific capital across discipline-clusters and institutions. Once again, Ps & Pa appears to be the discipline-cluster displaying a large-scale difference as far as intra-disciplinary and cross-institutional comparison is concerned. UWC's Ps & Pa when compared with its peers at MAK and EMU shows a considerable difference in terms of scientific capital.

This means that Ps & Pa at UWC is the strongest discipline both internally and externally in comparison to the two other institutions. Another noteworthy finding is the overall disciplinary difference across institutions. The differences between UWC and EMU are commonly more substantial than those between UWC and MAK and between MAK and EMU. This means that generally we can establish a meaningful hierarchy of distribution of scientific capital among the discipline-clusters at the three institutions.

If the distribution of scientific capital puts UWC in the top position, followed by MAK and then EMU, then in terms of disciplinary-clusters Ps & Pa takes the lead against An & So and Ec & Ma.

Table 6.5: *Differences in Engagement across Discipline-Clusters at Institutional Level at UWC*

Engagement	Institutional Inter-Disciplinary Differences (UWC)	Result	∑ Difference
With Academic Entities	Ps & Pa (11.01) – An & So (5.38)	5.63	**∑13.94**
	Ps & Pa (11.01) – Ec & Ma (4.04)	6.97	
	An & So (5.38) – Ec & Ma (4.04)	1.34	
With Political Entities	Ps & Pa (0.75) – Ec & Ma (0.39)	0.36	**∑ 1.28**
	Ps & Pa (0.75) – An & So(0.11)	0.64	
	Ec & Ma (0.39) – An & So (0.11)	0.28	
With Economic Entities	Ps & Pa (1.75) – An & So (1.39)	0.36	**∑ 1.04**
	Ps & Pa (1.75) – Ec & Ma (1.23)	0.52	
	An & So (1.39) – Ec & Ma (1.23)	0.16	
With Civil Society Entities	Ps & Pa (1.50) – An & So (0.55)	0.95	**∑2.70**
	Ps & Pa (1.50) – Ec & Ma (0.15)	1.35	
	An & So (0.55) – Ec & Ma (0.15)	0.40	

Table 6.5 introduces an analysis of the disciplinary differences in terms of their level of engagement or networks of connection with different constituencies. I start by looking at the disciplinary-cluster differences within each institution. The underlying principle in these calculations of the differences is informed by certain assumptions, which emerged during the study.

First, I decided to start with the discipline-cluster and institution scoring highest in terms of possession of scientific capital and then proceed to those scoring lower. This means that UWC and Ps & Pa would be the first to be considered. This principle was maintained even in the cases where UWC and Ps & Pa was not the top scorer. In such instances, the result of the calculation of the discipline-cluster differences would be a negative number.

The negative number represents the atypical case where higher levels of scientific capital do not correspondent to equally high levels of engagement with a particular constituency. I provide an interpretation for each of these cases.

While discipline-clusters can be displayed in a hierarchy in terms of possession of scientific capital, they can also be arranged according to their levels of engagement with different constituencies. Theoretically, this assumption also relies on my Bourdieuan approach that considers engagement as networks of connections. In other words, engagement can be regarded as an asset in Bourdieu's (1977) terms of social capital, but ranging from worldly to scientific assets.

Social capital is an aggregate of the actual or potential resources, which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition. While Bourdieu's use of the concept seems to be instrumental, in the sense that he acknowledges the advantages of those endowed with it and their deliberate efforts to expand it for their benefit, in this study I am concerned with mapping out the disciplinary networks with different constituencies.

Depending on the nature of the institutions with which academics establish networks, the engagement can be either beneficial or not. For instance, if the engagement of academics from a particular discipline-cluster with political institutions jeopardizes the autonomy of the discipline in terms of the pursuit of a scholarly agenda then the network would be regarded as harmful. However, if the relative autonomy of the two fields is protected, then the relationship can be productive.

As for disciplinary cluster differences in terms of engagement at UWC (see Table 6.5), the results show an enormous discrepancy between networks with academic entities and those with non-academic entities. In other words, in general, UWC academics from the three discipline-clusters engage more with academic entities than with non-academic entities. The differences between the discipline-clusters are greater in terms of engagement with academic entities than with non-academic entities. For instance, the difference between Ps & Pa and An & So is wider than the difference between An & So and Ec & Ma. The significance of this finding is that it shows which discipline-cluster tends to engage more with academic entities than with others.

If we now look at the other forms of engagement, namely with political, economic and civil society entities, we see a considerable decrease – not simply in the disciplinary differences in the level of engagement – but also in the overall scale of engagement. In other words, it means that UWC academics from the three discipline-clusters under examination are more or less equally engaged with political and economic entities. Yet we notice a slight increase in the differences between disciplines as far as civil society entities are concerned. This is a feature which I will explore further in this chapter.

Table 6.6: *Differences in Engagement across Discipline-Clusters at Institutional Level at MAK*

Engagement	Institutional Inter-Disciplinary Differences (MAK)	Result	∑ Difference
With Academic Entities	An & So (6.30) – Ec & Ma (1.66)	6.64	**∑12.00**
	An & So (6.30) – Ps & Pa (1.30)	5.00	
	Ec & Ma (1.66) – Ps & Pa (1.30)	0.36	
With Political Entities	Ec & Ma (0.91) – Ps & Pa (0.30)	0.61	**∑1.62**
	Ec & Ma (0.91) – An & So (0.10)	0.81	
	Ps & Pa (0.30) – An & So (0.10)	0.20	
With Economic Entities	An & So (1.88) – Ec & Ma (1.08)	0.80	**∑1.96**
	An & So (1.88) – Ps & Pa (0.90)	0.98	
	Ec & Ma (1.08) – Ps & Pa (0.90)	0.18	
With Civil Society Entities	An & So (1.80) – Ec & Ma (0.63)	1.17	**∑3.40**
	An & So (1.80) – Ps & Pa (0.10)	1.70	
	Ec & Ma (0.63) – Ps & Pa (0.10)	0.53	

Table 6.6 displays a similar analysis to the previous one. This time, however, the findings concern MAK. In this case, I started with An & So as it is the discipline-cluster with the highest level of engagement with academic entities. Again, the differences between discipline-clusters concerning engagement with academic entities are overall more extensive than are those observed in the other forms of engagement. However, that difference in general is slightly lower than that at UWC.

The reason for this appears to be that the discipline-clusters with high levels of engagement are found on the extreme opposite side of those with lower levels of engagement. In other words, academics in An & So at MAK seem to connect more intensively amongst themselves than do their peers at Ec & Ma and Ps & Pa. Similar to the previous case of UWC, differences in engagement with political and economic entities are also narrow. However, if we compare the institutions, MAK's scores appear to be slightly higher than those of UWC.

Finally, we see a slight increase in the differences in engagement with civil society. Engagement with academic entities and civil society seems to predominate in the social sciences at all three institutions. However, we can see clear disciplinary differences in the levels of engagement.

Table 6.7: *Differences in Engagement across Discipline-Clusters at Institutional Level at EMU*

Engagement	Institutional Inter-Disciplinary Differences (EMU)	Result	∑ Difference
With Academic Entities	Ps & Pa (5.76) – An & So (2.96)	2.80	∑7.16
	Ps & Pa (5.76) – Ec & Ma (2.18)	3.58	
	An & So (2.96) – Ec & Ma (2.18)	0.78	
With Political Entities	Ec & Ma (1.0) – Ps & Pa (0.64)	0.36	∑1.16
	Ec & Ma (1.0) – An & So(0.42)	0.58	
	Ps & Pa (0.64) – An & So(0.42)	0.22	
With Economic Entities	An & So (2.14) – Ps & Pa (1.95)	0.19	∑1.98
	An & So (2.14) – Ec & Ma (1.15)	0.99	
	Ps & Pa (1.95) – Ec & Ma (1.15)	0.80	
With Civil Society Entities	Ps & Pa (1.75) – An & So (1.59)	0.16	∑2.48
	Ps & Pa (1.75) – Ec & Ma (0.51)	1.24	
	An & So (1.59) – Ec & Ma (0.51)	1.08	

Table 6.7 is the last in the series of tables displaying the differences in engagement across discipline-clusters at institutional levels. The third institution in my analysis is EMU. We can see that the overall score of the disciplinary differences in engagement with academic entities has reduced to almost half in comparison to the previous two institutions. In other words, the differences amongst discipline-clusters at EMU regarding engagement with academic entities are not extensive when compared to those of UWC and MAK. Ps & Pa and Ec & Ma are the two discipline-clusters that display wide differences in their engagement with academic entities. Ps & Pa is more engaged that Ec & Ma and An & So. In terms of engagement with political and economic entities, all discipline-clusters again display low scores, resulting therefore in narrow inter-disciplinary differences.

In summary, what I can conclude from this analysis concerning the disciplinary differences in engagement with different institutions is that at all three institutions the differences tend to be more extensive in the category of engagement with academics. The significance of this finding is that academics generally give precedence to networks that involve other academics than to those involving other entities. Yet even in this category, there are major disciplinary differences.

Table 6.8: *Differences in Engagement with Academics Entities across Institutions*

Institutions	Intra-Disciplinary Differences	Result	∑ Difference
UWC & MAK	Ps & Pa [UWC (11.01) – MAK (1.30)]	9.71	**∑ 11.17**
	An & So [UWC (5.38) – MAK(6.30)]	- 0.92	
	Ec & Ma [UWC (4.04) – MAK (1.66)]	2.38	
UWC & EMU	Ps & Pa [UWC (11.01) – EMU (5.76)]	5.25	**∑9.53**
	An& So [UWC (5.38) – EMU (2.96)]	2.42	
	Ec & Ma [UWC (4.04) – EMU (2.18)]	1.86	
MAK & EMU	Ps & Pa [MAK (1.30) – EMU (5.76)]	- 4.46	**∑-1.64**
	An & So [MAK(6.30) – EMU (2.96)]	3.34	
	Ec & Ma [MAK (1.66) – EMU (2.18)]	-0.52	

In the next four tables (6.9 to 6.12), I present intra-disciplinary differences in engagement by form of engagement. While the previous analysis looked at inter-disciplinary differences at institutional level, the current analysis is concerned with intra-disciplinary differences. In other words, I look at how, for example, Ps & Pa is positioned across institutions concerning their academics' engagement with a particular entity.

Table 6.8 depicts the disciplinary differences in terms of engagement with academic entities. In this analysis, more so than in the previous, I seek to see whether the differences are somehow related to scientific capital. The same sequence in the order of factors was applied to all tables to ensure the consistency of the analysis. First, I considered the differences between UWC and MAK. Secondly, I looked at the differences between UWC and EMU and finally, MAK and EMU.

To recall, this sequence is based on the amount of scientific capital of the institutions, as well as of the discipline-clusters. The difference between Ps & Pa at UWC and Ps & Pa at MAK is noteworthy. These discipline-clusters display both comparatively higher levels of scientific capital (MAK 12.50) and (UWC 20.78). Although the UWC scores almost double that of MAK's result, MAK's scientific capital is still considerably higher (see Table 6.2). Yet the discrepancy in terms of their corresponding levels of engagement with academic entities is also considerably higher, given MAK's very low score. The significance of this, in the first place, is that relatively higher levels of scientific capital do not necessarily correspond to higher levels of engagement.

This observation will become more evident as I proceed with the analysis. If we consider EMU's scientific capital and its corresponding level of engagement with academic entities,

we observe the following: EMU's scientific capital for Ps & Pa amounts to (10.58) and its engagement with academic entities to (5.76). If the level of scientific capital was positively associated with levels of engagement then we would expect EMU's Ps & Pa to be at least three times higher than the actual score.

What we see in Table 6.8 above, when we look at the differences between MAK and EMU, is a negative difference sum of (-1.64). This number represents the discrepancy between higher levels of scientific capital and lower levels of engagement. We can come across the same feature in those cases where the disciplinary differences are negative.

Table 6.9: *Differences in the Engagement with Political Entities across Institutions*

Institutions	Intra-Disciplinary Differences	Result	∑ Difference
UWC & MAK	Ps & Pa [UWC (0.75) – MAK (0.30)]	0.45	∑ **-0.06**
	An & So [UWC (0.11) – MAK (0.10)]	0.01	
	Ec & Ma [UWC (0.39) – MAK (0.91)]	-0.52	
UWC & EMU	Ps & Pa [UWC (0.75) – EMU (0.64)]	0.11	∑ **- 0.81**
	An & So [UWC (0.11) – EMU (0.42)]	-0.31	
	Ec & Ma [UWC (0.39) – EMU (1.0)]	-0.61	
MAK & EMU	Ps & Pa MAK (0.30) – EMU (0.64)]	-0.34	∑ **- 0.75**
	An & So MAK (0.10) – EMU (0.42)]	-0.32	
	Ec & Ma MAK (0.91) – EMU (1.0)]	-0.09	

Tables 6.9, 6.10 and 6.11 represent the level of external engagement and network activities of the three discipline-clusters under examination. The tables depict the external engagement with non-academic institutions, namely political, economic and civil society respectively. With this analysis, I also try to show a possible relationship between scientific capital and engagement in the terms previously defined in the methodology.

Therefore, it is important to emphasize that the disposition of the discipline-clusters and that of the institutions in the tables intends to reflect the position of the disciplines in terms of the amount of scientific capital they possess. If these levels of possession are inverted we might receive different results and a different interpretation. As I mentioned earlier, the institutions and discipline-clusters representing the first factor in the operation of subtraction are those with relatively higher scientific capital. This occurs even in the cases where the corresponding level of external engagement of the first factor is lower than it is in the second factor.

This is why we see negative figures when calculating the difference in engagement between the disciplines. The negative figure means that if there were a positive relationship with scientific capital, then hypothetically we would expect higher levels of engagement.

For instance, EMU's Ec & Ma in comparison with the same discipline-cluster at UWC scored an aggregate of (6.27) in scientific capital – almost two points lower than UWC's score of (8.53). If scientific capital and engagement with political entities were positively associated, we would expect Ec & Ma at UWC to score higher in the level of engagement with political entities than EMU's Ec & Ma. Yet, this is not the case. If we look at the scores for engagement with political entities we see that EMU's Ec & Ma scored (1.00) nearly more than double that of Ec & Ma's score (0.39) at UWC.

UWC takes the top position in terms of scientific capital, but is less engaged than EMU with considerably lower scientific capital. This example applies not only in the case of engagement with political entities, but for most of the cases concerning disciplinary external engagement. Table 6.9 shows narrow differences between the discipline-clusters. That means that the level of external engagement is comparatively the same for these disciplines, regardless of the disparity in the level of possession of scientific capital. Generally, the discipline-clusters from the three institutions display very low levels of engagement with political entities.

This feature is also noticeable in the next two tables (6.10 and 6.11) concerning external engagement with economic and civil society entities. Therefore, I should be brief in the analysis. What is worth mentioning in these cases is that the levels of engagement are generally low. Therefore, the differences between the disciplines are also narrow, despite the reasonable differences in scientific capital.

In the next section, I will in particular look at each form of engagement as it relates with scientific capital and seek to provide a rationale for these scores.

Table 6.10: *Differences in the Engagement with Economic Entities across Institutions*

Institutions	Intra-Disciplinary Differences	Result	∑ Difference
UWC & MAK	Ps & Pa [UWC (1.75) – MAK (0.90)]	0.85	∑ **0.51**
	An & So [UWC (1.39) – MAK(1.88)]	-0.49	
	Ec & Ma [UWC (1.23) – MAK (1.08)]	0.15	
UWC & EMU	Ps & Pa [UWC (1.75) – EMU (1.95)]	-0.20	∑- **0.87**
	An& So [UWC (1.39) – EMU (2.14)]	-0.75	
	Ec & Ma [UWC (1.23) – EMU (1.15)]	0.08	
MAK & EMU	Ps & Pa [MAK (0.90) – EMU (1.95)]	-1.05	∑ **-1.38**
	An & So [MAK(1.88) – EMU (2.14)]	-0.26	
	Ec & Ma [MAK (1.08) – EMU (1.15)]	-0.07	

Table 6.11: *Differences in the Engagement with Civil Society Entities across Institutions*

Institutions	Intra-Disciplinary Differences	Result	∑ Difference
UWC & MAK	Ps & Pa [UWC (1.50) – MAK (0.10)]	1.40	∑**-0.33**
	An & So [UWC (0.55) – MAK (1.80)]	-1.25	
	Ec & Ma [UWC (0.15) – MAK (0.63)]	-0.48	
UWC & EMU	Ps & Pa [UWC (1.50) – EMU (1.75)]	-0.25	∑**-1.65**
	An & So [UWC (0.55) – EMU (1.59)]	-1.04	
	Ec & Ma [UWC (0.15) – EMU (0.51)]	-0.36	
MAK & EMU	Ps & Pa [MAK (0.10) – EMU (1.75)]	-1.65	∑ **-1.32**
	An & So [MAK (1.80) – EMU (1.59)]	0.21	
	Ec & Ma [MAK (0.63) – EMU (0.51)]	0.12	

6.2.1 Scientific Capital and Academic Networks

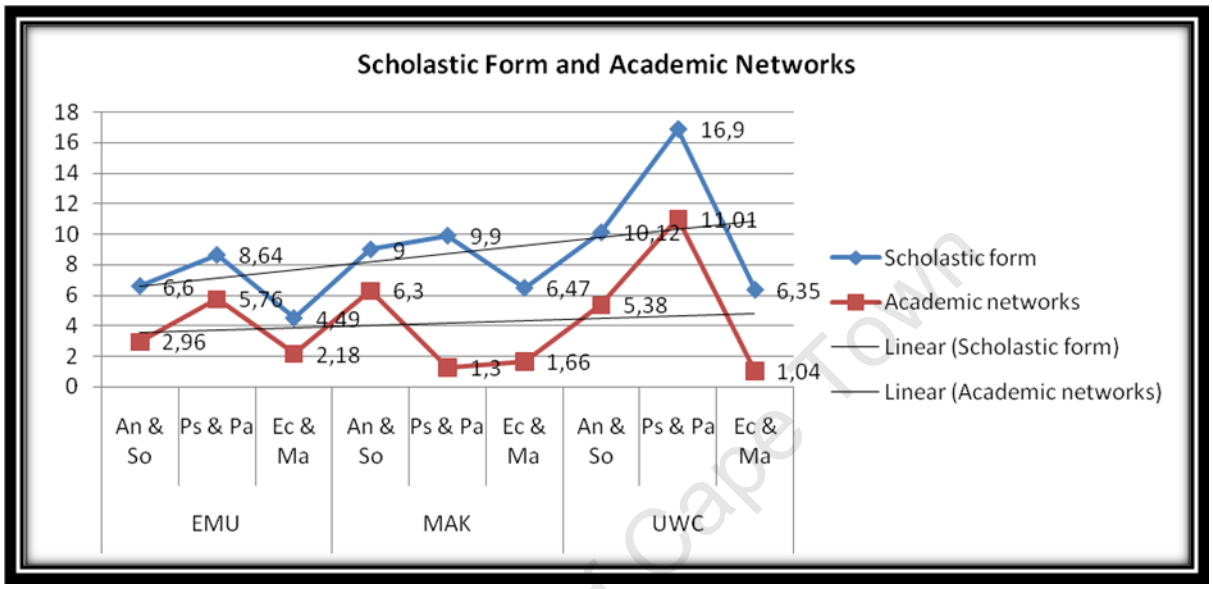
In this section, I proceed with examining the results of the research by looking in more detail at the particular aspects of scientific capital and each of the four dimension or forms of engagement.

6.2.1.1 Scholastic Form and Academic Networks

Theoretically, I have assumed that a higher level in the possession of scholastic capital would also imply a higher level in engagement with academic entities. However, the analysis shows otherwise. In the three cases under examination, higher levels of scholastic capital do not necessarily lead to higher levels of engagement with academic entities. For instance, academics at EMU, MAK and UWC from An & So obtain (6.60), (9.00) and (10.12) points respectively in the ranking of scholastic capital. UWC's An & So outperforms their colleagues at MAK and EMU.

Nevertheless, MAK's An & So (6.30) engages more intensely with their peers than do their equivalents at UWC (5.38) and EMU (2.96). Figure 6.1 below and Tables 6.1 and 6.2 in this chapter illustrate the data on which this analysis was based.

Figure 6.1: *Scholastic Form and Academic Networks*



A possible reason for this feature might be that MAK's An & So establish more ties with their peers by co-authoring publications (4.00) and collaborating in research projects (1.70), as well as by affiliating to a larger extent with professional bodies (see Tables 6.1 and 6.2) than their corresponding categories at UWC (3.95, 1.21) and EMU (1.37, 1.18).

Another reason for MAK's outstanding results might be related to its performance in the three dimensions of the category of scholastic capital. MAK's academic staff qualification (1.90) is almost equal to that of UWC (2.00) and higher than that of EMU (1.50). Another characteristic that seems to give MAK academics a slight advantage is their ranking in the category of postgraduate supervision, where they outperform both UWC (1.00) and EMU (0.30) with a score of (1.20).

For Ps & Pa the situation looks different. EMU appears to possess consistent scores, displaying the lowest rate in scholastic capital as far as cross-institutional comparison is concerned. EMU gained (8.64), while MAK and UWC scored (9.90) and (16.90) respectively. Figure 6.1 shows a line on top representing the hierarchical distribution of

scholastic capital amongst the institutions. MAK again, appears as the outlier seeing that the performance of Ps & Pa in terms of the scholastic form of capital contrasts with its level of engagement in academic networks.

For the corresponding scores in the engagement in academic networks, which we receive by adding up the values of its three components – co-authored publications, collaborative research projects and affiliation to professional organizations – EMU gained (5.76) for its intensity of connectedness with academic peers; MAK obtained (1.30), a very low score if we consider its performance of (9.90) in the scholastic form of capital, while UWC received (11.01) points. One likely reason for the lower levels of engagement in academic networking among MAK's Ps & Pa might be the lower level of co-authored publications.

Academics from Ps & Pa at MAK with a value of (0.70) engage less with their peers than their equivalents at EMU and UWC, which scored (1.37) and (9.26) respectively. One would have to understand the contextual dynamics of the field of Ps & Pa at MAK to speculate about the reason why academics with almost the same level of academic qualifications engaged less in co-authoring publications with their peers than did their colleagues at UWC.

Another possible reason could concern the competition between the managerial and academic functions of the academia, a common feature of current higher education systems in many countries, as pointed out in some current literature (Amaral et al., 2003; Currie, 1998; Kovač, Ledić, & Rafajac, 2003; Maassen & Van Vught, 1996; Sporn, 1999). This assumption would receive support if MAK academics from Ps & Pa had scored high in the category of academic forms of scientific capital, which implies a high ranking in administrative and managerial positions. This, however, does not seem to be the case, as we will see later in this chapter.

These results, especially for MAK, may not come as a surprise, considering the recent developments at the institution. Once considered as one of the greatest African universities, Makerere has gone through a long period of crisis and undergone a reforming process in the last decades – leading to an '*academic inertia'* (Mamdani, 2007; Musisi & Muwanga, 2003):

> Makerere University's strength lay in its reputation, its location in a vibrant and growing city, and its well-established infrastructure. The quality of its staff, the highly selective quality of its student body, sound and innovative management and external linkages and support were sources of great pride. Starting with the coup that brought Idi Amin to power in 1971 through the brutal rule of Obote in the 1980s until Museveni came to power in 1986, Makerere experienced the most turbulent period in its existence. (Musisi & Muwanga, 2003, p. 8)

A more in-depth analysis of the impact of the crisis and the reforms at Makerere, similar to that of Mamdani (2007), would be revealing if taken into the discipline-field levels. As it stands now, this study can only map out certain characteristics on the bases of limited data.

I will now look at the relationship between scholastic capital and academic forms of engagement in the discipline-cluster of Ec & Ma. Again, we see similar features to those observed in the previous two discipline-clusters. MAK once again appears as an interesting case. The level of scholastic capital is even higher than that observed at UWC. MAK scores (11.56) outperforming UWC with a value of (6.35) and the usual third place of EMU with (4.49).

If we cross-examine the reason behind such high levels of scholastic capital, we find that MAK's Ec & Ma publish comparatively more (4.40) than their equivalent at UWC (4.09) and EMU (2.18) (see Tables 14, 15, 16 in Chapter 5).

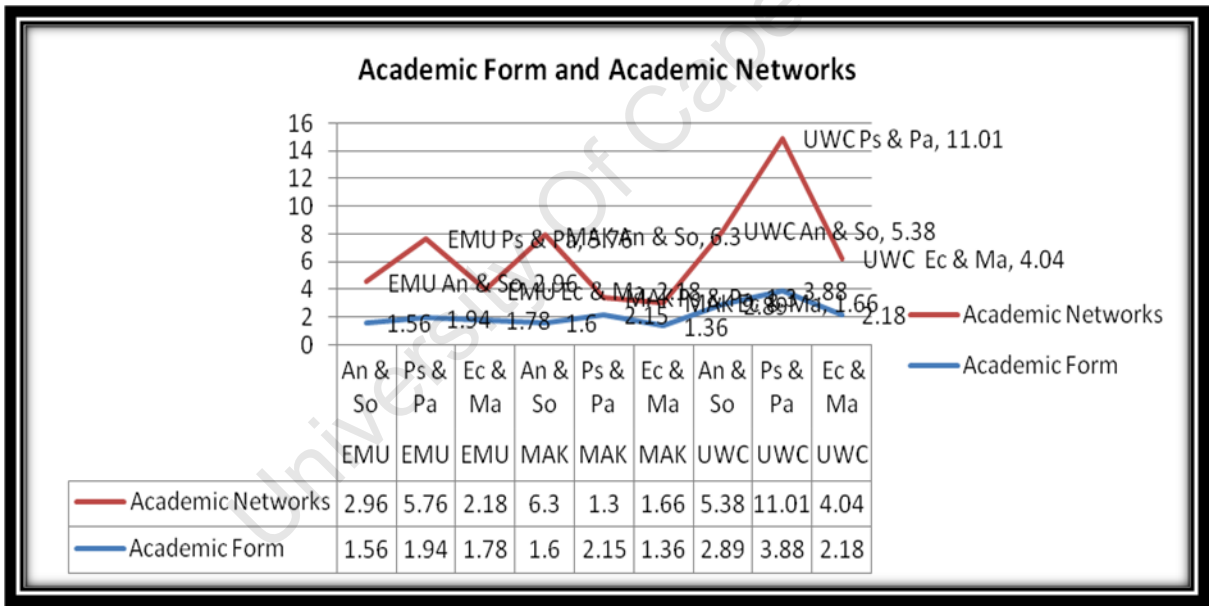
If we look at the levels of academic qualifications, the differences amongst the three case studies appear insignificant. MAK and UWC score the same in academic qualification (1.80) and 0.20 points above EMU (1.60). MAK only loses its position to UWC in the supervision of postgraduate students with a score of (0.27), yet without a substantial difference to UWC's (0.46) and EMU's (0.11).

Even with the remarkable performance with regard to the scholastic form of capital, MAK ranks very low in its engagement with academic peers. MAK's Ec & Ma obtained (1.30) points in academic networks, way behind UWC with (4.04) and EMU with (2.18). Why are highly qualified academics at Makerere not engaging in academic networks with their peers? An answer will be suggested later in connection with the examination of other variables. As it stands now, higher levels of scholastic capital are not necessarily linked to stronger academic engagement in academic networks.

6.2.1.2 Academic Form and Academic Networks

In this section, I examine the relationship between the academic form of scientific capital (from now on regarded as academic capital) and academic networks. I operationalized academic capital as being composed of two dimensions: academic and administrative or managerial rank. Whereas the former considers positions in academia, such as 'Full-Professor', 'Associate Professor', 'Senior Lecturer' and 'Teaching Assistant', the latter refers to managerial and administrative positions such as 'Dean of Faculty', 'Deputy Dean', 'Head of Department', 'Head of Research Centre' and 'Course or Programme Convenor' (see Chapter 5).

Figure 6.2: *Academic Form of Scientific Capital and Academic Networks*



I expected that the degrees to which academics engage with their peers to pursue a scholarly agenda, for instance, by co-authoring publications (engagement with academics is measured amongst other indicators by their collaboration in publication), would be higher for those in powerful positions than for ordinary academics.

The rationale behind my assumption is informed by Bourdieu's (2003) view about the conversion of political capital (in this case academic capital) into scientific power. Bourdieu (2003) argues that it is much easier and quicker, mostly for those holding managerial

positions, to influence the conditions of production and reproduction of scientific research, since they are in a better position to secure the reproduction of the orthodoxy against innovation and prestige than those merely possessing scholastic capital – as they control the means of production.

When examining the data depicted in Figure 6.2 above, we see that the levels of possession of academic capital amongst the three discipline-clusters are not very different. The proportion of academic staff at the three institutions that sit in managerial positions is only slightly higher as we move from the left to the right in Figure 6.2, that is, from EMU to UWC.

When illustrated graphically, the distribution of academic capital displays a linear curve. Overall, EMU is the institution in which academics have the lowest level of academic capital. At EMU, An & So is proportionally the discipline-cluster ranked last with regard to administrative or managerial position. EMU's low performance in academic capital corresponds precisely to its relatively weak engagement in academic networks. Ec & Ma at EMU scored (1.78), which matches the equally low value of (2.18) in academic networks. An & So scored lower with (1.56) in academic capital and (2.96) in academic networks, displaying a better performance than Ec & Ma.

Ps & Pa appears to be the discipline-cluster, in which academics occupying managerial positions tend to establish stronger linkages with their academic peers. The discipline-cluster scored (1.94) in academic capital, a value that does not diverge considerably from the average (1.76) in the institution.

However, Ps & Pa scored a high value of (5.76) in academic networks. In other words, in an intra-institutional and inter-discipline-cluster comparison, Ps & Pa at EMU have almost the same level of academic capital as their peers in An & So and Ec & Ma, but are more engaged in academic networks than their counterparts in An & So and Ec & Ma.

The situation at MAK looks different from those at EMU and UWC. In an inter-discipline-cluster comparison, we see that An & So, as well as Ec & Ma, as is the case at EMU, possessing comparatively low academic capital, scoring (1.60) and (1.36) respectively. The corresponding scores concerning academic networks are (6.30) and (1.66). Although

displaying almost the same levels of academic capital, the two disciplines perform differently when it comes to the engagement with academic peers in academic networks.
As in the previous cases, we need to understand not simply the positions, but the dynamics in which these discipline-clusters operate in their respective contexts – in order to account for such differences. For instance, Ps & Pa at MAK shows relatively high levels of academic capital with (2.15), but also the lowest level of engagement in academic networks with (1.30).

In fact, this value is the lowest score in an inter-discipline-cluster, inter-institutional as well as intra-institutional comparison. This feature has emerged previously where Makererian discipline-clusters appear to possess higher levels of scientific capital, either scholastic or academic, but surprisingly lower levels of engagement in academic networks. EMU and UWC seem to be the two institutions where the assumption holds relatively well.

Although we find high amounts of scientific capital at MAK, this capital seems to be unproductive as it does not translate into strong academic networks. In this sense, the type of 'homo academicus' – characterized by intense peer connection – does not apply to the majority of MAK academics.

For EMU, with minor exceptions, lower levels of scientific capital correspond to equally lower levels of engagement in academic networks. Yet nothing suggests that the former determines the latter. We also find less academics resembling the pure type of 'homo academicus' at EMU, which comes as no surprise as EMU possesses relatively lower levels of scientific capital.

Conversely, relatively high levels of possession of scientific capital at UWC correspond to relatively higher levels of engagement in academic networks. UWC's results for academic scientific capital seem to support the assumption that higher levels of academic capital translate into higher engagements in academic networks. Yet, we know that this is not the rule. UWC scored (2.89) for An & So, (3.88) for Ps & Pa and (2.18) for Ec & Ma. With these scores, UWC outperforms both MAK and EMU in terms of academic capital.

In other words, UWC academics from the three discipline-clusters are more likely to take managerial and administrative positions than their counterparts at MAK and EMU. In line with that feature is the level of engagement in academic networks. UWC scored (5.38) for An

& So, (11.04) Ps & Pa and (2.18) for Ec & Ma in the category of engagement in academic networks.

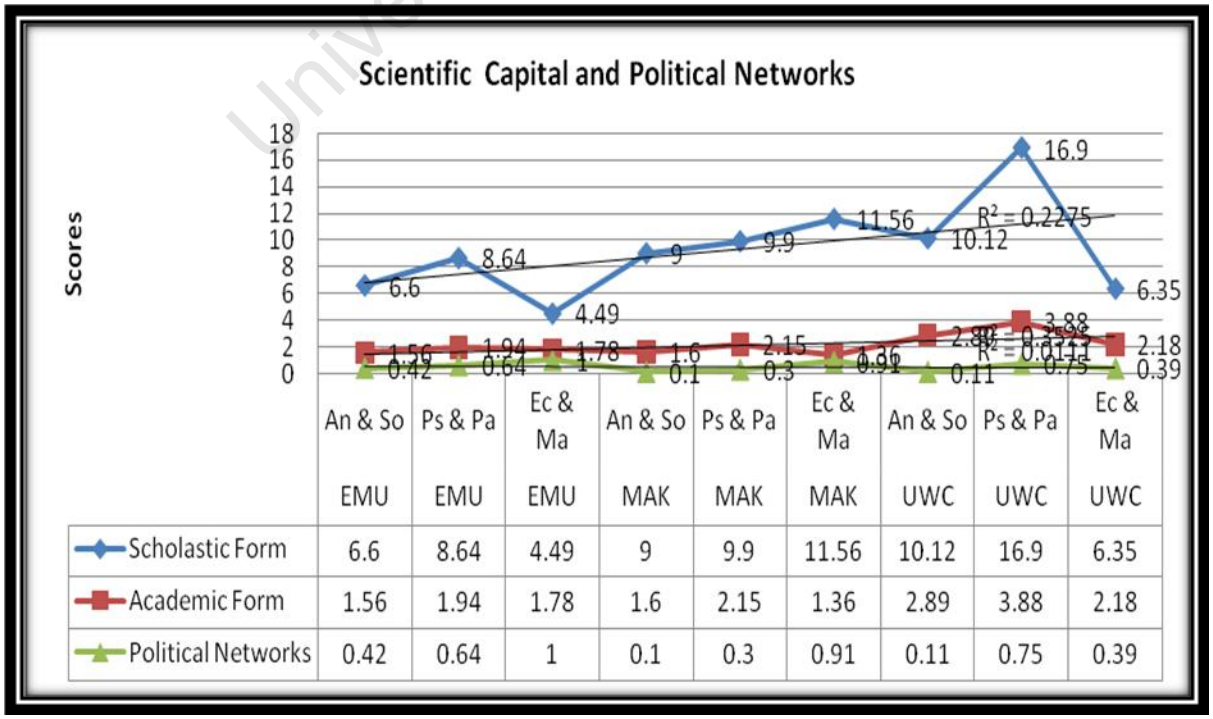
In general, higher levels of possession of academic capital correspond to greater participation in academic networks. However, in line with the case of scholastic capital, this is not a regular pattern.

6.2.2 Scientific Capital and Political Networks

Figure 6.3 below shows the ranking of scientific capital, both in its scholastic and academic forms, as well as levels of academics' involvement in political networks. It also depicts the pattern of each variable in a manner that allows for inter-discipline-cluster, inter-institutional and intra-institutional comparison. Overall, the scores show an increasing pattern as we move from EMU in the left to UWC in the right. However, we find an exception with the political networks' scores, which remain stable as we move from EMU to UWC.

In the first place this means that regardless of the levels of possession of scientific capital, the level of engagement with political networks is more or less the same.

Figure 6.3: *Scholastic Capital and Political Networks*



If we look at the levels of academic engagement in political networks, we see that the inter-disciplinary, as well as the intra-institutional differences are negligible. That means that for all disciplines at all three institutions the levels of academic engagement in political networks are relatively low, below (1.00). Ec & Ma at EMU is the only discipline-cluster which reaches precisely the level of (1.00) point in scores. The discipline-cluster least engaged in political networks is An & So at MAK with the lowest score of (0.10).

The evidence from the graph shows that there is no connection between levels of possession of academic capital and political networks. This observation becomes even more evident if we look at the top score of academic capital at UWC (3.88), which corresponds to a score of (0.75) in political networks. On the other hand, the lowest level of academic capital at MAK, amounting to (1.36), corresponds to (0.91), a value that is higher than the equivalent top score of UWC, but not considerably so.

In other words higher academic capital does not necessarily correspond to higher levels of engagement in political networks. Equally, lower levels of academic capital also do not necessarily correspond to lower levels of engagement in political networks.

Comparing the three institutions in terms of discipline-clusters, Figure 6.3 above shows that An & So at EMU, with (0.42) is more politically connected than the same cluster at UWC and MAK, scoring (0.11) and (0.10) respectively. Ps & Pa follows the same pattern. EMU academics with a score of (0.64) are more engaged in political networks compared to their counterpart at MAK with (0.30). EMU ranks second behind UWC, which scored (0.75). In Ec & Ma EMU academics with (1.00) are again more politically connected than MAK and UWC, scoring (0.91) and (0.39) respectively. This is the case even though EMU academics overall appear to possess lower academic capital compared to MAK and UWC.

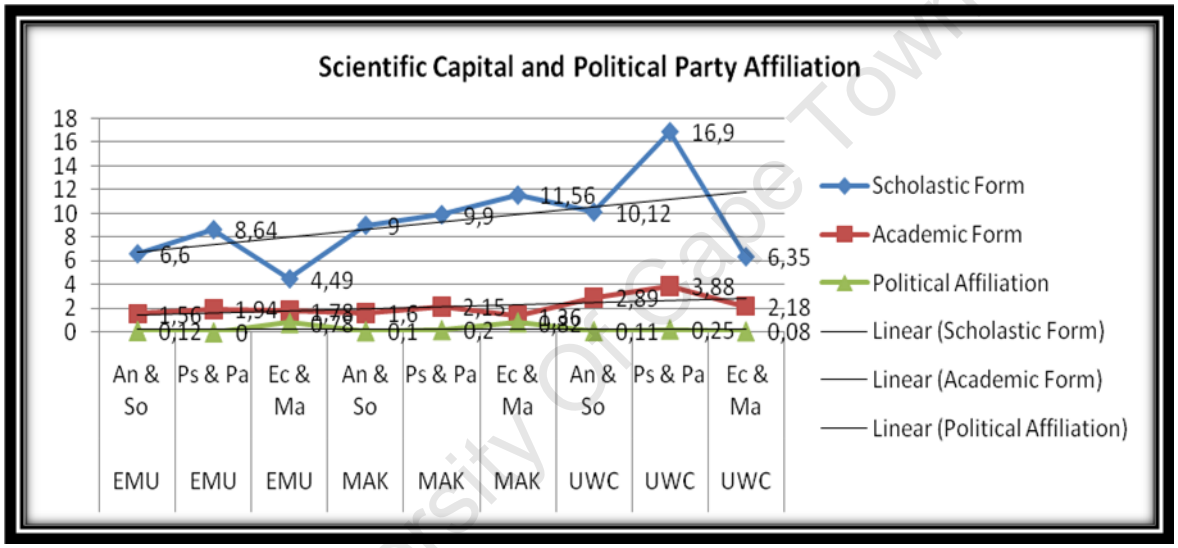
This observation seems to suggest that, for instance, in the case of EMU an academic does not necessarily need to have higher levels of scientific capital to secure political connections. On the other hand, it also does not imply that lower levels of engagement in political networks are contributing to higher levels of scientific capital. The data suggest that scientific capital does not necessarily determine the level of engagement in political networks.

However, academics from the different discipline-clusters have different levels of engagement with political entities.

6.2.2.1 Scientific Capital and Political Affiliation

If we now examine the level of academics' affiliation to political parties, the assumption of no relationship seems to prevail. However, another pattern seems to be emerging. Academics from Ec & Ma at EMU and MAK with a score of (0.78) and (0.82) are more affiliated to political parties than are their counterparts at UWC, which only obtains (0.08) points.

Figure 6.4: *Scientific Capital and Affiliation to Political Party*



However, a third variable needs to be considered in this analysis, namely the level of relative autonomy of the subfield of a discipline-cluster from the broader field of power. Bourdieu (1993a) argues that each field has its own specific structure and logic, but all share homologous features: there are 'general laws of fields' including relative autonomy, relational and hierarchical structures and struggles.

The relative autonomy of the field is crucial; the precondition for its existence being that it is neither wholly autonomous from nor reducible to other fields. As such, the field serves as a crucial mediating context, which 'like a prism' refracts external influences "according to the specific logic of the field, and it is by this intermediary that they act on the logic of the development of works" (Bourdieu, 1993b, p. 164).

This study did not specifically examine the relative level of autonomy of discipline-clusters from the field of power and politics, which would help understand the levels of politicization of academic fields in the three institutions. By taking that approach, as Maton (2005) suggests, I would be able to discern who is in control, and by what principles, in each field. Yet, this could be a line of inquiry to follow with further research.

6.2.3 Scientific Capital and Economic Networks

With economic networks, I am referring to the notion of engagement with funding entities operationalized as a source of funding and the total amount of research grants from diverse sources. The search for research funds in the activities that comprise the academic profession must be carried out together with the job of teaching students to conduct research. All other things being equal, the sources of research funding, as well as the amounts acquired can tell us about the scientific profile of an academic or discipline.

While the issue of research funding and the norms of the academic system are not new in higher education (Benner & Sandstrom, 2000), they have gained a new impetus with the debates about "new production of knowledge" (Gibbons et al., 1994) and the 'Triple Helix' (Etzkowitz & Leydesdorff, 1995, 1996).

Empirically, different research designs can be used to account for and track networks that academics establish with economic actors or entities for funding purposes. I decided to focus on discipline-clusters and their academics to examine the networks they establish to bring in research funding. Table 5.18 (see Chapter 5) depicts a more detailed analysis of the various sources of research funding and the amount acquired from diverse sources is examined in Table 5.19 (see Chapter 5).

Figure 6.5: *Scientific Capital and Economic Networks*

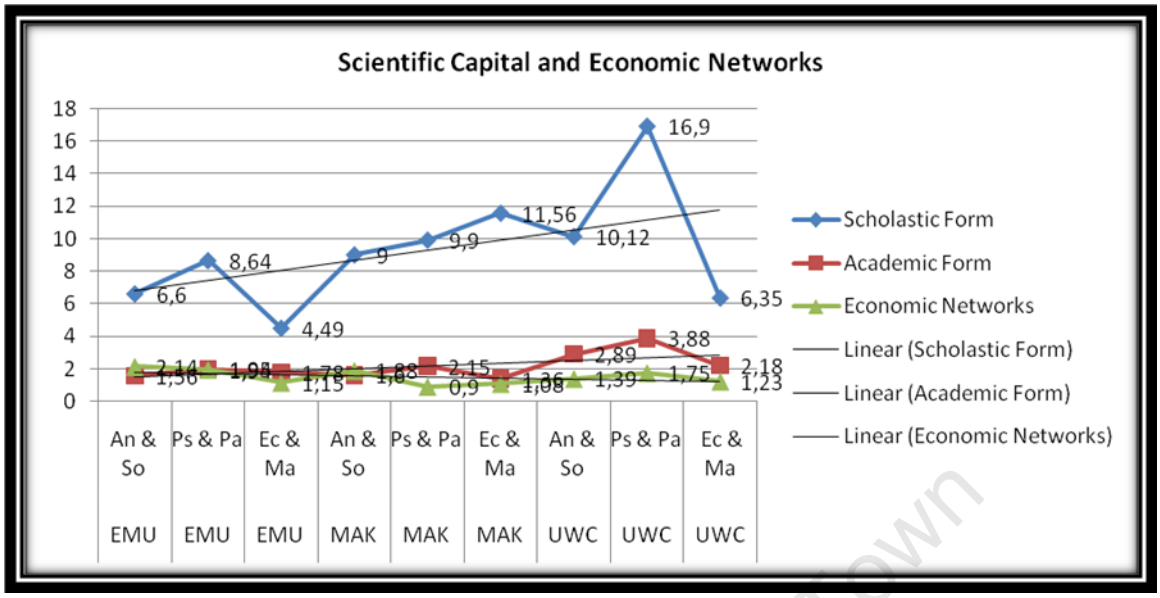


Figure 6.5 shows the inter-discipline-cluster differences in the distribution of scientific capital and economic networks. This figure can be related to Table 6.10 in the previous section. Ps & Pa at MAK is the discipline-cluster with the highest level of scholastic capital (16.90), outperforming An & So (10.12) and Ec & Ma (6.35). The corresponding scores in terms of engagement with economic entities are: Ps & Pa (1.75), An & So (1.39) and Ec & Ma (1.23).

With these numbers, I seek to illustrate that there are discrepancies between the levels of possession of scientific capital among the discipline-clusters at the various institutions and the corresponding level of engagement with economic entities. As we can see, the differences in the possession of scientific capital are widespread between the discipline-clusters, as opposed to the minor differences in terms of engagement with economic entities. The significance of this finding, once again, reinforces the assumption that in these discipline-clusters it is not the level of scientific capital that determines how much funding they can attract from diverse sources.

If we undertake the same kind of comparison across institutions, the following picture emerges: For An & So EMU gains (6.60), MAK (9.00) and UWC (10.12) points. If we now look at the matching scores in terms of their engagement with economic entities, EMU receives (2.14), MAK (1.88) and UWC (1.39). As we can see, another discrepancy emerges. The significance of which is that it reinforces the observation that these two sets of variables are not related in the way I predicted. In other words, discipline-clusters displaying higher

scientific capital do not necessarily attract more resources by engaging with diverse economic entities.

For a more detailed analysis of the proportion of research funding per source see Chapter 5. Here, I only present the general findings. The overall picture that emerges is that all three institutions under examination rely on the funding of International NGOs for research grants. This becomes apparent if we look at the source of research grants by individual academics. The second source of financial support is Government; Local NGOs also have some stake, particularly at EMU. Industry is almost irrelevant in its contribution to research funding in all three cases. The description in Chapter 5 enables us to see the proportion of resources from each funding source, as well as the diversity of sources from which academics from the three discipline-clusters obtain their funding.

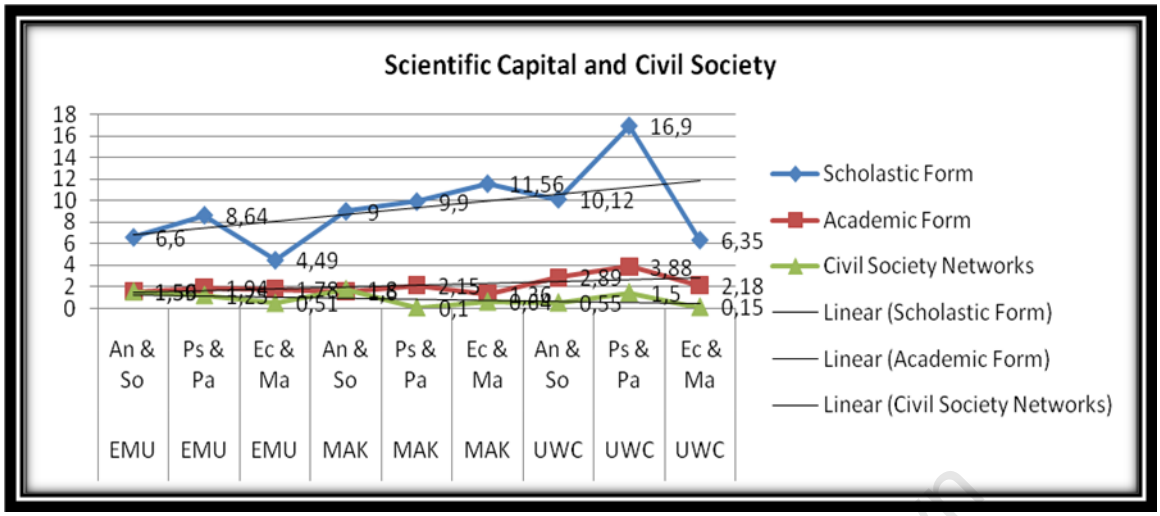
After examining these results, the need arises to re-examine the assumptions made prior to this study. For instance, An & So at all three institutions is the discipline-cluster with relatively low levels of scientific capital, but with a higher reliance on International NGO funding, as well as the discipline-cluster that takes money from either of the mentioned sources. As mentioned before, this study is not concerned with the drive of academics to make profits by selling their academic products, a tendency of the pure type of 'homo academicus economicus' or of academic capitalist.

However, the reliance on International NGO funding that can be observed in the figures, seems to indicate a resemblance between 'homo academicus economicus' and 'homo academicus consultans', which I will explore in the next section.

6.2.4 Scientific Capital and Civil Society Networks

Figure 6.6 below shows that EMU is the institution where all three discipline-clusters have stronger connections with civil society entities than their peers at MAK and UWC. Yet they also display the weakest scientific capital (see Tables 6.2 and 6.11).

Figure 6.6: *Scientific Capital and Civil Society Networks*



Overall, An & So at the three institutions shows relatively higher scores in the engagement with civil society entities (see Tables 6.9 to 6.11). For instance, at EMU the discipline-cluster scored (1.53) against (1.40) at MAK and (0.55) at UWC; almost three times lower than EMU. The relatively high scores of An & So in this category are probably related to the appeal these disciplines have to NGOs.

In other words, the social representation of An & So as disciplines somehow related to social work; and an interest in social assistance may be underlying this pattern. This trend is noticeable in the profile of most academics from this discipline present in their publications. A considerable number of research reports undertaken by academics were in the form of consultancy research for NGOs, displaying the resemblance of anthropologists and sociologists to the type of 'homo academicus consultans'.

The same trend is visible in other discipline-clusters as well. Ps & Pa scored (1.25) at EMU, (0.10) at MAK and (0.75) at UWC. Again, the tendency indicates the validation of the proposition presented above. The relatively high value for Ps & Pa is due to the small number of academic staff in the department. Even with these considerations in mind, which I have already elaborated on (see Chapter 4), UWC still reaches almost half of EMU's score.

Finally, regarding the discipline-cluster of Ec & Ma, we see the same pattern emerging once more: EMU scored (0.51), MAK (0.27) and UWC (0.15). If we examine the figures, we will

notice that the scores increase for scientific capital as we move from EMU to the UWC, while the scores for engagement with society decrease. The same analysis applies for the academic form of scientific capital, but with a slight difference in the value of the scores.

In summary, the following shows how the three discipline-clusters have established connections with civil society entities through their research contracts and consultancy work.

- An & So at EMU established relatively strong connections with International NGOs (0.90) and less noticeable with local NGOs (0.59). For the same discipline-cluster, MAK also set up strong links with International NGOs (0.80) and (0.50) with Local NGOs, slightly lower than EMU. Finally, UWC presents a more moderate engagement with International NGOs (0.44) and with Local NGOs (0.11). As illustrated in Figure 6.6, the higher the scientific capital of the discipline-cluster, the lower the tendency to engage with civil society organizations.

- As for Ps & Pa, EMU established relatively strong connections with International NGOs (1.00) and less with local NGOs (0.75). UWC represents moderate levels of engagement with civil society organizations, falling into second place with (0.50) and (0.25) respectively for International and Local NGOs. Once again, the small number of UWC academics from Ps & Pa contributes to the relatively high values. Finally, MAK's Ps & Pa with (0.10) points shows very low levels of engagement. This trend has been constant throughout the research for Ps & Pa at MAK. I conjectured that perhaps administrators and managers as new protagonists within the structures of the university are disguising the role of academic political scientists.

- Finally, Ec & Ma appears to be the discipline-cluster that engages least with civil society organizations, both in an inter- and intra-discipline-cluster and institutional comparison. At EMU, Ec & Ma established the lowest level of connection with International NGOs (0.34), as well as with Local NGOs (0.17). MAK follows with a (0.18) score regarding connections with International and (0.09) with Local NGOs. Finally, UWC's Ec & Ma displays the lowest levels of engagement with civil society, having scored (0.00) for International and (0.15) for Local NGOs.

In summary, when looking at the results of the three discipline-clusters at all three institutions, An & So clearly emerges as the discipline-cluster with the strongest characteristic of 'homo academicus consultans'. As far as the institutions are concerned, EMU and MAK employ a larger number of this type of academic than is valid for UWC.

6.3 Summary of the Chapter

In this Chapter, I have sought to elaborate on the analysis and discussion of the data, while examining more closely the relationship between the two main sets of variables involved in the study. First, I had already examined the distribution of scientific capital by constructing indices that would enable me to map a hierarchical space for the distribution of scientific capital amongst academics from the three discipline-clusters: Anthropology & Sociology, Political Science & Public Administration and Economics & Management at the three African universities under examination.

The outcome was that there are various levels of possession of scientific capital, both scholastic and academic. Secondly, I also looked at the level of engagement between discipline-clusters and various constituencies. The result was that discipline-clusters display different levels of engagement with different publics.

These two main constructs have been addressed with the purpose of showing the possible effect the differential amounts of scientific capital would have on the type of networks these discipline-clusters establish with different publics. The conclusion is that, although discipline-clusters display differential levels in terms of their engagement with different constituencies, this cannot be attributed to any variation in the possession of scientific capital.

CHAPTER SEVEN
CONCLUSIONS AND IMPLICATIONS

7.1. Introduction

In this chapter, I present the central findings, conclusions and implications of the study. In doing so, I revisit the main concern of the study and relate it to the results. The chapter is divided into three main parts. In the first part I present the central findings, the second focuses of relating the findings with the hypothesis of the study. Finally, I provide a concluding note to the study.

7.2. Central Findings

Higher education and its various constitutive disciplines have been subject to various analyses concerning the mission and the different linkages with society. The language that is often used nowadays to describe this linkage, for instance social engagement, 'mode 2' and so on, seems to be prescriptive and normative in the sense that it demands social, political and even economic intervention. However, without an understanding of how universities and their constitutive disciplines work as dynamic fields of possibilities, we would consider these institutions as being homogeneous in character and in their responses to society's demands.

In this study, I have investigated two sets of variables: scientific capital and the various forms of engagement. On the one hand, I constructed and examined the distribution of scientific capital amongst three discipline-clusters at three African universities. On the other hand, I also constructed and examined the levels of engagement of academics with four types of entities, namely academic, political, economic and civil society.

While my approach, I hope, has introduced a new way of looking at this subject, the topic has been investigated by African scholars using different perspectives (Cooper, 2001, 2005a, 2005b, 2006; Mouton, 2003, 2006; Mouton et al., 2008). None of these perspectives, however, considered looking at universities and particularly at their constitutive disciplines as social fields characterized by a heterogeneous and hierarchical distribution of capital

(material and symbolic resources). This particular perspective has enabled me to look at issues the other approaches were not equipped to examine.

An understanding of higher education and its constitutive disciplines requires a sociological analysis that must be able to construct a social space that represents the heterogeneous positions of its actors in terms of particular analytical principles. I propose and introduce a relational mode of conceptualizing higher education institutions and disciplines in line with Bourdieu's (1993a) relational sociology. By using the concepts of field and capital, I have analyzed higher education institutions and their constitutive disciplines as dynamic fields of possibilities.

The study is informed by Bourdieu's theory of field and capital as its main framework. However, I also engage in other debates concerning changes in higher education as a knowledge institution. In particular, I found Bourdieu's approach to social reality appropriate for this study because it balances with its powerful concepts the shortcomings of either highly structural or individualistic perspectives. In particular, Bourdieu's concepts provided what I think is a fruitful way of looking at the complex subject of interactions between academics in their disciplinary and scientific fields and external entities in society. This enabled me to conceptualize the disciplinary fields and the networks of connections academics establish with external publics as social spaces that can be connected within a network of relationships with an encompassing logic of practice.

The main concern which propelled my interest in pursuing this study was related to the development of scientific capital in African universities as an intellectual asset and its deployment into society. First, I intended to examine if the amount of scientific capital displayed by academics in the disciplines of social sciences had anything to do with their engagement with non-academic entities. I chose the social sciences in view of the fact that in some of the literature (Albert, 2003; Prpić, 2007) there has been a lack of evidence from these disciplines as to how they respond to the shift from 'mode 1' to 'mode 2' knowledge production advocated by Gibbons et al. (1994).

Secondly, I assumed that a drift from 'mode1' towards 'mode 2' in African universities would erode the intellectual capital of the disciplines or, by the same token, that the disciplines showing lower levels of scientific capital would be the ones establishing more

connections with non-academic entities. Yet, the results of this study seem to suggest otherwise. High scientific capital and low engagement or low scientific capital and high engagement seem to be determined by the context in which the institutions are located rather than the meso level of the disciplinary field.

Theoretically, there are at least two implications that I can deduce from the study. First, the assumption that the intellectual capital of African universities is being eroded and drifting away as a result of academics' increasing engagement in non-academic research such as consultancy, leading to the de-institutionalization of science (Mouton et al., 2008), has not yet received substantial empirical support, the case of EMU notwithstanding. With the exception of Sociology and Anthropology, which present relatively high levels of engagement with non-academic entities, particularly with civil society organizations, all other discipline-clusters in the three universities under examination display considerable levels of engagement with academic peers. This is the case particularly if we consider that I constructed academic engagement as collaboration in the co-authorship of publications.

So if I may restate my research concerns in this study: Where are the giants of knowledge production in Africa? Or what is the future of scientific capital in African universities? In the light of these findings, the answer would certainly not be that they are lost to the world of consultancy. Perhaps, the answer would be that if they are not in the universities, they might be elsewhere looking for better institutional environments to place themselves within the global field of knowledge production. Yet, this leads to another issue which I did not explore directly in this study: the issue of 'brain-drain' and 'brain circulation'. Mouton et al. (2008) sees it as a feature of an internal 'brain-drain' phenomenon, when academics are attracted to do consultancies rather than migrating to developed countries. As I mentioned elsewhere, I do not intend to delve into the central but often-misleading debate about the 'brain-drain' or 'brain-gain' (circulation) of African intellectual resources.

The main conclusion of this study is that high scientific capital is not always associated with low levels of engagement in African universities. By the same token, a higher level of engagement with non-academic entities does not necessarily jeopardize the productivity of scientific capital as I initially assumed. Scientific capital and engagement appear neither closely associated nor necessarily related. Quite the opposite, it is the macro-institutional context from which academics in their particular disciplines operate that seems to determine

the engagement with different constituencies in society. In other words, the institutions matter. Disciplinary fields matter, too, in determining both the level of scientific capital and the engagement of particular academics. This is the reason why the University of the Western Cape appears to rank higher in scholastic capital than Makerere University and Eduardo Mondlane University.

Nevertheless, having higher levels of scientific capital does not go hand in hand with high levels of engagement either, particularly with external (non-academic) constituencies. In the same way, EMU, for example, displays relatively lower levels of scientific capital compared to the other two institutions. This was not a sufficient reason to prevent the institution from having relatively higher levels of engagement with non-academic entities. Although the three institutions display different levels of scientific capital, the deployment of such intellectual resources to different constituencies in society is not a function of the level of capital. A good example of this comes from the discipline-cluster of Anthropology & Sociology at EMU. Regardless of their lower scientific capital, anthropologists and sociologists appear to be more engaged with civil society organizations than their peers at UWC and MAK with relatively high levels of scientific capital (see Table 6.2).

This result suggests that if anything is contributing towards the erosion of scientific capital in African universities, it is not directly related to the deployment of the existing scientific capital to external constituencies as Mouton et al. (2008) suggest with their thesis of des-institutionalization of science in African universities. Quite the opposite, these results seem to give credit to Gibbons (2001, 2006) idea that embracing 'mode 2' might help African universities resuscitate research at these institutions. In other words, there is not enough evidence to support the assumption that moving from 'mode 1' to 'mode 2' would erode or prevent the development of intellectual capital and 'mode 1' in African universities as suggested by Muller (2000) and promote a "subsistence mode" of knowledge production according to Mouton et. al. (2008, p. 200), or even what I termed 'cash crop' academics and 'homo academicus consultans'.

In the next section, I will finally re-visit the aims, as well as the main findings of my research.

7.2.1 Relating the Main Findings with the Hypothesis

The aim of this research has been to establish:

- The different relative positions occupied by each of the three discipline-clusters in social sciences in the three universities under examination in a social space for the distribution of scientific capital.

- The significance of having a space of relative positions on the basis of the differential levels of possession of scientific capital *within* and *across* institutions, and its significance for the differential levels of engagement with different constituencies in society.

- A working hypothesis on whether the levels of possession of scientific capital are somehow related to particular levels and forms of engagement with different constituencies in society.

7.2.2 Disciplinary Distribution of Scientific Capital

In this study, I departed from the theoretical assumption that scientific fields are structured spaces for the distribution of capital (Bourdieu, 1975), then it is possible to ascribe to discipline-clusters particular positions according to specific amounts of scientific capital in a particular scientific field. From this theoretical assumption I constructed the following hypothesis:

H1) *The particular position occupied by Anthropology & Sociology, Political Science & Public Administration and Economics & Management, as disciplinary fields in social sciences in a particular scientific field, depends on the amount of scientific capital they have accumulated during a certain period.*

- The three discipline-clusters under examination at the three institutions display different levels of possession of scientific capital, each therefore occupying a particular position in the scientific field. This means that these disciplines are

endowed with different intellectual capacities and resources. As Bourdieu (2004, p. 32) puts it, "the scientific field, like other fields, is a structured field of forces, and also a field of struggles to conserve or transform this field of forces." This might sound trivial as an assumption. Yet, I suppose the sociological endeavour lies in making explicit social phenomena that are not altogether clearly visible. If we know that higher education institutions and their constitutive disciplines are endowed with different intellectual resources, then why do we treat them as if they were equally endowed? For instance, Ps & Pa appears to be the most productive discipline-cluster in terms of scholastic capital (I will elaborate more on *inter*- and *intra*-disciplinary differences).

- The disciplinary differences in the possession of scientific capital are discernible both at institutional level, as well as across institutions. Again, this finding should not come as a surprise. As argued by Muller (2009), disciplines as we know them today are historical products and have experienced distinct processes of institutionalization in different contexts. Yet, one should not neglect that when subjected to the same criteria that measure their performance in terms of intellectual productivity (such as publications, academic staff qualifications) across institutions, certain discipline-clusters share similarities. For instance, Ps & Pa appears to be the most productive discipline-cluster in terms of scholastic capital (I will elaborate more on *inter*- and *intra*-disciplinary differences).

- The differences in the distribution of scientific capital between the discipline-clusters are more expressive across institutions than across discipline-clusters in the same institution (see Tables 6.4 to 6.11). This means that the institution in which the discipline-cluster is located makes a difference concerning the levels of academic productivity. In other words, the institutional context matters in accounting for the differential levels of possession of scientific capital.

- The disciplinary difference across institutions is more expressive between discipline-clusters from UWC and EMU than it is the case between UWC and MAK (see Table 6.4). The significance of this finding is that EMU possesses the lowest amount of scientific capital, whereas UWC shows higher levels of possession. When we look at

the differences between the same discipline-clusters across institutions, we see that the disparities are more extensive between Ps & Pa than they are between An & So and Ec & Ma. This means that although Ps & Pa have generally higher scientific capital at all three institutions when compared to the other two discipline-clusters within the same institution, the differences between Ps & Pa across institutions are also extensive. The significance of this observation is that the more scientific capital a discipline-cluster possesses the more likely it is to generate even more capital. This conclusion seems to corroborate the maxim that capital goes to capital.

- Another noteworthy finding comes from Ec & Ma. First, Ec & Ma is the discipline with the lowest level of scientific capital at all three institutions, as far as inter-disciplinary comparison is considered. Secondly and surprisingly, the difference across the three institutions is not evident. This shows that in order for a field to be structured hierarchically, there must be something at stake. Yet nothing seems to be at stake in Ec & Ma in the three institutions examined. Even if we were to consider that by coupling Economics with Management it might have potentially distorted the records of Economics, as Management may be more technical and perhaps less driven by the 'publish or perish' principle, the results are still very low. Again, this seems to be a particular feature of these institutions in their particular countries, where not publishing would not make a noteworthy difference in the symbolic capital within the institution. However, this is an issue which would require further investigation.

- In summary, so far I have demonstrated that Bourdieu's notion of scientific capital is a useful analytical tool to construct a structured field based on differential distribution of forms of capital. Based on that, I constructed a cross-national space of disciplinary fields in the social sciences. This procedure enabled me to place UWC on top of MAK and EMU in a hierarchy of possession of scientific capital by calculating different scores for specific indicators. This analysis has made it possible to depict clear differences between the three institutions and within the institutions' differences in discipline-clusters in terms of their intellectual capital.

- One of the major concerns of this study was to be able to differentiate institutions and disciplines in the social sciences according to a certain criteria of academic

productivity. Having established a hierarchical position based on the distribution of scientific capital amongst institutions and disciplines, the next step was to see whether particular positions in terms of scientific capital would match the levels of engagement with different constituencies. Yet, the result shows that there is no such correspondence. In the next section, I elaborate more on this conclusion.

7.2.3. Engagement with Different Constituencies

Initially, I hypothesised that:

H2) *Discipline-clusters with different amounts of scientific capital are likely to establish corresponding levels of engagement with both internal (academic) and external (non-academic) constituencies.*

Overall, we can conclude that the differences across discipline-clusters at institutional level are more extensive concerning the engagement with academic entities than with other forms of engagement. In other words, this means that the level of engagement varies more between different disciplines when the engagement concerns academic rather than non-academic entities. The significance of this is that discipline-clusters have different 'cultures of collaboration' – if the term is appropriate. In this particular case, Ps & Pa engage relatively more amongst themselves than An & So and Ec & Ma. Similarly, An & So collaborates to a relatively higher extent than do their peers in Ec & Ma (see Table 6.5). This is valid, especially for UWC, but it also applies to the other two cases (see Tables 6.6 and 6.7).

Higher levels of scientific capital do not necessarily match with higher levels of engagement. The three discipline-clusters under examination at the three institutions also display different levels of engagement with different constituencies. In most cases, higher levels of scientific capital correspond to lower levels of engagement with particular entities. This occurs especially with reference to engagement with external or non-academic constituencies. The significance of this characteristic could be that levels of academic engagement with particular constituencies are not determined by corresponding levels of possession of scientific capital. The legitimate question one could then ask is: what determines the disciplinary-cluster differences in levels of engagement with distinct publics? Or better, what determines the differences in the levels of engagement with distinct publics?

The study did not establish that. The response would need to be investigated, knowing that levels of scientific capital may be a necessary, but not a sufficient factor. Contextual factors, such as the country background, academics' culture and values, education and other resources, should also be taken into consideration. Scientific capital on its own cannot account for differential levels of engagement. Yet, investigating these other variables should perhaps be a step forward in the research. However, the study has established that level of engagement is not a measure discriminator amongst institutions as some authors have assumed, that is, that some institutions are highly engaged and others are not (Hall, 2008) (I return to this issue in the concluding note).

The study has arrived at three main conclusions as far as engagement is concerned:

- The first conclusion is that, in general, the levels of engagement are very low with reference to external constituencies, irrespective of discipline-cluster. This means that when we move from internal (academic) to external (non-academic) forms of engagement the disciplinary-cluster differences in the levels of engagement decrease. This feature pertains to all three institutions (see Tables 5.17 to 6.7). Amongst the non-academic external forms of engagement, civil society appears as the category that shows the highest level of engagement, but even here they are very low. We can see this by observing the slight increase in the levels of inter-disciplinary differences in that category. An & So and Ps & Pa show relatively higher levels of engagement with civil society entities than Ec & Ma. This is especially the case at EMU where An & So, despite having lower scientific capital, displays reasonably higher levels of engagement with civil society entities. Looking more closely at the data, we can observe that this results from the relatively large amount of consultancy work done for civil society organizations. Yet, it is only at EMU particularly in the discipline-cluster of An & So that we can find a slightly higher engagement with civil society entities. As I already pointed out, this finding contradicts Mouton et al.'s (2008) thesis of de-institutionalization of science due to an increasing drift of academic to consultancy work.

- Secondly, we can conclude that the intra-disciplinary differences across institutions are relatively more pronounced in the category of engagement with academic entities

than with non-academic or external constituencies. In this case, the intra-disciplinary differences across UWC and MAK are larger than are those between UWC and EMU, as well as between MAK and EMU (see Table 6.8). The score for Ps & Pa at MAK is particularly noteworthy, as it is a discipline-cluster which scores higher in scientific capital, yet appears as the discipline-cluster least engaged with academics. The significance of this feature could be twofold. First, it gives more support to the assumption of no direct connection between scientific capital and levels of engagement with different constituencies. Secondly, one could conclude that Ps & Pa has either received a boost of highly qualified academics with a reasonable record of publications, but who do not engage with their colleagues, or that academics in Ps & Pa at MAK are pursuing individual agendas outside the university and do not report such activities

- The third conclusion is similar to the second. Yet, this time the observation concerns intra-disciplinary differences across institutions. Again, we see that as we move from internal (academic) to external (non-academic) forms of engagement, the disciplinary differences tend to decrease (see Tables 6.9 to 6.11). This means that the disciplinary level of engagement with external entities does not vary considerably, as we move from one institution to the other.

7.3 Concluding Note

In conclusion, this study demonstrates that Bourdieu's concepts of scientific capital and field can be used as a proxy to position different African universities in a hierarchical space of distribution of forms of capital. However, the principles of accumulation of scientific capital and the particular tokens at stake will vary from institution to institution. In other words, what drives academics from UWC to publish in particular journals in collaboration or not with their peers is more a function of the local dynamics of the institutional fields and not only the amount of scientific capital they possess. Similarly, levels of engagement seem to be determined by contextual factors, such as the institutional context and symbolic capital at the institutional level rather than the scientific capital of academics.

If this analysis is correct, then it also might be reasonable to suggest that what I called 'homo academicus consultans' is a peculiar phenomenon of An & So at EMU. In other words, An & So at EMU is the only discipline in my sample which depicts a low level of scientific capital and a slightly higher level of engagement with civil society entities. As for the rest of the discipline-clusters higher productivity of scientific capital is not at risk because of the engagement of academics with non-academic constituencies. My initial concern that scientific capital in African universities would be in danger of becoming unproductive due to an increasing engagement with non-academic entities has not found supportive evidence.

Gibbons's (1998, 2001) assumption seems to prevail that by opening up the African university to engage more with society, universities have more to gain than to put at risk. Institutions and academics that have high scientific capital appear to be more versatile and academically productive, that is, academics are both able to invest in their individual and institutional scientific capital and at the same time engage with external constituencies without jeopardizing their levels of scientific productivity. Yet even with an admittedly small sample, this study has established that scientific capital, not engagement, is the major discriminator, both in *inter*-and *intra*-comparison, amongst disciplines and institutions.

This study did not directly address the issue of changes in science in Africa due to the externalization of the rewarding system, that is, academics having less incentive to pursue 'pure' scientific goals, informed by Mertonian (1968, 1988) norms of science in favour of looking outwards for '*pecuniary*' rewards, Mouton's 'subsistence mode' (Mouton, et al., 2008) and social relevance (Gibbons, 1998; Gibbons et at., 1994). However, the study looked at the grounding conditions to answer these questions in a more sociological way, in the sense that by using Bourdieu's theoretical tools, it was able to differentiate the scientific space in the social sciences in selected African universities in terms of differential levels of possession of scientific capital and levels of engagement. While scientific capital shows a higher degree of differentiation within and across disciplinary fields, that is, not all academics from all disciplines have indulged in 'pecuniary' activities; levels of engagement do not display such differentiation. The apparent or 'real' erosion of scientific capital cannot be explained by high levels of engagement of academics with non-academic constituencies.

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APPENDICES

Appendix 1: Operationalization of Variables

I) Independent Variable	Operationalization of Variables		
Concept: **Scientific Capital**	**Scholastic Form** Scholarly Prestige (Recognition)		
Dimension (1):			
Component	**Publication**		**Questions**
1) Publication (index)	**Indicators**	1) Nº Journal Article	Q1. How many articles have you published in local peer-reviewed and accredited scientific journals in the last 5 years?
			Q2. How many articles have you published in international peer-reviewed and accredited scientific journals in the last 5 years?
			Q3. How many articles have you published in non-peer-reviewed scientific journals in the last 5 years?
		2) Nº Book Chapters	Q4. How many books chapters have you published in the last 5 years?
		3) Nº of Books	Q5. How many books have you published in the last 5 years?
		4) Nº Conference Proceedings (Papers)	Q6. How many conference proceedings (papers) have you presented in the last five years?
		5) Research Reports	Q7. How many research reports have your written in the last five years?
2) Qualification (index)	**Education Qualifications**		
	Indicators	1) Nº of PhD or equivalent	Q11. Do you hold a PhD or an equivalent degree?
		2) Nº of Master or equivalent	Q12. Do you hold a Master's or an equivalent degree?
		3) Nº of BA Honours or equivalent	Q13. Do you hold a BA Honours or equivalent degree?
3) Supervision of PhD and Master's Students	**Indicators**	4) Nº of PhD and Master's students	Q14. How many PhD and Master's students have you supervised in the last five years?
			Q15. How many of these PhD and Masters students that you supervised have become academics?
Dimension (2):	**Academic Form** Institutional Academic & Administrative Position in the Academy		
Component			
	Academic Seniority Ranking		**Questions**
1) Academic Rank	**Indicators**	1) Nº of Full Professors	Q16. To be obtained on the basis of the background information.
		2) Nº of Associate Professors	Q17. To be obtained on the basis of the background information.
		3) Nº Assistant Professors	Q18. To be obtained on the basis of the background information.
		4) Nº Probationary/	Q19. To be obtained on the basis of the background information.
2) Administrative Rank	**Administrative or Managerial Position**		**Questions**
	Indicators	1) Dean of Faculty (DoF)	Q20. Have you ever held the position of Dean of a faculty in the last five years?
		2) Deputy Dean of the Faculty	Q21. Have you ever held the position of Deputy Dean of a faculty in the last five years?
		3) Head of Department (HoD)	Q22. Have you ever held the position of head of department in a faculty in the last five years?
		4)Course/programme director or convener	Q23. Have you ever held the position of course/programme director or convener in your faculty in the last five years?
		5) Director of a Research Centre (DRC)	Q24. Have you ever held the position of a DRC in a faculty in the last five years?

II) Dependent variable **Concept: Networks of Connections**	**Nature of the Networks of Connections (or Forms of Engagement)**		
Dimension (1): Academic Networks	**Indicators**	Nº of (a) co-shared research projects with local and international academic peers	Q25. How many co-shared research projects have you undertaken with your local academic peers in the last five years?
			Q26 How many co-shared research project have you undertaken with your international academic peers in the last five years?
		Nº of (b) co-authored publications with local and international academic peers	Q27. How many co-authored publications have you published with local academic peers in the last five years?
			Q28. How many co-authored publications have you published with your international academic peers in the last five years?
		Nº of academic societies in which you are a member (c) membership national and international.	Q29. Have you become a member of any national academic society/organization in the last five years? If yes, how many?
			Q30. Have you become a member of any international academic society/organization in the last five years? If yes, how many?
		Nº of international academic events (conferences, congresses, seminars) (d) attended in the last 5 years.	Q31. How many international academic events have you attended in the last five years?
		Nº of national academic events (conferences congresses, seminars attended in the last five years)	Q.32 How many national academic events have you attended in the last five years?
Dimension (2): Political Networks	**Indicators**	Nº of (a) government research contracts or consultant research (work)	Q33. How many research contracts of consultant research have you done for the government in the last five years?
		Nº of research contracts or consultant research (work) for (b) political parties	Q34. How many research contracts of consultant research have you done for a political party in the last five years?
		Nº adviser to (c) individual politicians (e.g. politicians in parliament or cabinet ministers)	Q35. Have you ever been a personal adviser to an individual politician? (e.g. member of parliament or a cabinet minister)? If yes, how many politicians have you worked with as a personal adviser in the last five years?
		(d) Membership in political organization	Q36. Are you a member of any political organization (party)?
Dimension (3): Economic Networks	**Indicators**	Nº of research projects (a) funded by international donors	Q37. How many of your research projects or consultancies were funded by an international donor in the last five years?
		Nº of research projects (b) funded by government via university	Q38. How many of your research projects or consultancies were funded by the government in the last five years?
		Nº of research projects (c) funded by the private sector (industry)	Q39. How many of your research projects or consultancies were funded by the private sector (industry) in the last five years?
		(d)Research funding raised	Q40. Approximately, how much research funding did you receive in total in 2008?
			Q41. Approximately, what percentage of your total research funding came from an international donor (e.g. SIDA/SAREC), from government funds or from the private sector in 2008?
Dimension (4): Civil Society Networks	**Indicators**	Nº of research projects or consultant research (work) for (a) local NGOs	Q42. How many research contracts or consultant research did you do for a local NGO in the last five years?
		Nº of research projects or consultant work for an (b) international NGO	Q43. How many research contracts or consultant research did you do for an international NGO in the last five years?
		(c) Membership of an NGO or civil society organization, national and international.	Q44. Have you become a member of any national civil society organization in the last five years? How many?
			Q45. Have you become a member of any international civil society organization in the last five years? How many?

Appendix 2:Questionnaire [English Version]

Scientific Capital and Forms of Engagement:

A Case Study of Social Science and Economics in Three African Universities

1. Questionnaire for academics

You are invited to participate in a study entitled: Scientific capital and forms of engagement: A case study of social science and economics in three African universities. Please read this form carefully and feel free to ask any questions you might have by sending an email to the researcher. The study seeks to understand the nature of the networks of connections that academics establish with different constituencies (academic, political, economic and civil society) in their societies on the basis of productivity and reputation. The study is a survey that collects original data through the administration of questionnaires and personal background information from academics. You have been selected as one of the respondents. Your participation in this study is entirely voluntary. We ask that you take a little time to complete the questionnaire and provide a list of all your publications, such as books, chapters in books, journal articles, conference papers and research reports. You may be assured that all information obtained will be used for statistical purposes only and your identity will not be revealed. Though demographic data are required, they will be analyzed as aggregate data in order to examine the gender and age-group dimensions of science only. In the thesis and any future publications that will emanate from this study, only aggregate data will be reported. The University of Cape Town Research Ethics Board has approved this study. Your university has also granted permission for the study to be conducted. If you which to receive a summary of the results, please send your e-mail address to the researcher. We would like to ask that you to complete the questionnaire by **May 8, 2009.**

The Researcher

Patrício Langa
Doctoral Programme
School of Education
Faculty of Humanities
University of Cape Town
Email: patricio.langa@uem.mz
Mobile: +2776 3451133

Please complete the enclosed **questionnaire and return it to us**. The researcher will take all precautions to protect your confidentiality and anonymity. If you whish to receive a summary of the results in the survey, please send the researcher your email address.

Please note: Before starting to complete this questionnaire, it is advisable that you have at hand a list of all your publications. With that list nearby the completion of the questionnaire should take approximately 15 minutes. Please circle the appropriate response in the case of the closed-ended questions and write out your responses in full besides the open-ended questions.

We truly appreciate your participation in this study and we thank you for your time.

I. ACADEMIC QUALIFICATIONS

1. What is your sex?

Gender	
Female	
Male	

2. How old are you?

Age	Years

3. What is your highest academic qualification?

Academic qualification	rank
Doctorate or equivalent degree	
Master's or equivalent degree	
Bachelor's, Honours or equivalent degree	
Other (specify) ……	

4. What is your current academic position?

Academic career	rank
Professor	
Associate Professor	
Senior Lecturer	
Lecturer	
Teaching Assistant	
Other (specify) ……	

5. Are you a full-time or part-time academic staff member?

Contractual status	
Full-time	
Part-time	

6. How long have you been in your position as a permanent (tenure) or contracted staff?

Academic tenure status	Years
Permanent staff	
Occasional staff	

7. What is the name of your university?

……

8. What is the name of your academic faculty and in which department are you?

……

9. What discipline(s) or field of interest do you teach?

……

……

10. Do you currently hold any of the following administrative positions in your faculty? If your answer is NO, then, please proceed to the next question.

Academic administrative position	
Dean of the faculty or school	
Deputy dean of the faculty or school	
Head of department	
Course/programme convener	
Leader of a research *centre, group or unit* within the faculty	
Other (specify)…….	

11. In the last five years (2004-2008), have you ever held one of the following positions? If your answer is NO, then, please proceed to the next question.

Academic administrative position	
Dean of the faculty or school	
Deputy dean of the faculty or school	
Head of department	
Course/programme convener	
Leader or head of a research *centre, group or unit* within the faculty	
Other (specify)……..	

12. How many academic publications have you single-handedly authored in the last five years?

Publications in the last five years (2004-2008)	N#
Journal articles in local peer-reviewed & accredited scientific journals	
Journal articles in international peer-reviewed & accredited scientific journals	
Journal articles in non peer-reviewed scientific journals	
Books chapters in edited publications	
Your own books	
Conference papers you have presented	
Research reports you have written	

13. How many academic publications have you co-authored in the last five years?

Publications in the last five years (2004-2008)	N#
Journal articles in local peer-reviewed & accredited scientific journals	
Journal articles in international peer-reviewed & accredited scientific journals	
Journal articles in non peer-reviewed scientific journals	
Books chapters in edited publications	
Books you co-authored	
Conference papers you have presented	
Research reports you have written	

14. What is the language in which you published most of your academic writings?

Language of publication	N#
In **English**; how many publications?	
In **French**; how many publications?	
In **Portuguese**; how many publications?	
In **Spanish**; how many publications?	
In other language (specify)…….; how many publications?	

15. Supervision of PhD and Master's Students

Supervision of PhD and Master's students	N#
How many PhD students graduated under your supervision in the last five years?	
How many of these PhD students have become academics?	
How many of these PhD students were from another university than yours?	
How many Master's students graduated under your supervision in the last five years?	
How many of these Master's students have become academics?	
How many of these Master's students were from another university than yours?	

II. ACADEMIC NETWORKS OF CONNECTIONS

16. Collaborative research projects

Collaborative projects (2004-2008)	N#
How many collaborative research projects have you undertaken with your local academic peers in the last five years?	
How many collaborative research projects have you undertaken with your international academic peers in the last five years?	

17. Membership in academic and professional societies or organizations.

Membership in academic societies (2004-2008)	N#
Are you a member of an academic or professional society (e.g. African Sociological Association)? If yes, how many?	
In the last five years, have you become or have you been a member of any national academic society/organization? If yes, how many?	
In the last five years, have you become or have you been a member of any international academic society/association/organization? If yes, how many?	

18. Conference and seminar attendance

Academic events attendance (2004-2008)	N#
How many international academic conferences and seminars have you attended in the last five years?	
How many national academic conferences and seminars (not departmental) have you attended in the last five years?	

19. Economic networks

Economic network	N#
How many of your research projects or consultancies were funded by an *international organization* or agency in the last five years?	
How many of your research projects or consultancies were funded by local *civil society* organizations?	
How many of your research projects or consultancies were funded by the *government* in the last five years?	
How many of your research projects or consultancies research were funded by the *private sector* (industry) in the last five years?	

20. Grants and funds received

Grants and funds received	
Approximately how much total research funding did you receive in the last five years?	
Less than 10 000 US$	
10 000-24 999 US$	
25 000-49 999 US$	
50 000-99 999 US$	
More than 100 000 US$	

21. Grants and funds received (International agencies, Government & Industry).

Grants and funds received in percent										
Approximately what percentage of your total research funding came from ***International organizations or agencies*** (e.g. World Bank, Ford Foundation, SIDA/SAREC etc) in the last five years?										
0%	**10%**	**20%**	**30%**	**40%**	**50%**	**60%**	**70%**	**80%**	**90%**	**100%**
Approximately what percentage of your total research funding came from ***government*** in the last five years?										
0%	**10%**	**20%**	**30%**	**40%**	**50%**	**60%**	**70%**	**80%**	**90%**	**100%**
Approximately what percentage of your total research funding came from the ***private sector (industry)*** in the last five years?										
0%	**10%**	**20%**	**30%**	**40%**	**50%**	**60%**	**70%**	**80%**	**90%**	**100%**

22. Civil society networks

Civil society networks	N#
How many research contracts or consultant research projects did you do for local NGOs in the last five years?	
How many research contracts or consultant research projects did you do for international NGOs in the last five years?	
In the last five years, have you become a member of any national civil society organization? If so, how many?	
In the last five years, have you become a member of any international civil society organization? If so, how many?	

23. Other networks

Other networks (2004-2008)	N#
How many research contracts or consultancies have you conducted for a *government* in the last five years?	
How many research contracts or consultancies have you conducted for a *political organization* in the last five years?	
Have you been a personal adviser to a *government official* or *politician* (e.g. member of parliament or minister) in the last five years? If yes, how many?	

24. Membership in a political organization

Membership in a political organization		
Are you a member of any political party?	**YES**	**NO**
Is your party in power in your country?		

25. If your answer to the previous questions is YES, what is your level of engagement with the party?

Engagement	YES	NO
I am an active member (e.g. I attend meetings)		
I hold a leadership position in the organization		
I am a senior leader of the organization		

26. You have finished completing the questionnaire; please attach the list of your publications.

End of Questionnaire

Thank you

Appendix 3: Questionnaire [Portuguese Version]

Capital científico e formas de engajamento:

Um estudo de caso das ciências sociais e economia em três universidades africanas

2. Questionário para académicos

Está convida/o a participar do estudo intitulado: *Capital científico e formas de engajamento: um estudo de caso das ciências sociais e economia em três universidades africanas*. Por favor, leia este formulário cuidadosamente e sinta-se livre para colocar qualquer questão que possa ter. O estudo procura compreender a natureza das redes de conhecimento (contacto/conexão) que académicos estabelecem com diferentes constituências (académicas, políticas, económicas e da sociedade civil) nas suas sociedades, com base na sua produção e reputação científica. O estudo é um inquérito que recolhe dados originais através da administração de questionário, entrevistas e recolha de informação individual sobre os académicos. Está em posse deste inquérito porque foi escolhido como um dos respondentes. Gostaríamos de solicitar que use um pouco do seu tempo para preencher o questionário e providenciar a lista completa das suas publicações académicas tais como livros, capítulos de livros, artigos em jornais científicos, apresentações em conferências e relatórios de pesquisa. Garantimos que toda a informação que nos disponibilizar será usada apenas para a pesquisa, submetida a tratamento estatístico e nunca a sua identidade será revelada. Ainda que dados demográficos sejam necessários serão analisados de forma agregada para examinar as dimensões de género e geração na ciência. Nesta tese e em futuras publicações que poderão dela emanar, somente dados agregados serão reportados. A Comissão de ética da *Universidade da Cidade do Cabo* aprovou a condução desde estudo. A sua universidade também aprovou a condução deste estudo. Gostaríamos de solicitar, mais uma vez, que complete este questionário até **08 Maio 2009.** Caso tenha alguma questão acerca do estudo poderá contactar o pesquisador.

Obrigado,

O Pesquisador:
Patrício Langa
Programa de Doutoramento
Escola de Educação
Faculdade de Humanidades
Universidade da Cidade do Cabo
Correio electrónico: patrício.langa@uem.mz
Mobile: +2776 3451133

Por favor, complete o questionário e retorne-o para nós. O pesquisador tomará todas as precauções para proteger a sua confidencialidade e anonimato. Se estiver interessado em receber o sumário dos resultados deste estudo, por favor envie um e-mail ao pesquisador.

Nota: Por favor antes de começar a completar este questionário é recomendável que tenha por perto a lista de todas as suas publicações. Com a lista por perto completar este questionário deverá durar aproximadamente 15 minutos.

Apreciamos a sua participação neste estudo e agradecemos pelo seu contributo e tempo para seu sucesso.

O pesquisador

Patrício Langa

II. QUALIFICAÇÃO ACADÉMICA

1. Qual é o seu sexo?

Género	
Feminino	
Masculino	

2. Qual a sua idade?

Anos	.....

3. Qual é a sua qualificação académica?

Qualificação académica	**Grau**
Doutorado ou grau equivalente	
Mestrado ou grau equivalente	
Licenciatura ou grau equivalente	
Outra (especifique) ……	

4. Qual é a sua posição académica actualmente?

Carreira académica	**Posição**
Professor catedrático	
Professor Associado	
Professor Auxiliar	
Professor Assistente	
Assistente estagiário	
Outra (especifique)	

5. É docente a tempo inteiro ou a tempo parcial?

Situação contratual	
Tempo-inteiro	1
Tempo-parcial	2

6. Há <u>quantos anos</u> se encontra na carreira académica como funcionário permanente da universidade ou como contratado?

Situação na carreira académica	**Anos**
Carreira docente (Há quantos anos?)	.....
É contratado (Há quantos anos)	.....

7. **Qual é o nome da sua universidade?**

8. **Qual é a sua faculdade e departamento?**

………..

9. **Quais são as disciplinas ou campo de interesse em que lecciona?**

…….....

10. **Neste momento, detêm alguma das seguintes posições administrativas abaixo na sua faculdade? Se Não, então, por favor, proceda para questão 11.**

Posição administrativa	
Director de faculdade ou escola	
Director adjunto de faculdade ou escola	
Chefe de departamento	
Director de curso ou de programa	
Líder ou chefe de um centro, grupo ou unidade de pesquisa na faculdade.	
Nenhuma	

11. **Nos últimos cinco anos (2004-2008), alguma vez esteve numa das posições na tabela que se segue? Se for Não, então, por favor, proceda para a questão 12.**

Posição administrativa	
Director de faculdade ou escola	
Director adjunto de faculdade ou escola	
Chefe de departamento	
Director de curso ou de programa	
Líder ou chefe centro, grupo ou unidade de pesquisa na faculdade.	
Nenhuma	

12. **Nos últimos cinco anos, foi autor de quantas publicações académicas individuais?**

Publicações individuais em jornais científicos nos últimos cinco anos (2004-2008)	**Nº**
Artigos científicos em jornais locais com revisão de pares e acreditados	
Artigos ciêntificos em jornais internacionais com revisão de pares e acreditados	
Artigos ciêntíficos em jornais sem revisão de pares e não acreditados	
Capítulos de livros	
Livros individuais	
Artigos para conferências académicas	
Relatórios de pesquisa	

13. **Nos últimos cinco anos, foi autor de quantas publicações académicas em co-autoria?**

Publicações individuais em jornais científicos nos últimos cinco anos (2004-2008)	**Nº**
Artigos científicos em jornais locais com revisão de pares e acreditados	
Artigos ciêntificos em jornais internacionais com revisão de pares e acreditados	
Artigos ciêntíficos em jornais sem revisão de pares e não acreditados	
Capítulos de livros	
Livros individuais	

Artigos para conferências académicas	
Relatórios de pesquisa	

14. Qual é a lingua e que publicou a maior parte os seus escritos académicos?

Língua de Publicação	Nº
Em Inglês; Quantas publicações?	
Em Francês; Quantas publicações?	
Em Português,Quantas publicações?	
Em Espanhol; Quantas publicações?	
Outra língua (especifique) ……;Quantas publicações?	

15. Supervisão de Doutorandos e Mestrandos

Supervisão	Nº
Quantos estudantes graduaram com doutoramento sob sua supervisão nos últimos cinco anos?	
Quantos dos doutorados graduados se tornaram académicos?	
Quantos desses doutorados eram de outras universidades que não a sua?	
Quantos estudantes graduaram com mestrado sob sua supervisão nos últimos cinco anos?	
Quantos dos mestrados graduados se tornaram académicos?	
Quantos desses mestrados eram de outras universidades que não a sua?	

III. REDES ACADÉMICAS DE CONEXÃO

16. Projectos em colaboração

Projectos em colaboração (2004-2008)	Nº
Quantos projectos de pesquisa desenvolveu, em colaboração de seus pares locais, nos últimos cinco anos?	
Quantos projectos de pesquisa desenvolveu, em colaboração de seus pares internacionais, nos últimos cinco anos?	

17. Membro de associações académicas ou profissionais.

Membro de associações académicas ou profissionais (2004-2008)	Nº
Actualmente, é membro de alguma associação académica ou profissional (ex: Associação Africana de Sociologia)? Se sim, quantas?	
Nos últimos cinco anos, aderiu ou já era membro de alguma associação académica ou profissional nacional? Se sim, quantas?	
Nos últimos cinco anos, aderiu ou já era membro de alguma associação académica ou profissional internacional? Se sim, quantas?	

18. Participação em conferências e seminários.

Eventos académicos (2004-2008)	Nº
Em quantas conferências e seminários académicos internacionais participou nos últimos cinco anos?	
Em quantas conferências e seminários académicos nacionais (não ao nível do departamento) participou nos últimos cinco anos?	

19. Redes económicas

Redes económicas (2004-2008)	Nº
Quantos dos seus projectos de pesquisa ou consultoria foram financiados por organizações ou agências *internacionais* nos últimos cinco anos?	
Quantos dos seus projectos de pesquisa ou pesquisa de consultoria foram financiados por organizações locais de *sociedade civil*?	
Quantos dos seus projectos de pesquisa ou pesquisa de consultoria foram financiados por *instituições do governo* nos últimos cinco anos?	
Quantos dos seus projectos de pesquisa ou pesquisa de consultoria foram financiados pelo *sector privado* nos últimos cinco anos?	

20. Financiamentos e fundos recebidos

Fundos de pesquisa (2004-2008)	
Aproximadamente, qual é o total de fundos para pesquisa que recebeu nos últimos cinco anos?	
Zero	
Menos de 10 000 US$	
10 000-24 999 US$	
25 000-49 999 US$	
50 000-99 999 US$	
Mais de 100 000 US$	

21. Financiamentos e fundos de pesquisa (Agências internacionais; Governo & Sector privado).

Financiamento e fundos recebidos em (%)percentagem										
Aproximadamente, qual é a percentagem do total de fundos de pesquisa que recebeu de organizações ou agências *internacionais* (ex: banco mundial, fundação Ford, SIDA/SAREC) nos últimos cinco anos?										
0%	**10%**	**20%**	**30%**	**40%**	**50%**	**60%**	**70%**	**80%**	**90%**	**100%**
1	2	3	4	5	6	7	8	9	10	11
Aproximadamente, qual é a percentagem do total de fundos de pesquisa que recebeu de *instituições do governo* nos últimos cinco anos?										
0%	**10%**	**20%**	**30%**	**40%**	**50%**	**60%**	**70%**	**80%**	**90%**	**100%**
1	2	3	4	5	6	7	8	9	10	11
Aproximadamente, qual é a percentagem do total de fundos de pesquisa recebeu do *sector privado* nos últimos cinco anos?										
0%	**10%**	**20%**	**30%**	**40%**	**50%**	**60%**	**70%**	**80%**	**90%**	**100%**
1	2	3	4	5	6	7	8	9	10	11

22. Redes com a sociedade civil

Redes com a sociedade civil (2004-2008)	Nº
Quantos contractos de pesquisa ou pesquisa de consultoria efectuou para ONGs locais nos últimos cinco anos?	
Quantos contractos de pesquisa ou pesquisa de consultoria efectuou para ONGs internacionais nos últimos cinco anos?	
Nos últimos cinco anos, tornou-se membro de alguma ONG nacional? Se sim, Quantas?	
Nos últimos cinco anos, tornou-se membro de alguma ONG internacional? Se sim, Quantas?	

23. Outras redes

Outras Redes (2004-2008)	Nº
Quantos contractos de pesquisa ou pesquisa de consultoria fez para algum *governo* nos últimos cinco anos?	
Quantos contractos de pesquisa ou pesquisa de consultoria fez para algum *partido político* nos últimos cinco anos?	
Alguma vez foi assessor ou conselheiro para algum oficial do governo ou burocrata (ex: deputado, ministro etc) nos últimos cinco anos? Se sim, quantos?	

24. Membro de organizações políticas

Membro de organizações políticas		
É membro de alguma organização política (ex: partido, parlamento)?	**SIM**	**NÃO**
A organização política na qual é membro está no poder no seu país?		

25. Se respondeu SIM nas questões prévias, qual é o seu grau de envolvimento/engajamento na organização política?

Envolvimento/engajamento	SIM	NÃO
Sou membro activo		
Ocupo uma posição de liderança na organização		
Sou um líder sénior da organização		

Muito obrigado pela sua colaboração.