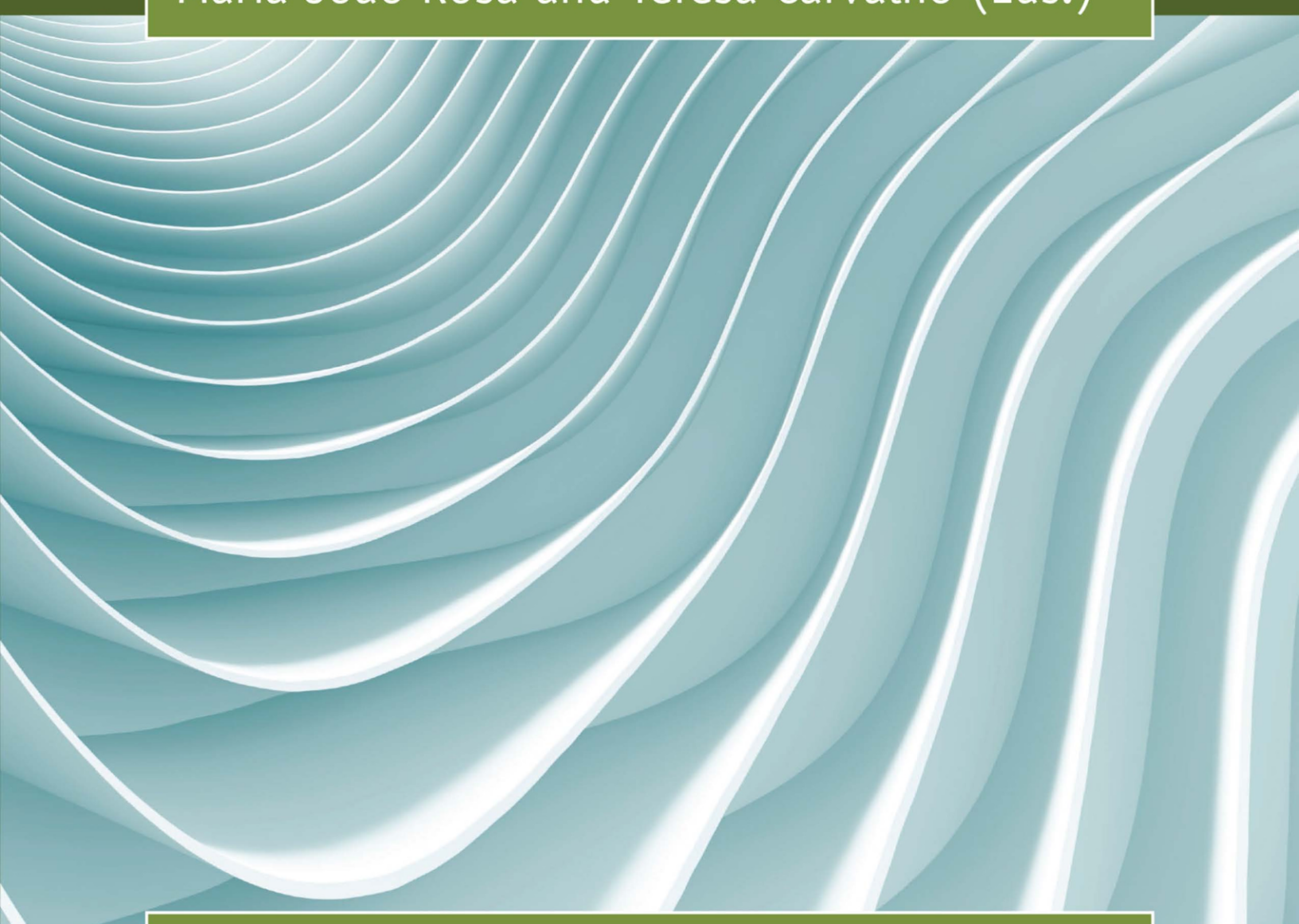
HIGHER EDUCATION RESEARCH IN THE 21ST CENTURY

Global Challenges, National Initiatives, and Institutional Responses

The Transformation of Higher Education

Cláudia Sarrico, Pedro Teixeira,
António Magalhães, Amélia Veiga,
Maria João Rosa and Teresa Carvalho (Eds.)



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Global Challenges, National Initiatives, and Institutional Responses

HIGHER EDUCATION RESEARCH IN THE 21ST CENTURY SERIES

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Scope

This series provides overviews about state of the art research in the field of higher education studies. It documents a selection of papers from the annual conferences of the Consortium of Higher Education Researchers (CHER), the world organisation of researchers in the field of higher education. This object and problem related field of studies is by nature interdisciplinary and theoretically as well as methodologically informed by disciplines such as sociology, political science, economics, history, philosophy, law and education. Each book includes an introduction by the editors explaining the thematic approach and criteria for selection as well as how the book can be used by its possible audience which might include graduate students, policy makers, researchers in the field, and practitioners in higher education administration, leadership and management.

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The Transformation of Higher Education

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This book is dedicated to the memory of our colleague and friend Rui Santiago

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SETTING THE STAGE

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1. INTRODUCTION[1]

Higher education systems have changed significantly in recent years in response to rising global challenges and various national policy initiatives. One of the major forces fostering change in higher education over recent decades has been its persistent expansion. As higher education has continued to expand, governments' responses have been to seek structural changes at system level (Taylor et al., 2008). The changes in the individual and social motivations regarding higher education have had a major impact on the external and internal regulation of higher education institutions, namely by stressing the economic dimension of higher education and the potential of institutions to contribute to individual and socio-economic goals (Teixeira, 2007; Aghion et al., 2010). This shifting view about institutions and their primary purposes has led to a need to rethink and adapt the contextual framework in which these organizations operate. Hence, we have seen a reconfiguration of the sector along market rules (Regini, 2011; Teixeira et al., 2004).

Higher education has now moved from an expanding sector to a mature industry (Teixeira & Dill, 2011) and governments and societies have become more demanding. This has had important consequences, notably through a much more explicit participation of external stakeholders in formal and informal mechanisms of governance. Another important implication of the pervasive managerial and economic dimensions of institutions has been the rising influence of academic management (Meek et al., 2010; Shattock, 2006). The rationale for many of these changes cannot be found exclusively within higher education alone (Magalhães & Amaral, 2009) and needs to combine an analysis of higher education specificities and the examination of wider transformations taking place in the public sector all over the Western world since mid-1980s (Pollitt & Bouckaert, 2009, 2011). The emergence of these new management ideas has contributed to put the focus on universities to change their 'traditional' nature (Amaral et al., 2003). Having to take into account, more and more, the interests of a variety of stakeholders, and to deal with growing international competition, higher education institutions had to rethink their traditional forms of organisation, governance and management, putting a new emphasis on the implementation of effective co-ordination and control systems, needed to improve organisational performance (Clark, 1998).

The shift from collegial governance to management concepts, structures and methods has enabled higher education institutions to act more strategically. However,

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the emphasis on institutional autonomy does not correspond to the retraction of state regulatory power. The transformation of the regulation relationships between the state and institutions in Europe has replaced a priori control, via inputs (e.g., funding), by a posteriori control, referred to institutions' output (Neave, 2012). This has induced the elaboration of policy instruments based on performance indicators that are spreading all over Europe and beyond. The institutional adaptation to this new context has been moulded by a change from a cycle of trust and confidence in institutions to a cycle of suspicion (Amaral & Rosa, 2010). This has been visible in the rise of a series of accountability instruments such as the movement towards accreditation that has been observed in recent years (Schwarz & Westerheijden, 2004). It may be argued that in this new context quality bears no longer a strong relation to higher education institutions' core activities and that its processes are becoming bureaucratic and compliance structures, increasingly removed from the academic concerns that lie at the heart of quality in higher education (Westerheijden et al., 2006).

Increasingly, higher education institutions have to respond not just on the quality of their education provision, but also to a variety of aspects of their performance (Sarrico, 2010). There is no shortage of initiatives to collect data in order to classify institutions or rank them according to their performance, though the validity of a lot of these approaches is questionable, namely because of data comparability (Sarrico et al., 2008). Despite the fact that performance is increasingly measured, there is scarce evidence that it is leading to changes in behaviour and performance (Melo et al., 2010). Moreover, performance measurement is done as a collection of disjoint parallel systems that increase bureaucracy, workload and erode the goodwill of staff. This leads us to conclude that performance management in higher education institutions is something that is not just a technical problem, but increasingly an organisational one, where the issues of values and governance structures take prominence (Sarrico et al., 2010).

The question of how academics and non-academics are responding to this newly created environment is a matter requiring increasing attention. This interest is particularly evidenced in the reflection over the effects of the aforementioned changes in governance and in the assumption of a management culture over academics' identities and professionalization processes (Santiago & Carvalho, 2008). Concerning administrative and management staff theoretical reflection and empirical analysis are yet to be developed, since this group tends to be interpreted as a residual category. The simple division between academics and non-academics oversimplifies the reality and is insufficient to incorporate all the complex dynamics that the introduction of a managerial culture in higher education institutions translates (Watson, 2009; Meek et al., 2010).

In this book we aim to analyse how higher education institutions and their staff are coping with the multiple challenges confronting higher educational globally and how the policy initiatives of the last decade have shaped those institutional responses. We will pay particular attention to four dimensions of change that seem to us as key elements in higher education transformation: governance, quality

assurance, performance and assessment, and the role of professionals. The chapters included in this volume contribute to illustrate that these various dimensions of change are significantly intertwined and that the effectiveness of policy initiatives regarding each of these aspects requires an integrated approach and needs to take into account the interplay of the dimensions of quality, performance, governance and the role of professionals within higher education institutions.

The chapters included in this volume constitute a selection of some of the best papers presented at the 28th annual conference of CHER – The Consortium of Higher Education Researchers. This conference took place at ISEG Lisbon School of Economics and Management, Universidade de Lisboa, between the 7th and 9th of September 2015 under the title "Global Challenges, National Initiatives, and Institutional Responses – The Transformation of Higher Education" and has counted upon the participation of almost 200 higher education researchers from multi-disciplinary backgrounds and a large number of countries. After the conference, the Scientific Committee selected a small set of the papers given its relevance for the theme and the contribution they represented for the aforementioned strands of research. Each paper was reviewed by 2 anonymous referees and their comments were sent to the authors in order to help them preparing a revised version, namely that could strengthen the continuity and congruence of the whole volume. The result of this revision process is the backbone of this volume and represents what we consider to be a stimulating and careful set of analyses about those multiple and complex changes faced by higher education institutions worldwide. We will now proceed to a more detailed presentation of the specific contents of this volume.

The chapters in Part I, addressing the question of how governance regimes coordinate higher education institutions, identify systemic factors conditioning Nordic countries' comparative advantage in the production of scientific capital and discuss the role that non-teaching structures play in higher education institutions in Portugal.

On the basis of the theory of academic capitalism (Münch, 2014) the chapter by Olivier Bégin-Caouette argues that the achievements of comparatively high results of Nordic higher education institutions are associated with systemic factors conditioning Nordic countries' comparative advantage in the production of scientific capital. Academic traditions and internationalization emerged as relevant factors in the Nordic context when discussing how governance regimes coordinate higher education institutions. Economic and symbolic capital granted to researchers (resources, networks and space) are pointed out as relevant in shaping the governance coordination of institutions, buffer organizations, and the State. The chapter also contributes to understand how varieties of academic capitalism (VoAC) approach (Hall & Skoskice, 2001, 2004) is useful to apprehend how countries' political-economy influence academics' comparative advantage in the global struggle for academic production and prestige.

The chapter by Rui Santiago and Teresa Carvalho focuses on the non-teaching units devoted to knowledge and technology transfer and to the promotion of

innovation and entrepreneurialism emerging in a sample of public Portuguese universities. They underline their importance and their relation with the established teaching and research units and they argue that these units are contributing to reshape governance regimes of higher education institutions. The non-teaching units are used by the sampled universities in strategic actions oriented to their internal and external environment. The analysis showed that in spite of their relevance, they are not recognized as influential in the institutional governance structures and processes making the case for their configuration as the a "dark side of moon".

The following chapters in Part II look at how institutions are managing their quality and wider performance, in an attempt to act more strategically regarding their future development. New missions are being added to the traditional teaching & learning and research & scholarship, usually put together under the designation of Third Mission. Moreover, new variables seem to come into the 'game', acting as explanatory factors for institutions' success (or not), as well as there is more and more a huge pressure from external rankings, making institutions working in order to look good in these national and/or international comparing schemes. Managing performance, then, implies defining the institution's purpose and goals – its desired strategic positioning, identifying measures and indicators related to all its activities that will allow it to implement monitoring mechanisms, and take corrective actions when the desired strategic position is not achieved.

Quality, although not new, seems to be treated differently from before. One of the ideas that have come into play recently is that managing quality should be part of the institutions' overall management and governance systems. Furthermore, quality assurance is not only related to teaching & learning, but it encompasses the other institutions' processes, namely research & scholarship and third mission. Knowing more about the pros and cons of mechanisms and systems designed to address quality issues, be them directed at one particular process or the overall organisation, has become mandatory for all actors with responsibility in making quality assurance systems as effective as possible.

In their chapter Hachmeister, Duong and Roessler discuss the possibilities of making these new missions possible for German UAS, by presenting the main results of a research project conducted with the goal (among others) of identifying the factors inhibiting and promoting research and third mission activities at these institutions. Universities of Applied Sciences (UAS) were introduced in Germany in the late 60s/70s with a mission centred solely on teaching and learning. Nevertheless, in the 80s new legislation included applied research as an additional mission for these institutions. As such, and as it happens in many other European countries, UAS have the right and the obligation to perform (applied) research, the main question being now how they will manage to build a distinct profile for their research activities. Furthermore, besides research, these institutions are also expected to do related activities, like development and technology transfer, which are usually put under the umbrella of "third mission".

Starting with interviews to rectors and professors of UAS, the authors were able to identify a set of 8 factors inhibiting research and third mission, as well as a set of 17 factors promoting these missions in UAS. These two sets of factors were then used in three surveys addressed to UAS rectors, higher education institutions' research managers and UAS professors in order to get their opinion on the degree of inhibition and the degree of benefit of each set of factors, respectively.

Overall, the authors were able to identify and evaluate a list of inhibiting and promoting factors of research and third mission in UAS that is in line with other studies on the same topic, although some interesting differences have emerged. Missing time budget and missing staff seem to be, according to the authors, "the most striking" factors inhibiting the two missions, "presumably because they have the most direct effect: If there is no extra time and no extra staff available, all resources go into teaching and not research or third mission". The 17 promoting factors for research and third mission were considered to be "beneficial" or "very beneficial" by the vast majority of respondents, leading the authors to conclude that "it is not a single instrument that needs to be used to promote research and third mission but rather an "orchestra" of measures that need to be taken to in order to make the new missions (…) possible for the UAS."

Kolster and Kaiser argue that study success is an important measure of the effectiveness of higher education systems. A closer look at study success outcomes suggests there are noticeable differences between male and female students: in terms of enrolment, study choices, drop-out rates, retention rates and completion rates. In general, on study success indicators female students are outperforming male students. Through a literature review, insights from European experts, and case studies at seven Dutch higher education institutions, they look into the extent of the problem, suggested explanations, and the policy instruments implemented to bridge the gender gap in study success. The effectiveness of policy instruments is still largely unknown, which is seen as a strong reason supporting further research on the possible effects on the gender gap of higher education policy reforms.

Mahat starts her chapter by acknowledging that key forces shaping higher education drive institutions to make strategic choices to locate themselves in niches where they can make use of their resources effectively and efficiently. However, she also concedes that the concepts of strategy in higher education are highly contested issues due to the nature and complexity of the sector and the university. Her chapter contributes to the discussion on strategic positioning of academic organizations in a regulated environment by presenting six case studies of Australian medical schools. Drawing on data from qualitative semi-structured interviews and quantitative analysis of performance data, the findings provide evidence of strategic positioning and niche-finding behaviour of medical schools despite the highly structured and regulated field. In all case study institutions, she finds empirical evidence to show that there are concrete attempts at creating organizational coherence through strategic positioning. Additionally, the findings of the study support the contention that within

the regulated environment, medical schools are indeed able to formulate coherent strategies in order to pursue improved performance.

In their chapter, Manatos, Sarrico and Rosa debate the integration of quality management in Portuguese universities based on the analysis of the quality policy statements of three paradigmatic case studies, which correspond to the first three universities that had their internal quality management systems certified by the Portuguese agency for assessment and accreditation of higher education (A3ES). Assuming integration as the development of quality management practices within organisations which are part of their global management systems, covering different processes, organisational levels and quality management principles, the authors discuss whether the quality management policies of universities approach their different processes in an integrated way, if the quality management policies integrate the different organisational levels, as well as whether universities integrate in their quality management policies the different QM principles. Furthermore, a focus is put on the extent to which quality management is integrated in the broader management and governance framework of universities, namely if it is part of the global strategy of the universities, if those responsible for the quality management structures are articulated with the top management and governance bodies of the universities and how far it is a tool for strategic management.

Starting with a literature review on the topics of quality management integration in higher education and the role of national quality agencies in the promotion of quality management systems within universities, the chapter follows with the presentation of the methodology followed, namely the documents analysed and the category grid used for their content analysis. Results are then presented for each level of analysis.

From the empirical work undertaken, authors conclude that overall the universities under study have an integrative policy for quality management, which follows to a large extent the trend for integration of quality management in higher education emphasised by the literature. However, there are levels and particular dimensions still in partial or even insufficient stage of development. The authors expect that the experience of the studied three paradigmatic cases can inform the development of quality policies in those universities where quality management might be less developed.

In her chapter, Deem compares the methods, cultural and social processes, responses, controversies, 'gaming' and consequences for universities and higher education systems of the recent public-funded national research evaluation exercises conducted in the UK and Portugal. The author starts by setting out the theoretical framework for the comparison, which focuses on the idea of system-wide research evaluation as a 'game', the intricacies of the processes at evaluation panel meetings and the notion of unintended consequences. Then, the main characteristics of the two evaluation exercises are put forward, namely through a comparison of them. Acknowledging the existent differences in the two exercises, namely in terms of

detail, scope and process, Deem explains the cultural, economic and social context of the evaluations.

Some of the features of both exercises are addressed, namely the processes and types of discussions that evaluation panels have had to deal with (e.g. number of face-to-face meetings and their benefits for the whole exercise, or the mono vs. multi-disciplinary nature of the panels). Responses to the evaluation outcomes are discussed, namely the possibility of appeals and rebuttals existent in the Portuguese exercise and the benefits and drawbacks emerging from them. The possibilities of 'gaming' are also put forward, being noticed that when evaluations are aimed at higher education institutions (as it is the case in the UK; in Portugal the evaluation focuses on research centres) there is more scope for 'gaming'. Finally, the unintended consequences resulting from both exercises, both for evaluators and the academic units being evaluated, are put in evidence and some speculation is made on how they might have come about.

The chapter ends with a set of lessons to be learned from both exercises and that should probably be taken into consideration by these or other higher education systems when setting up research assessments, especially if they have funding implications. As the author refers "research evaluation is a key part of contemporary academic life and is not likely to disappear; therefore, we all have the responsibility to make evaluation systems as good as possible and to learn from past mistakes".

Pavlyutkin and Yudkevich discuss how the institutional culture of an academic system affects a university's response to the pressure of global rankings. They show how global rankings, as strong public measures of university performance, affect the process of organizational change at the university level. At the same time, the nature and degree of change depends on whether the university is driven by a market-based or state-based logic of accountability. Rankings derive their power from a competitive environment but few attempts were made before to investigate a university's response to rankings in a state-dominated academic system. The authors attempt to answer the following question: How does a university with a 'blunted feeling of competition' organize changes in order to enter the world-class league? through a case study of a Russian university which has recently entered the race for global academic excellence. The authors conclude that academic culture and leadership are driving forces for both radical internal change, on the one hand, but also for coping with the symptoms of "global ranking fever", on the other.

The chapters included in Part III related to the analysis of the way higher education professionals respond to transformations include two issues that have started recently to be subject of debate in higher education studies: the transformations in the career trajectories of PhD holders and the distinct institutional logics in academics and administrative staff.

Lucio Morettini, Emilia Primeri, Emanuela Reale and Antonio Zinilli in the chapter 'Career trajectories of PhD holders in the SSH: drivers of career moves'

discuss the transformations that holders of a doctoral degree face in the present context. Traditionally, holding a PhD was just an introduction to an academic career. However, currently, PhD holders are increasingly facing less linear and predictable careers. In the European context, as a result of the attempt to create a European labour market for research and researchers (Musselin, 2004), the evidence of the precariousness of researchers' working conditions led to the creation of the European Researcher's Charter. Nevertheless, this is not a European issue but instead a problem with an international dimensions (Auriol, Misu, & Freeman, 2013). Until now empirical studies related to the transformations in PhD holders' careers tended to be mainly focused in the STEM field. The authors of this chapter offer an innovative approach since they present and discuss data from an European project (POCARIM project, involving 13 European countries) aiming to collect information about the patterns of mobility in the careers of PhD holders in the Social Sciences and Humanities (SSH). Looking at step by step moves along their professional lives, the authors identified as factors which are likely to affect PhD holders' employment choices: the time of transition to work, the unemployment duration, the type of contract, mobility, and personal variables such as age at the time of PhD graduation, gender and family status. The authors confirm that higher education in the public sector still represents the prime choice for PhDs holders, but the doctor degree is no longer a passport towards an academic career, since there are also fragmented working and non-academic careers. More than academia, the personal characteristics of PhD holders are the main determinants both on career moves and on employment sector choices.

The emergence of distinct institutional logics within academia is also a current issue in debate in Higher Education. The emergence of New Public Management and managerialism introduced different institutional logics in Higher Education Institutions (HEIs) leading to a reconfiguration of academia and administration and to the appearance of new professional roles and areas of activities, blurring the boundaries between academic and management fields. Taking the University of Applied Sciences Upper Austria as a case study, Silke Preymann, Stefanie Sterrer, Barbara Ehrenstorfer, Martina Gaisch and Regina Aichinger analyse the presence of the two institutional logics in this hybrid organisation and propose possible ways to align and harmonise them. Based on a qualitative analysis, the authors conclude for the presence of the two different institutional logics, even if the corporative administrative logic is more present than the professional academic logic. According to administrators' views, which are aligned with the corporative administrative logic, the two logics have a conflicting nature leading to organisational inefficiency. The authors propose three ways to overcome this conflict, namely: the commitment of top managers to support a culture of cooperation; the key role of manager-academics as users of both logics; and the existence of hybrid project teams able to implement collaborative relationships in the field.

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REFERENCES

Aghion, P., Dewatripont, M., Hoxby, C., Mas-Collel, A., & Sapir, A. (2010). The governance and performance of universities: Evidence from Europe and the US. *Economic Policy, 25*(61), 7–59.

Amaral, A., & Magalhães, A. (2003). The triple crisis of the university and its reinvention. *Higher Education Policy, 16*(1), 239–253.

Amaral, A., & Rosa, M. J. (2010). Recent trends in quality assurance. *Quality in Higher Education*, *16*(1), 59–61.

Amaral, A., Meek, V. L., & Larsen, I. M. (Eds.). (2003). *The higher education managerial revolution?* Dordrecht: Kluwer Academic Publishers.

Auriol, L., Misu, M., & Freeman, R. A. (2013). *Careers of doctorate holders: Analysis of labour market and mobility indicators* (OECD Science, Technology and Industry Working Papers, 2013/04). Paris: OECD Publishing.

Carvalho, T., & Santiago, R. (2010). Still academics after all. *Higher Education Policy, 23*, 397–411.

Hall, P. A., & Skoskice, D. (2001). Introduction. In *Varieties of capitalism*. New York, NY: Oxford University Press.

Hall, P. A., & Skoskice, D. (2004). An introduction to varieties of capitalism. In P. A. Hall & D. Skoskice (Eds.), *Varieties of capitalism: The institutional foundations of comparative advantage* (pp. 1–69). Oxford: Oxford University Press.

Meek, L., Goedegebuure, L., Santiago, R., & Carvalho, T. (Eds.). (2011). *Changing deans. Higher education middle management in international comparative perspectives*. Dordrecht: Springer.

Melo, A. I., Sarrico, C. S., & Radnor, Z. (2010). The influence of performance management systems on key actors in universities: The case of an English university. *Public Management Review, 12*(2), 233–254.

Münch, R. (2014). *Academic capitalism: Universities in the global struggle for excellence*. New York, NY: Routledge.

Musselin, C. (2004). Towards a European academic labour market? Some lessons drawn from empirical studies on academic mobility. *Higher Education, 48*(1), 55–78.

Neave, G. (2012). *The evaluative state, institutional autonomy and re-engineering higher education in Western Europe: The prince and his pleasure* (Issues in Higher Education). London & New York, NY: Palgrave MacMillan.

Pollitt, C., & Bouckaert, G. (2009). *Continuity and change in public policy and management*. Cheltenham: Edward Elgar.

Pollitt, C., & Bouckaert, G. (2011). *Public management reform*. Oxford: Oxford University Press.

Regini, M. (2011). *European universities and the challenge of the market: A comparative analysis.* Aldershot: Edward Elgar.

Santiago, R., & Carvalho, T. (2008). Academics in a new work environment: The impact of new public management on work conditions. *Higher Education Quarterly, 62*(3), 204–223.

Sarrico, C. S. (2010). On performance in higher education: Towards performance governance? *Tertiary Education and Management, 16*(2), 145–158.

Sarrico, C. S., Rosa, M. J., Teixeira, P. N., & Cardoso, M. F. (2010). Assessing quality and evaluating performance in higher education: Worlds apart or complementary views? *Minerva*, *48*, 35–54.

Sarrico, S., Teixeira, P., Rosa, M. J., & Cardoso, M. F. (2008). Subject-mix and performance in Portuguese Universities. *European Journal of Operational Research.*

Shattock, M. (Ed.). (2008). *Entrepreneurialism in universities and the knowledge economy: Diversification and organizational change in European higher education*. Maidenhead: McGraw Hill, Society for Research into Higher Education, Open University Press

Taylor, J. S., Ferreira, J., Machado, M. L., & Santiago, R. (Eds.). (2008). *The non-university higher education in Europe.* Dordrecht: Springer.
Teixeira, P., & Dill, D. (Eds.). (2011). *Public vices, private virtues? Assessing the effects of marketization in higher education*. Rotterdam: Sense Publishers.
Teixeira, P., Jongbloed, B., Dill, D., & Amaral, A. (Eds.). (2004). *Markets in higher education: Rhetoric or reality?* Dordrecht: Kluwer Academic Publishers.
Watson, D. (2009). *The question of morale: Managing happiness and unhappiness in university life.* Maidenhead: Open University Press.
Westerheijden, D. F., Stensaker, B., & Rosa, M. J. (Eds.). (2007). *Quality assurance in higher education. Trends in regulation, translation and transformation.* Dordrecht: Springer.

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SANDRA J. PEART

2. THAT "MOST REAL GIFT FROM ONE GENERATION TO THE NEXT"

Education for and about the Common Good

INTRODUCTION

The system of higher education in the United States is both remarkably resilient and elastic. There is no denying, however, that those of us in higher education have faced and will continue to face tough challenges, as we seek to improve access and navigate a rapidly altering technological and fiscal landscape.[1] I am presently an administrator at a remarkably well endowed non-profit (private) four year institution, a nationally ranked liberal arts university. Within the University of Richmond, I lead an unusual School, devoted to Leadership Studies. I am a historian of economics; my observations in what follows consequently also draw upon the work of eighteenth and nineteenth century political economists who thought deeply about the common good. It is perhaps helpful to remind the reader at the outset that economics at that time was far more accessible than it is today; and economists then were deeply engaged in topics of interest to the general public. In particular, they were at the forefront of efforts to achieve equity, human rights, and dignity for all; and they were convinced that equal access to educational opportunities would do much to mitigate existing, substantial inequities.

Before I proceed, I wish to recognize and, indeed, celebrate the significance of the Consortium on Higher Education Researchers (CHER). Whatever success we obtain in achieving economic and social progress going forward is in large measure because of research such as that encouraged within CHER.

In 1867, John Stuart Mill addressed the Inaugural class at St. Andrew's University with these words to its professors:

> You are to be a part of the public who are to welcome, encourage, and help forward the future intellectual benefactors of humanity; and you are, if possible, to furnish your contingent to the number of those benefactors. Nor let anyone be discouraged by what may seem, in moments of despondency, the lack of time and of opportunity. Those who know how to employ opportunities will often find that they can create them: and what we achieve depends less on the amount of time we possess, than on the use we make of our time. You and your like are the hope and resource of your country in the coming generation.[2]

C. Sarrico et al. (Eds.), Global Challenges, National Initiatives, and Institutional Responses, 15–26.

I fully agree with Mill (and I will return to this magnificent address more than once throughout the essay).

My main theme in what follows is optimistic: while we can do better (more on this in the substance of the essay), our system of higher education, with all its variety and variability, has performed remarkably well over its relatively short history (ours does not hark back many centuries as it does in Europe, where the Scholastics were largely responsible for establishing universities). But I will also stress some cautionary notes that in my view must temper the optimism: first, supposing the democratic ideal of equal access to advanced learning, we are failing to live up to that promise; and secondly the financial model for higher education is under severe strain. My main argument, that post-secondary education offers our greatest hope for the commonweal, provides the urgent appeal for why we must resolve these challenges and "offer the most real of gifts" to the next generation – equality of access to extraordinary educational opportunities.

The essay begins and ends with optimistic notes. In between, I provide a more detailed treatment of the very real challenges in higher education. I close with a defense of why, in my view, we must overcome those challenges – first, a strictly economic (and thus instrumental) rationale for equity in higher education, and then and perhaps more importantly, a defense of post-secondary education from the perspective of the "common" or public good.

WHY IS THERE CAUSE FOR OPTIMISM? WHAT DO WE DO RIGHT?

The system of higher education in the United States educates a remarkable number and proportion of students between the ages of 18 and 24 (and many more who return to higher learning at a more advanced age). Over the last forty-five years (so, in two generations), the percentage of 18–24 year olds attending a post-secondary education institution has increased by about 61%, moving from about a quarter of the eligible population to 41% in 2102. That constitutes a substantial achievement in a fairly short period of time.[3]

It is also the case that, compared to a European system or that in my home country of Canada, the American system of higher education has remarkable variety both in terms of cost of attendance, size of institution, and groups served. There remain some all-women or all-men's colleges, which tend to be rather small. So, too, are HBCU's, historically black colleges and universities. Large universities are sometimes research powerhouses, such as Ohio State or Michigan State; but sometimes they are religiously affiliated, as Liberty University is.

Private universities and colleges make up the bulk of the institutions of higher learning and tend also to be quite small, sometimes serving an incoming class of 300 students. The country is populated by a large number of such small colleges. Many readers will know that small colleges, especially, have faced extraordinary economic challenges over the last few years. Such, for instance, was the difficult situation at Sweet Briar College, a women's college founded in 1901 in Virginia.

Sweet Briar's former president, acting in what he believed was the best interest of all concerned, announced that the institution would close at the end of academic year 2014–15. Alumni forced a review of the situation and the Attorney General of Virginia intervened to prevent the closure. Sweet Briar alumni raised money and a new president and Board have now been appointed. Some students and faculty had already found new situations; some, but not all of those are now returning to Sweet Briar College. The story has yet to fully unfold.[4]

In 2014 there were about 4,000 non-profit institutions of higher education, divided almost equally between privately funded and those that receive a share (sometimes quite small) of public funds. There are almost as many for profit institutions, too. In 2014 over 24 million students were enrolled at four year post-secondary institutions in the United States. As a comparison, that is about two thirds as many students as there are people in Canada!

WHY SOUND A NOTE OF CAUTION?

Disparities

The increase in the number of students at universities and colleges mentioned above hides variations that indicate it is premature to celebrate our achievements. For men in the 18–24 year old age group, the increase during the last 45 years has been only 14%, from 33.1 per cent to 37.6 per cent. Most of the gains in this period, then, have been for women. Given they started at much lower attendance rates, that makes sense. More troubling, while the gains in percentage terms have been very large for African Americans, Hispanics and Asians, African Americans and Hispanics attend at less than the average rate, 36.4% and 37.5% respectively. So, there is work to be done. In addition, attendance is not graduation and graduation rates provide even more evidence that the playing field is not level by race. Faring worst of all, are Native Americans.

All of this presents challenges not only to colleges and universities but also to the elementary and secondary schools that prepare (or fail to prepare) our students for college. If a system of education has extremely low high school graduation rates, and those schools tend to be clustered in areas that serve racial minorities, then the problem of educational attainment reaches beyond the college and university system to include pre-college schooling.

Campus Climate – Sexual Assault

To this, I would add that campuses are now challenged in a very serious way in terms of student safety concerns and how colleges respond to sexual assault allegations. The recent Rolling Stone article in fall, 2014, in some ways reflected both a campus (and this is a problem for all campuses, not simply University of Virginia) climate in which not enough attention has been devoted to sexual assault in the

past and the heightened attention that is now being granted by the public and the Federal government to these very real problems. The article was largely discredited and Rolling Stone commissioned the Dean of Columbia's School of Journalism, an outsider, to investigate how the magazine had "gotten the story wrong."[5] The entire episode and many similar ones highlight the challenges that are presently being faced on college campuses as staff and students attempt to improve training, awareness, and prevention of sexual violence; while also striking a balance between protecting the rights of the accused and investigating cases efficaciously and with the attention they deserve.

Disruptive Technological Change

"Technology", as people say when they refer to the ability to deliver course material electronically, is a disruptive force and an additional challenge these days. It opens up exciting possibilities for access and affordability in the United States but also for those who are impoverished irrespective of their location. At that same time, such disruptive change has many professors and administrators at odds. The former assert the need for face-to-face learning; while the latter see some real cost savings that might emerge from combining lower cost delivery of knowledge and material with on campus, in person elaborations. For small campuses, especially, the significance of the cost saving may be what enables them to survive going forward. In the for-profit sector—which is under increasing scrutiny from the federal government—technology has been widely embraced. So, too, have several very well-known public intellectuals, such as Michael Sandel, embraced massive open online courses (MOOCs), to the chagrin of faculty who see this as a betrayal of their academic mission and livelihood.[6]

Sports

I would add that sports, as conducted on American college campuses (especially Division 1 sports), complicate matters in higher education enormously. The United States is unusual in its model which mixes support for educational opportunity and athletic prowess at the Division 1 level. I write this as a strong supporter of sports: I am the daughter of a former professional hockey and football player whose son is now running track in NCAA's Division 1. Yet I know that the Division 1 model complicates our ability to focus on delivering education for and about the common good; and I worry greatly about the ethics associated with placing young men and women in harm's way as they partake in concussion-intensive sports.[7]

Recent calls for player compensation in football; scandals at the University of North Carolina at Chapel Hill related to made-up courses and fake credit for athletes;[8] and the intense and warranted scrutiny over concussions in college sports, have all drawn increasing attention to the American model where sports and academics seem to be conflated. Whether the Division 1 model, in which players in

some cases are essentially first players and, unfortunately, are only distantly behind that students, will continue as it is or evolve into something quite different remains an open question. My hope is that we very carefully examine the ethics associated with this model, but most especially with D1 football.

FINANCES

To all of these very real challenges for higher education, one must add another very serious challenge that affects colleges differently depending on their size and wealth: the fiscal situation of many colleges and universities. The financial model of colleges and universities is one in which there are only a few levers (or so it seems) and many rigidities. Colleges charge tuition. They obtain funds from the federal and state governments. Endowments and philanthropy—a key difference between the American and many other systems—provide additional sources of revenue. On the cost side, personnel forms the bulk of their obligations but facilities, buildings, and grounds also constitute key costs.

As is well known, this framework has been stretched rather thin recently, with, as noted above, several institutions closing their doors or planning to do so. This is in part because tuition rates seem to have hit some sort of almost unimaginable plateau, breaking through the sixty thousand dollar mark for full tuition and room and board at select private institutions. At public institutions rates of increase seem to have become unsustainable, too.

And then there are discount rates. According to a 25 August, 2015, Chronicle of Higher Education article, tuition discount rates, the rate at which actual tuition is reduced relative to its posted price, at private colleges again hit an all-time high this year and net revenues are basically flat for the incoming class. Average discount rates are 48% for first time full time students; and close to 42% for all undergraduates.[9]

On the expense side, expenses at public institutions in the United States were $311 billion dollars in 2012–13 and $166 billion at private nonprofits. So, the industry is enormous. The bulk of those expenses was instruction (27 and 33 percent at public and private nonprofit) and student services (20 and 65%) respectively. (Student services have increased at very high rates over the last decade as e.g., counseling, dining hall and recreation center have all escalated.) Expenses per full time student were much higher at private, nonprofit postsecondary institutions ($50 thousand) than at public institutions ($30 thousand) or private, for-profit (almost $16 thousand).

Endowments provide relief for the very fortunate schools that can rely on them. They range in value from almost 31 billion dollars (in Fiscal Year 2012) at Harvard University to the twentieth largest endowment of 3.8 billion at Cornell University. Endowments decrease fairly steeply beyond the top tier: only the very elite colleges are able to rely on endowments for significant cost relief.[10]

There are two sides to the problems that result. On the supplier side (colleges and universities) are the very real concerns about the continued viability of this fiscal

model. Some colleges have been forced to take the very drastic step of closure; I anticipate that we will observe more of that in the future. Some colleges have responded by relying on more adjuncts and attempting to move to online delivery – which creates other problems. We may also see more consolidation and consortia in the future. Along with the former head of the Spencer Foundation, the economist Michael McPherson, who mentioned the possibility in a presentation at the University of Richmond years ago, I place a great deal of hope in this possibility.

On the demand side, there are also real concerns about whether the education is delivering what it promises. Alumni and parents focus on the seemingly all important job. While I agree that we need to keep those concerns in mind, I maintain that we should re-orient the conversation to a life well-lived. I will make that case in more detail in Section 5 below. In the light of growing costs, a major source of stress is also the growing problem of student debt. Some have argued that we are heading into a higher education bubble as we did with the housing industry early in the 2000's. Certainly student debt loads have increased dramatically in the last decade.[11] The worry is especially significant for low income students who have less access to funding or information about student debt. Thus these concerns particularly press upon the population already at risk for not achieving their full potential.

WHY DOES IT MATTER?

There are two major reasons to care. Both have to do with well-being; so in my view both are economic (but I take a capacious view of economics). First, despite misgivings amongst the public alluded to above about 'whether college is worth it', the evidence strongly supports the conclusion that income increases with years of schooling and, even more, that the financial benefits associated with a postsecondary degree well exceeds the cost, notwithstanding significant recent increases in the real cost of tuition. Thus, from the perspective of equity of opportunity, financial well-being and income equality, improving access to postsecondary degrees is of paramount importance.[12] More than this, education in America educates students from all walks of life, enabling them to grow as individuals who then serve the greater good as engaged citizens. Education enables people to live well for themselves and for others.

And so I turn now to my main theme.

EDUCATION FOR AND ABOUT THE COMMON GOOD

In the last portion of this essay I hope to provide the broader reasons why we must overcome the challenges described earlier. Being something of a cautious optimist, I chose my title to emphasize the latter, as opposed to the challenges.

I want to suggest today that the phrase – "for and about" – is useful to describe American higher education writ large. I believe that we in the Academy should embrace the idea that we educate people for and about citizenship. More than

this, at a time when the communities we serve (parents, alumni, students, trustees and journalists) are increasingly skeptical about the "return on investment" of an undergraduate degree, it is imperative that we do a better job of explaining how higher education contributes to the common good. My thesis is simple: Educated people are more likely to contribute to the public (or common) good.

When the nineteenth century political economist J. S. Mill addressed the inaugural class at the University of St. Andrews in 1867, he spoke about the extraordinary breadth of what we call 'higher education': "Education, in its larger sense, is one of *the* most inexhaustible of *all* topics. …"[13] Though of course Mill did not use our twenty-first century words – interdisciplinarity or critical thinking – he clearly had in mind education for and about citizenship; he exhorted the newly educated to use their learning well: "*All* great things which [your] generation is destined to do, have to be done by some like you …"[14] In Mill's view (and mine), education is filled with purpose – it provides the next generation of doers (in the arts, business, politics, non-profits, research) with the tools to do what they do best.

But how is it that as we educate people to live well for themselves, we may also be assured that they will live well for others, they will contribute to the common good? This is why we educate "about": as students come to understand the common good, they are better able to contribute to society. Thus, students need to grapple with texts about a life well-lived, about the good (and bad) society, and about the intersection between the individual and the common good.

These are of course essentially moral questions and in my view this is why ethics constitutes a key part of the college curriculum. Here of course a thorny problem arises that has occupied moral philosophers from Plato to Adam Smith, to John Rawls: What is the social good? Ambiguity surrounding the nature of good, both individual and collective, is why much of higher education is grounded in the liberal arts, reading works in philosophy, history, religion, and political theory. The study of context—of economics, and politics—helps students appreciate how people actually behave in settings that involve group and individual tradeoffs. In short, citizenship is best achieved as the student confronts and then comes to appreciate how an array of disciplinary lenses sheds light on such problems.

We must also educate our students about moral dilemmas associated with leadership of the self and others. For, as a society we neglect these questions (and assume ethical leaders) to our peril, as a glance at the world around us suggests.[15] Though we may wish for perfection in our leaders and citizens, in the real world leaders are subject to the same temptations we all face. Thus, I have argued that we must move beyond a narrow focus on leaders as "great people" and instead help students appreciate that leaders operate within a set of culturally determined norms, political institutions, within temporal and spatial contexts.[16] This conceptualization of leadership as a process leads to an understanding of the roles of transparency, openness and discussion as features of engaged citizenship. Students who study institutions come to appreciate that institutions (sometimes called culture) matter tremendously in terms of determining life expectancy and human thriving.

Mill went on to argue that one of the key benefits of an education is to provide students with the tools to come to appropriate conclusions about the world and then effectively to communicate the rationale for these inferences. Since political and economic debates are often acerbic and charged with combative rhetoric, graduates will be assaulted with assertions about the predicted effectiveness of one policy proposal or another.[17] My hope is that college graduates will have become critical thinkers enough, empiricists enough, that they will seek out evidence for these claims without regard to sentiment or prior disposition.

We all have such priors or biases.[18] How can we be reasonably confident that something we wish to believe is actually correct or know when to let go of a sentiment that has been disproven? Philosophers have long struggled with the problem of induction, how people sort through observations and come to know things about the world. Mill's 1843 Logic was a tour de force in making the case for inductive logic. There he wrote:

> We cannot believe a proposition only by wishing, or only by dreading, to believe it … [Wishing] operates, by making [a person] look out eagerly for reasons, or apparent reasons, to support opinions which are conformable to his interests or feelings; … whoever was on his guard against all kinds of inconclusive evidence which can be mistaken for conclusive, would be in no danger of being led into error even by the strongest bias. There are minds so strongly fortified on the intellectual side, that they could not blind themselves to the light of truth, however really desirous of doing so.[19]

Mill's Logic was in large measure written to show how best to eliminate bias using the empirical method.

An additional strand of literature in economics draws inspiration from the work of the eighteenth century moral theorist and economist, Adam Smith, and recognizes that economics is actually bound together with moral philosophy. Smith recognized that the individual is situated in communities, in society, and as such is subject to both self- and other-regarding impulses such as generosity.

Of course, this may come as a surprise to those whose knowledge of economics is confined to reading the Wall Street Journal and who believe Smith to be only an individualist. Indeed, I have frequently been asked, "Why are you, an economist, at the Jepson School of Leadership Studies?" Nonetheless, for most of my career in economics I have argued (and more than a few Nobel laureates agree with me), that economics is essentially about how individuals come together in social settings (a market place, an organization, or a polity) and make decisions that determine who gets what. At its core, economics is about interactions among groups and individuals. And questions of leadership and ethics are omnipresent when people interact and make choices.

Smith was the first well-known economist to treat economic interactions seriously, to consider economics as a catallaxy, a mutually beneficial set of relationships.[20] One of his great accomplishments was to examine the means by which people

interact to benefit society when they are motivated by self- and other-regarding interests.[21] First and foremost a moral theorist, Smith's Theory of Moral Sentiments [1759] grounded a theory of morals on the human sentiments. He made the case that people are essentially imaginative, social beings who care about approval and who want to be not only praised but also praiseworthy. Humans are motivated by, among other things, concern for others, generosity.

For Smith, we come to know when we have obtained praise under false pretenses, when we have done the wrong thing, and thus we cannot fully enjoy such undeserved praise. We come to learn that right behavior deserves praise because we can imagine how others would regard our actions. If our acts would generally be approved by others, the "impartial spectator"—our self who steps outside our self to see how others see us—concludes that this is praiseworthy behavior, a good act. This impartial spectator, "conscience," teaches us that our own place within the world is but a small one indeed:

> [It] shows us the propriety of generosity and the deformity of injustice; the propriety of resigning the greatest interests of our own, for the yet greater interests of others, and the deformity of doing the smallest injury to another, in order to obtain the greatest benefit to ourselves.[22]

In his other major work, The Wealth of Nations, Adam Smith talked about the original principle of human nature, our "propensity to truck, barter and exchange." Although Smith still recognized that people are essentially social, in this work he stressed that we also need to be "prudent," to save for ourselves and our families:

> Man has almost constant occasion for the help of his brethren, and it is in vain for him to expect it from their benevolence only… It is not from the benevolence of the butcher, the brewer, or the baker, that we expect our dinner, but from their regard to their own interest. We address ourselves, not to their humanity but to their self-love, and never talk to them of our own necessities but of their advantages.[23]

The juxtaposition of these two great works—one focused on how we help others, how we come to do the right thing, the other on prudence, how we look after ourselves and those who rely on us[24]—presents a central question for the study of leadership: how individuals, motivated by self- and other-regarding interests and connected by language and rules of action, come together and make decisions affecting the group or polity.[25]

In short, we will succeed in higher education to the extent that we fortify our students' intellect, educate them sufficiently to recognize and reject bias, demonstrate to them the significance of context, rules, and institutions that contextualize human interactions, and challenge our students to live well for their own good and for the good of others.

I have long been convinced – and the financial and economic events of the past eight years confirm this conviction – that ideas matter. Indeed, as the economist

Alfred Marshall maintained late in the nineteenth century, ideas "are the most 'real' of the gifts that each generation receives from its predecessors."[26] Marshall acknowledged a practical reason for this: "The world's material wealth would quickly be replaced if it were destroyed, but the ideas by which it was made were retained. If however the ideas were lost, but not the material wealth, then that would dwindle and the world would go back to poverty."[27]

In my view, those of us in the Academy ought repeatedly and enthusiastically to affirm not only the pure joy associated with learning but also the significant connection between learning and the enormous prosperity we enjoy today. This is not to shy away from difficult challenges caused by deep disparities in the distribution of well-being (they are many, they are significant, and they should be studied with an eye to eradicating them); but instead to affirm that those challenges are best met by an educated public.

Marshall followed his conclusion with "To this end public money must flow freely"; I could not agree more, although I am realistic enough to know that we are unlikely to see a significant increase in public support for higher education in the near future! And so I close with a word about rewards, and here again I turn to J. S. Mill:

> I do not attempt to instigate you by the prospect of direct rewards, either earthly or heavenly; the less we think about being rewarded in either way, the better for us. But there is one reward which will not fail you, and which may be called disinterested, because it is not a consequence, but is inherent in the very fact of deserving it; the deeper and more varied interest you will feel in life: which will give it tenfold its value, and a value which will last to the end. All merely personal objects grow less valuable as we advance in life: this not only endures but increases.[28]

NOTES

1 The essay had its genesis in a panel discussion for the College Board Colloquium, January 2015, Delray Beach, Florida; those remarks became more fully developed in preparation for the Consortium of Higher Education Researchers (CHER) 2015 conference in Lisbon, Portugal. I thank Nanci Tessier for the invitation to speak to the College Board participants; and Pedro Teixeira and Cláudia Sarrico for the invitation to speak at the CHER conference.

2 Mill (1867), retrieved 12 April, 2016, from http://oll.libertyfund.org/titles/255#Mill

3 The facts in this and the following paragraphs are drawn from http://nces.ed.gov/fastfacts/display.asp?id=561 and http://nces.ed.gov/pubs2015/2015097.pdf

4 See Stolberg (2015) for a recent account.

5 The details are explored in Coronel, S., S. Coll, and D. Kravitz (2015).

6 See Deneen (2013) for an account of this ongoing set of tensions.

7 Concussion guidelines have recently been developed; see http://www.ncaa.org/health-and-safety/concussion-guidelines

8 For a recent account, see Nocera (2016), retrieved 12 April, 2016, from http://www.nytimes.com/2016/02/13/sports/ncaabasketball/dean-smiths-shadow-looms-over-unc-as-it-struggles-with-a-scandals-fallout.html

9 These data are provided by Supiano (2015).

[10] The data in this and the following paragraph are drawn from http://nces.ed.gov/fastfacts/display.asp?id=561 and http://nces.ed.gov/pubs2015/2015097.pdf

[11] See the graphic from the New York Federal Reserve Bank: http://www.newyorkfed.org/studentloandebt/

[12] See Leonardt (2014).

[13] Mill (1867), retrieved 12 April, 2016, from http://oll.libertyfund.org/titles/mill-the-collected-works-of-john-stuart-mill-volume-xxi-essays-on-equality-law-and-education?q=inexhaustible+of+all+topics#Mill_0223-21_753

[14] Ibid., retrieved 12 April, 2016, from http://oll.libertyfund.org/titles/mill-the-collected-works-of-john-stuart-mill-volume-xxi-essays-on-equality-law-and-education?q=inexhaustible+of+all+topics#Mill_0223-21_753

[15] See Price (2005) for a detailed treatment.

[16] See Peart (2013) for elaboration of the difference between teaching leadership as a series of "great man" examples and teaching institutional and culturally determined frameworks within which leaders must operate.

[17] See Cronin and Genovese (2012), pp. 163–195.

[18] For a relatively complete treatment of the bias inherent in experts and expertise, see David M. Levy and Sandra J. Peart (forthcoming).

[19] Mill (1843), retrieved 12 April, 2016, from http://oll.libertyfund.org/titles/247#lf0223-08_footnote_nt_531_ref

[20] This approach disappeared from economics late in the nineteenth century but it was revived as two related research programs in economics emerged later in the century: public choice economics pioneered by James Buchanan; and experimental economics associated with Vernon Smith. For a detailed review of economists' work as it relates to leadership studies, see Peart and Levy, 2010.

[21] Not surprisingly, Smith perceived the socially beneficial role of leaders. In the last forty years, experimental evidence has resoundingly confirmed the importance of language and persuasion in such settings. See Vernon Smith (1998).

[22] Smith (1759), III.i.46; http://www.econlib.org/library/Smith/smMS3.html#III.I.46

[23] Smith (1776), I.91; http://www.econlib.org/library/Smith/smWN1.html#I.2.2. While historians of economic thought early in the twentieth century regarded these two books as incommensurate, they have now come to appreciate their interrelatedness; see McCloskey (2007) and Vernon Smith (1998).

[24] For Smith, prudent action is one form of virtuous action. Theory of Moral Sentiments is largely an investigation of virtue (including prudence) and how we become virtuous; The Wealth of Nations focuses on prudence-driven exchange.

[25] Experimental social scientists have taken up this problem using public goods games where participants choose how much to invest in purely private or shared group accounts. See Levy, Houser, Padgitt, Peart, and Xiao (2011).

[26] Marshall (1890), p. 104.

[27] Ibid., p. 104.

[28] Mill (1867), retrieved 12 April, 2016, from http://oll.libertyfund.org/titles/mill-the-collected-works-of-john-stuart-mill-volume-xxi-essays-on-equality-law-and-education?q=instigate+you+by+the+prospect#Mill_0223-21_786

REFERENCES

Coronel, S., Coll, S., & Kravitz, D. (2015, April 5). What went wrong. *Rolling Stone*. Retrieved April 12, 2016, from http://www.rollingstone.com/culture/features/a-rape-on-campus-what-went-wrong-20150405

Cronin, T., & Genovese, M. (2012). *Leadership matters.* Boulder, CO: Paradigm Publishers.

Deneen, P. (2013, June 3). We're all to blame for MOOCs. *The Chronicle of Higher Education*. Retrieved April 12, 2016, from http://chronicle.com/article/Were-All-to-Blame-for-MOOCs/139519

Leonardt, D. (2014, May 27). Is college worth it? Clearly, new data say. *The New York Times*. Retrieved April 12, 2016, from http://www.nytimes.com/2014/05/27/upshot/is-college-worth-it-clearly-new-data-say.html?_r=2&abt=0002&abg=0

Levy, D., & Peart, S. (2016). *Escape from democracy: The role of experts and the public in economic policy.* Cambridge: Cambridge University Press (forthcoming).
Levy, D., Houser, D., Padgitt, K., Peart, S., & Xiao, E. (2011). Leadership, cheap talk and really cheap talk. *Journal of Economic Behavior and Organization, 77*, 40–52.
Marshall, A. (1890). *Principles of economics. Third edition* (1895). Cambridge: Cambridge University Press.
McCloskey, D. (2007). *Bourgeois virtues: Ethics for an age of commerce*. Chicago, IL: University of Chicago Press.
Mill, J. S. (1843). Of fallacies in general. In J. M. Robson (Ed.), *The collected works of John Stuart Mill, Volume VIII – A system of logic ratiocinative and inductive, being a connected view of the principles of evidence and the methods of scientific investigation*. Toronto: University of Toronto Press, London & Routledge and Kegan Paul, 1974. Retrieved April 12, 2016, from http://oll.libertyfund.org/title/247/40029/75175
Mill, J. S. (1867). Inaugural address delivered to the University of St. Andrews. In J. M. Robson (Ed.), *The collected works of John Stuart Mill, Volume XXI – Essays on equality, law, and education*. Toronto: University of Toronto Press & London: Routledge and Kegan Paul, 1984. Retrieved April 12, 2016, from http://oll.libertyfund.org/title/255/21681/809554
Nocera, R. (2016, February 12). Dean Smith's shadow looms over U.N.C. as it struggles with a scandal's fallout. *The New York Times*. Retrieved April 12, 2016, from http://www.nytimes.com/2016/02/13/sports/ncaabasketball/dean-smiths-shadow-looms-over-unc-as-it-struggles-with-a-scandals-fallout.html
Peart, S. (2013, February 12). Overhauling how we teach about leadership. *Washington Post*. Retrieved April 12, 2016, from http://www.washingtonpost.com/national/on-leadership/overhauling-how-we-teach-leadership/2013/02/12/aa85c70a-7527-11e2-aa12-e6cf1d31106b_story.html
Peart, S. (2014). That "Most inexhaustible of All Topics": Reflections on the leadership studies curriculum at the Jepson School. *Journal of Leadership Studies, 7*(5), 71–75.
Peart, S., & Levy, D. (2010). Political economy. In R. Couto (Ed.), *Political and civic leadership: A reference handbook* (pp. 592–601). Thousand Oaks, CA: Sage Reference.
Price, T. (2005). *Understanding ethical failures in leadership.* Cambridge: Cambridge University Press.
Smith, A. (1759). *The theory of moral sentiments*. Retrieved April 12, 2016, from http://www.econlib.org/library/Smith/smMS.html
Smith, A. (1776). *An inquiry into the nature and causes of the wealth of nations*. Retrieved April 12, 2016, from http://www.econlib.org/library/Smith/smWN.html
Smith, V. (1998). The two faces of Adam Smith. *The Southern Economics Journal*, *65*(1), 1–19.
Stolberg, S. (2015, June 23). Sweet Briar College is saved but is not in the clear. *The New York Times*. Retrieved April 12, 2016, from http://www.nytimes.com/2015/06/24/us/sweet-briar-collegeis-saved-but-not-in-the-clear.html?_r=0
Supiano, B. (2015, August 25). Tuition discount rates rise again, signaling potential challenges for private colleges. *The Chronicle of Higher Education*. Retrieved April 12, 2016, from http://chronicle.com/article/Tuition-Discount-Rates-Rise/232579/
Wren, T. (1995). *The leader's companion: Insights on leadership through the ages*. New York, NY: The Free Press.

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PART I

HOW DO GOVERNANCE REGIMES STEER HIGHER EDUCATION INSTITUTIONS?

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3. BUILDING COMPARATIVE ADVANTAGE IN THE KNOWLEDGE SOCIETY

Systemic Factors in Four Nordic Higher Education Systems

INTRODUCTION

The current position of knowledge in our societies is unprecedented (Pestre, 2003), not only as a consequence of economic evolution, but also because of social, technological and geo-spatial transformations. New societal challenges require leading-edge expertise; technology makes knowledge accessible, transmissible and open; and, the locus of knowledge moves from local and national to global networks (Välimaa, 2014).

In the global knowledge society, higher education systems (HES) acquired a crucial position as main depositaries and creators of knowledge, and producers of highly-skilled workers (Teixeira, 2009). Investigating how HES are integrated with the new economy, Slaughter and Rhoades (2004) developed a theory of academic capitalism explaining how higher education integrates with the 'new economy' and is penetrated by market-like behaviours and profit-making. And if the reconfiguration of the sector might promote closer interaction between universities and industry, the theory's potential mostly applies to Anglo-Saxon countries (Välimaa, 2014) and, even there, the involvement of academia in commercial endeavours remains fairly limited (Geiger & Sá, 2009).

A focus on material capital accumulation indeed omits a distinct yet intersecting logic transforming academia. Hazelkorn (2013) observes a new 'academic world order' fostered by the position of knowledge, globalization and rankings. Fulfilling functions of quality assurance mechanisms, accountability measures, knowledge diplomacy and 'knowledge market regulator', rankings would operate as private instruments of governance (Marginson, 2006). Graduate students look at rankings to choose their alma mater (Hazelkorn, 2008); university administrators to identify their weaknesses (Altbach, 2004); governments to allocate funding (Mok & Chan, 2008); and, like the rating agencies, rankings give value to some institutional outputs and organize globalization's expressions (King, 2009).

In this logic, symbolic power results from the accumulation of scientific capital as a specific form of cultural capital acknowledged by rankings and other bibliometric measures. Cultural capital is indeed perceived as the most important stratification factor in advanced societies (Bourdieu, 1993). By extending the concept of capital

C. Sarrico et al. (Eds.), Global Challenges, National Initiatives, and Institutional Responses, 29–53.

to its social, economic, cultural and symbolic forms, Münch's (2014) theory of academic capitalism explains how academics, higher education institutions and countries accumulate, invest and convert capital to maintain or enhance their prestige and legitimacy in the academic field.

Münch calls for a political-economic analysis of this new global academic power struggle. His work identifies transnational logics of capital accumulation, such as investments in research projects motivated by expected material and symbolic revenues; and logics of distinction by restricting visible knowledge to create exclusiveness and status. Yet it is worth exploring how global ideologies are mediated by national contexts (Bleiklie & Kogan, 2007).

BACKGROUND

Political-economy has long studied cross-national variations. One of the multiple approaches in this field is the varieties of capitalism (VoC) approach which frames political-economy as a terrain populated by multiple actors who seek to advance their interest in relation with others (Hall & Skoskice, 2004). The VoC approach was however criticized for its methodological nationalism and static analyses (Peck & Theodore, 2007), as well as for being unable to deal with "within-type" diversities and "hybridity" (Immergut & Anderson, 2005; Jessop, 2011). For Jessop, instead of multiplying typologies when marginal cases appear, proposed to establish a common base of what capitalism is, and then to work with concepts such as variegation, compossibility, ecological dominance and world market in order to draw the different patterns of capital accumulation. The VoC approach yet appears relevant to scholars looking for a parsimonious synthesis of previous major approaches, as well as for an explanation for diversity which extends beyond modernization theories (Hall & Soskice, 2001).

According to the VoC approach, terrains in liberal market economies (LMEs) would coordinate actors' behaviour through market relations, while coordinated market economies (CMEs) would do so through extensive relational and network monitoring. Focusing on processes rather than outputs, VoC frames how each political-economic structure provides organizations with comparative advantages for engaging in specific types of activities.

Political economy has been used to explain differences in higher education and research. Kim (2013) showed that CMEs invested more in R&D during recessions than LMEs, thus consolidating a knowledge-intensive economy. Focusing on welfare states rather than production regimes, Esping-Andersen (1999) observed that, in a post-industrial context, social-democratic regimes' service economy was biased towards 'public' welfare state jobs, while liberal regimes favored tax-subsidized private provision, and conservative regimes allowed service earnings to follow general wage trends. Pechar and Andres (2011) conducted a correspondence analysis based on the welfare regime typology (and the underlying trade-off

between equalities of condition and opportunity) to find that social-democratic, liberal and conservative regimes had different national approaches in funding and expanding HES. Regarding academic research, Benner (2011) proposed that Anglo-Saxon governance models were highly segmented, biased towards profitable areas, entrepreneurial and connected universities to risk capital markets. Continental European models tended to concentrate research into research institutes and used excellence-based initiatives to foster symbolic capital. Nordic HES would be characterized by coordination by the State, unions and the market, substantial block grants to universities, state-initiated mergers and high-profile for researchers.

Keeping a "material focus", Olson and Slaughter (2014) also noted that VoC could apply to academic capitalism. State's role in LMEs would be limited to protect private property rights and support quasi-market funding (grants and contracts), while CMEs would refrain from charging tuition fees, entail a scripted transition, coordination and stratify resources to create excellence (like the Continental European models described by Benner, 2011). After comparing Germany and the US, Olson and Slaughter (2014) concluded: "The neoliberal variety of academic capitalism" has been successful in creating and sustaining world-class universities by rewarding the "successful" research universities in world-class rankings (p. 20).

Many researchers (Aghion et al., 2009; Marginson, 2006; Morhman, Ma, & Baker, 2008; Salmi, 2009) have suggested that Anglo-Saxon HES dominated the academic field. For instance, Aghion et al. (2009) surveyed 196 European universities and correlated universities' governance with their performance in the Shanghai Jiao Tong University Ranking (SJTU). The authors concluded that per-student revenues, budget autonomy, capacity to select students and staff, competitive grants and patents, and smaller government funding were correlated with a higher performance. For his part, Marginson (2006) wrote that the global academic hierarchy was structured by three factors: the distribution of the research capacity, the global advantage of English and the cultural domination of the US.

Pestre (2003) however claimed that different knowledge regimes could achieve similar results. For instance, on a per capita basis, Nordic HES achieved comparatively high results in terms of world-class universities, publications and citations. Table 1 above compares 16 OECD countries based on various metrics. The SJTU Index was calculated by multiplying the number of universities in the top-100 in a country by their reversed rank and using the US index as a yardstick (Aghion, 2008). This analysis illuminates the high performance of the Nordic cluster, with two Nordic countries obtaining higher SJTU indexes than all other countries but Switzerland. According to the SCImago Journal & Country Rank, Nordic countries also have more publications per capita than any other country but Switzerland (and Australia in the case of Finland). Articles published by researchers in Nordic countries are, on average, more frequently cited than the articles published by scholars in other countries. The purpose of this chapter is thus to identify systemic factors contributing to academic research production in the Nordic HES.

Table 1. Higher education systems, ranking regional indexes, publications and citations

HES	*Continental European*							*Anglo-Saxon*					*Nordic*			
Country	AUT	BEL	FRA	DEU	ITA	NLD	CHZ	AUS	CAN	NZL	UK	USA	DNK	FIN	NOR	SWE
Population (1,000)	8 469	11128	63519	82105	60668	16755	7997	23131	35158	4471	62571	316129	5592	5439	5080	9519
SJTU Index	0	33	27	20	0	54	228	50	54	0	112	100	163	53	64	127
Publications per capita (1,000)	2,45	2,53	1,70	1,81	1,53	3,04	4,81	3,30	2,52	2,83	2,60	1,78	3,82	3,07	3,32	3,47
Citations per documents	0,71	0,78	0,63	0,7	0,67	0,85	0,88	0,66	0,66	0,62	0,7	0,64	0,85	0,68	0,68	0,76

Source: SJTU (2015). Academic Ranking of World Universities 2014. Retrieved from www.shanghairanking.com; SJR (2015). SCImago Country Rank 2013. Retrieved from www.scimagojr.com/countryrank.php

CONTEXT

To identify factors, I use Holmes' (1981) problem approach to comparative education. This hypothetical-deductive approach requires the researcher to thoroughly analyse a problem (understood as the conceptual abstraction of an asynchronous change in society), identify contextual contingencies, formulate hypotheses and compare logical predictions with observable events. In this study, the 'problem' (or subject under study) is academic capitalism and the context is the Nordic welfare regimes. Following Popper's (2005) falsification epistemology, the intent is to disprove hypotheses based on empirical indicators and to consider what survives as tentatively true in the specific context of Nordic HES.

Nordic Welfare Regimes

Nordic states have been linked by geography, history and common linguistic bonds. The Reformation contributed to the importance of local powers and the State acquired the mission of serving all citizens (Välimaa, 2001). Three patterns of mental state can be identified: peace and cooperation, pragmatic rationality and progressiveness. Long after the Kalmar Union, members of the Danish, Swedish and Norwegian parliaments founded the Nordic Inter-Parliamentary Association; Nordic Labour Movements united in 1932 and helped the Social Democratic parties to establish themselves; and after WW2, the smallest European states – which are heavily dependent on neighbour countries for diplomatic support – founded the Nordic Council of Ministers (Derry, 1979).

For Arter (2008), the legislative process is characterized by experts' influence, a rationalist approach, effective minority governments and strong parliaments often including university professors. Progressive thinking emerged in the 19th century when Finland established universal suffrage, Denmark implemented free and compulsory primary education, and Swedish local parishes became responsible for public healthcare. Education became a key to a progressive and democratic society. The more recent Nordic political-economy has been named "social-democratic" by Esping-Andersen (1999) and is characterized by social and economic rights independent of employment or needs (universalism), comprehensive and generous risk coverage (egalitarism), minimal dependency on the market (de-commodification) and active labour market policies (productivism). There is now more competition to encourage innovation (Kettunen, 2006), but Nordic welfare regimes remain distinct in their spending on employment measures and lowest levels of inequality in Europe (Fritzell, 2001).

Nordic Higher Education Systems

In this specific political-economic context, what systemic factors contribute to the accumulation of scientific capital? Through an extensive literature review, I listed

39 explanations for Nordic countries' academic performance (see Table 3) that I then grouped into the six broader systemic factors summarized below. I framed these factors by adapting Clark's (1983) depiction of HES.

Beliefs. Beliefs represent the frame within which actors learn to follow a set of informal rules and develop a shared understanding (Hall & Skoskice, 2004). Nordic universities follow a Nordic adaptation of Humboldtian ideals of academic freedom and collegiality, but must also serve as fundamental cultural institutions, supporters of industrialization and providers of the "best education" to all capable citizens (Välimaa, 2001). Higher education institutions thus remain publicly-owned/controlled and enjoy social trust (Kalpazidou Schmidt, 2007).

Academic structure. Academic structure includes both institutional differentiation and academic work. A more horizontal stratification supports both quality in all sectors and access through non-university institutions (Hazelkorn, 2013). Academic work would also be stratified in a specific manner. A smaller proportion of full-professors with a lot of administrative responsibilities would result in research being performed by junior professors, contract-researchers, and doctoral students (Aarrevaara & Pekkola, 2010). In response to various reforms, the number of doctoral degrees conferred by Nordic universities increased by 32% between 2002 and 2011 (Myklebust, 2013).

Governance. Nordic governments have recently granted forms of organizational, financial, staffing and academic autonomy to institutions, while imposing development contracts and performance measures (Kvil, 2004). Governments maintained a coordinating role in encouraging mergers and a planning role in formulating various policies and reforms that have had a profound impact on study programs, institutional management and innovation sectors (Brundenius et al., 2011). HES also rely on evaluation and accreditation agencies acting as semi-independent organizations that provide a judgment on quality (Välimaa, 2005).

Public-sector research funding. Except for Norway, funding is concentrated in universities rather than research institutes (Benner, 2011). Despite recent changes, Nordic HES rely on block grants to maintain research infrastructure, encourage curiosity-driven research and to reduce paperwork (Sörlin, 2007). Competitive grants have a strong legitimacy when administered by research councils (Potì & Reale, 2007). There is also increased strategic funding to encourage research in domains of national interest (Ibid) and excellence funding for high-quality research groups (Välimaa, 2005).

Networking with non-academic actors. Universities' 'Third Mission' has been formally introduced in Nordic countries in the 1990s, requiring academic institutions to interact with the surrounding society and economy (Brundenius, Göransson, & Ågren, 2011). Multiple agencies have also been established to facilitate university-industry collaborations. For instance, the Swedish Agency for Innovation Systems (Vinnova) launched a program encouraging Swedish regions to compete and propose the best clustering alliance (Brundenius, Göransson, & Ågren, 2011). In Finland, the share of funding from private sources has grown six fold since the

1990s (Välimaa, 2005). In Denmark, most Danish science parks are also related to a university, and especially in the sectors of agriculture, pharmaceutics, energy and health.

Internationalization. According to the Royal Society (2011), international collaborations in research have a positive impact on the quality and efficiency of research processes. For instance, half of the articles produced in Sweden were produced in collaboration with a foreign partner, with collaborations involving a total of 116 countries (Marginson & van der Wende, 2009). In the Nordic context, international collaboration compensates for relatively smaller populations (Maassen, Vabø, & Stensaker, 2008). European integration would also allow for policy learning and additional research funding (Gornitzka & Langfeldt, 2008). Internationalization could also serve to increase research production "at home". In Sweden, international students represent 37% of all doctoral students (SNAHE, 2012).

METHODOLOGY

Holmes' (1981) deductive problem approach requires researchers to analyse contexts holistically and find a way to grasp idiographic phenomena. To meet these challenges, I utilized a multi-governance (MLG) framework and a convergent and parallel mixed-method design (Creswell & Plano Clark, 2011). Qualitative and quantitative data were analysed independently and merged during interpretation; indicators and factors were considered robust when quantitative and saturated qualitative findings converged.

Systems being mostly immaterial, this study relies on actors' perspectives and on a structured and focused comparison of cases (Bleiklie & Kogan, 2006) to assess the importance of the six factors described above in a limited number of countries. I aggregated the perspectives of actors located within three levels of authority (international, national and institutional), and thirteen strata: Nordic organizations, governments, quality assurance agencies, research councils, innovation networks, university associations, academic staff unions, and within one case-university per country, external board members, administrators, faculty members, doctoral students, contract researchers, as well as one polytechnic/university college.

One could question what credit can be granted to actors' perspectives. Like Becker, Geer and Hughes (2003), I assume that perspectives are based on an interpretation of the empirical reality and, since the targeted actors have first-hand knowledge of research production, their perspective might reflect that knowledge.

Between September 2014 and March 2015, interviews were conducted with 56 senior officials and surveys were disseminated to groups of employees who had knowledge about academic research production. Denied administrative consents, non-responses and the inconsistence between strata across countries however resulted in slightly different data sets. This is mostly visible at the institutional level where interviews were conducted with representatives of six strata and the survey disseminated only to full-professors because it was the most homogenous group

across countries. Table 2 presents response rates per level and country. Of the 3,435 online and anonymous surveys disseminated, 456 (13%) were completed.

In addition to the Likert scale, the survey offered to participants the option to check an "I don't know" box. This box was added for ethical reasons and for the sake of exhaustiveness. Those answers were however considered as "missing data." I followed the usual procedure (see Cleophas & Zwinderman, 2012; Scheffer, 2002) of deleting all cases for which more than 5% of the questions would remain unanswered. The sample thus included 324 participants in total (9% of the participants potentially contacted), of which 74 come from Denmark, 81 come from Finland, 85 come from Norway and 84 come from Sweden.

The survey relied on Likert-type scales and asked participants to indicate to what extent each of the 39 indicators has a positive influence, negative or no influence on the level of research production in their country. Validity was assessed through focus groups, cognitive interviews and expert reviews. A factorial analysis revealed a stable structure ($\alpha = 0.880$) consisting in eight factors: public authorities ($\alpha = 0.819$), networking with non-academic actors ($\alpha = 0.742$), internationalization ($\alpha = 0.755$), societal beliefs ($\alpha = 0.719$), academic traditions ($\alpha = 0.646$), early-career researchers ($\alpha = 0.541$), funding streams ($\alpha = 0.541$), and institutional differentiation ($\alpha = 0.408$). An eight-factor structure makes sense since the emerging factors are more specific. For instance, the former factor 'academic structure' was subdivided into 'academic traditions' and 'early-career researchers'. Likewise, the items of 'public-sector research funding' related to funding streams became the new factor 'funding streams' while those related to the management of public-sector research funding are now found under the factor 'public authorities'.

The qualitative data-collection took the form of one-hour semi-structured interviews divided into four parts: background, general perspective, stratum's perspective and comments about survey findings. If participants agreed, the interview was recorded in order to be correctly transcribed and summarized. Transcripts were sent for review, modifications and approval. Of the 56 interviewees who received the transcript, 25 returned it with minor revisions. As stated in the consent form, the absence of response from other interviewees was interpreted as their acceptation of the transcript without revision. In total, 56 transcripts were thus analysed.

Average survey scores are used as a first indication of factors' importance. Using QSR-NVivo, a deductive and theoretical-driven thematic analysis was also processed on transcripts. Factors became global themes, the 39 indicators become organizing themes. Codes were then generated inductively to identify what was meaningful. Saturation was therefore considered at the stage of analysis when new information produced little change to the codebook (Guest, Bunce, & Johnson, 2006). This tended to occur when a theme was saliently attested by at least four actors per country, in at least three countries, with no more than one dissenting opinion.

There are a number of limitations associated with this study. First, all items had average scores above 3.0/5.0, which suggests a tendency to respond positively to any factor; and it became difficult to determine if participants responded based on

Table 2. Average score for indicators and factors

New factor/Country[a]	*Initial factor*	*Denmark*	*Finland*	*Norway*	*Sweden*	*Total*
Academic traditions		*4.28*	*4.33*	*4.19*	*4.25*	*4.26*
Academic freedom for professors	Beliefs	4.62	4.82	4.60	4.57	4.65
Professors' influence on university decision-making bodies	Beliefs	4.18	4.09	3.81	4.24	4.07
University autonomy	Governance	4.32	4.32	4.29	4.21	4.28
Public research funding concentrated in universities	Funding	4.16	4.32	4.12	4.17	4.19
Universities receiving more public than private funding for research	Funding	4.14	4.11	4.13	4.08	4.12

New factor/Country[a]	*Initial factor*	*Denmark*	*Finland*	*Norway*	*Sweden*	*Total*
Internationalization		*4.11*	*4.31*	*4.19*	*4.28*	*4.22*
The number of international students	Internationalization	3.72	4.00	3.91	4.10	3.94
The recruitment of foreign scholars by universities	Internationalization	4.27	4.28	4.32	4.44	4.33
Research collaborations with researchers in other countries	Internationalization	4.74	4.86	4.80	4.81	4.81
Policies and funding from the European Union	Internationalization	4.00	4.37	4.08	4.24	4.17
Funding and policies from Nordic organizations	Internationalization	3.66	3.90	3.72	3.70	3.75
Partnerships with institutions abroad	Internationalization	4.25	4.46	4.29	4.36	4.34

(Continued)

Table 2. (Continued)

New factor/Country[a]	*Initial factor*	*Denmark*	*Finland*	*Norway*	*Sweden*	*Total*
Societal beliefs		*3.84*	*4.15*	*3.76*	*3.91*	*3.92*
Society's belief that higher education should serve the public good	Beliefs	4.01	4.36	3.99	4.16	4.13
Decisions of regional/local actors	Beliefs	3.11	3.25	2.95	3.21	3.13
Society's belief in the importance of equitable access to higher education	Beliefs	4.05	4.56	3.94	4.02	4.14
Society's belief that STEMM are important in a global economic competition	Beliefs	4.28	4.49	4.12	4.32	4.30
Society's belief that research in the social sciences informs the country's welfare system	Beliefs	3.76	4.09	3.82	3.86	3.89
Funding streams		*3.94*	*3.87*	*3.94*	*3.82*	*3.89*
Basic funding to universities	Funding	4.06	3.25	3.74	3.84	3.72
Peer-reviewed competitive funding to professors	Funding	4.14	4.45	4.14	4.21	4.23
Excellence-based funding	Funding	3.61	3.90	3.93	3.42	3.72
Early-career researchers		*3.69*	*3.73*	*4.00*	*3.93*	*3.84*
The increase of contract-researchers working in universities	Academic structure	3.03	3.09	3.70	3.50	3.34
The development of research/doctoral schools	Academic structure	3.88	4.12	3.93	4.10	4.01
A large number of doctoral students	Academic structure	4.16	3.98	4.38	4.18	4.18

New factor/Country[a]	*Initial factor*	*Denmark*	*Finland*	*Norway*	*Sweden*	*Total*
Institutional differentiation[b]		*3.40*	*3.25*	*3.55*	*3.56*	*3.44*
Hierarchy between research-intensive, comprehensive and teaching universities	Academic structure	3.36	3.00	3.56	3.59	3.38
Each university specializing in a limited number of disciplines based on their expertise	Academic structure	3.43	3.49	3.53	3.53	3.50

New factor/Country[a]	*Initial factor*	*Denmark*	*Finland*	*Norway*	*Sweden*	*Total*
Networking		*3.32*	*3.33*	*3.27*	*3.41*	*3.33*
Universities' "Third Mission"	Networking	3.38	3.40	3.55	3.55	3.47
External members on university boards	Networking	2.92	3.10	2.94	2.96	2.98
Governments' incentives for universities to collaborate with private actors	Networking	3.24	3.12	3.08	3.27	3.18
Innovation clusters	Networking	3.51	3.50	3.41	3.77	3.55
The involvement of private businesses in research funding	Networking	3.53	3.52	3.37	3.48	3.47

(Continued)

Table 2. (Continued)

New factor/Country[a]	*Initial factor*	*Denmark*	*Finland*	*Norway*	*Sweden*	*Total*
Public authorities		*3.23*	*3.44*	*3.24*	*3.36*	*3.32*
The national Government as planning and coordinating higher education and research	Governance	2.70	3.04	2.96	2.70	2.85
The Parliament and its standing committees	Governance	2.74	3.12	3.00	2.92	2.95
Quality assurance mechanisms	Governance	3.18	3.36	3.36	3.45	3.34
Development contracts and performance agreements	Governance	2.99	3.24	3.24	3.31	3.20
The role of research councils	Funding	4.10	3.95	3.58	4.11	3.93
Strategic research funding in priority areas	Funding	3.32	3.65	3.22	3.35	3.39

[a] *The number of observation per indicator might vary because missing data were removed.*
[b] *This factor is included for indicative purposes. It includes only two items and has an unsatisfactory Cronbach's alpha ($\alpha = 0.408$).*

what they would have preferred to happen or what was actually happening in their country. Second, one could argue that the design omitted country-specific factors. Third, survey scores can hardly measure the significance of differences in factors' mean and weight; thus reducing this study's confirmative power. It is nonetheless an additional step in understanding how countries' political-economy supports academic research production.

RESULTS

Table 2 shows items' score and the average score for each factors. All factors have an average "positive impact" (above 3.0) according to participants. Only factors above the average score (3.80) will be considered in the Discussion. The two highest scores are for academic traditions (4.28) and internationalization (4.22).

Despite noticeable country differences, the thematic analysis revealed convergence in actors' perspectives regarding the following global themes: academic traditions, internationalization, societal beliefs and early-career researchers (ECR). Saturation was achieved for more than 16 organizing themes, including eight in at least three countries.

Following a convergent parallel mixed-method design, Table 3 below presents convergence between the organizing themes for which I achieved saturation and average survey scores above 4.0. Equal priority was given to qualitative and quantitative analysis, thus requiring that the theme emerged at the end of both processes to be considered robust. For instance, funding streams was the third most important factor and peer-reviewed competitive funding had an average score above 4.0 in four countries, yet divergence between interviewees' perspective in Finland and Sweden prevented me from making any conclusion at this point.

Analyses tentatively suggest the positive impact of academic traditions and internationalization in the four countries; as well as the importance of academic freedom, public support for research, international research collaborations, recruitment of foreign scholars, EU funding, equitable access, and the societal belief that higher education should serve the public good.

DISCUSSION

The objective of this study was to identify systemic factors contributing to academic research production in the Nordic HES. Convergence between qualitative and quantitative analyses supported the impact of academic traditions and internationalization. This section explores how Nordic countries' political-economy might condition scientific capital accumulation.

Academic Traditions

As Välimaa (2001) argued, Nordic universities follow an adaptation of Humboldtian ideals where academic freedom and collegiality are conjugated with a trust to serve

Table 3. Convergence between indicators with a score above 4.0 and saturated organizing themes

	Denmark		*Finland*		*Norway*		*Sweden*	
	Survey	*Interviews*	*Survey*	*Interviews*	*Survey*	*Interviews*	*Survey*	*Interviews*
Academic traditions	Public funding Academic freedom University autonomy Funding concentration Professors' influence		Academic freedom University autonomy Funding concentration Professors' influence		Academic freedom Funding concentration University autonomy Professors' influence	Role of research institutes	Professors' influence Academic freedom Funding concentration University autonomy	Balance between public and private funding
Internationalization	Research collaborations Recruitment of foreign scholars EU funding							

	Denmark		*Finland*		*Norway*		*Sweden*	
	Survey	*Interviews*	*Survey*	*Interviews*	*Survey*	*Interviews*	*Survey*	*Interviews*
	Institutional partnerships		*Institutional partnerships*		*Institutional partnerships*		*Institutional partnerships*	
							EU funding	
Societal beliefs	HE should serve the public good							
	Equitable access		Equitable access				Equitable access	
	STEMM	Status of higher education	STEMM	Status of higher education	STEMM	Equitable access	STEMM	Status of higher education
				SSHA informs welfare				
Funding streams	Competitive funding							
	Basic funding	Excellence funding	Competitive funding		Competitive funding	Basic funding	Competitive funding	
						Excellence funding		

	Denmark		*Finland*		*Norway*		*Sweden*	
	Survey	*Interviews*	*Survey*	*Interviews*	*Survey*	*Interviews*	*Survey*	*Interviews*
Early-career researchers	Doctoral students				Doctoral students		Doctoral students	
		Postdocs	Doctoral schools	Doctoral students			Doctoral schools	

the public good under the financial support/control of the State. In the factorial analysis, academic traditions also included university autonomy and funding concentration in universities (Benner, 2011).

First, academic freedom has the second highest score in the survey and its importance is attested by a significant number of actors who perceived that, as stated by the senior official of a research council, "it is essential for researchers to be able to do what they are most interested in, and that there are opportunities to concentrate on research, no matter in which area they are." For the professors interviewed, academic freedom was part of researchers' habitus (Münch, 2014). It increased their dedication and respected the scientific process because "it is part of the path to make mistake and false hypotheses."

Academic freedom seems supported by both symbolic and economic capital. Nordic laws on higher education safeguard academic freedom within the boundaries of ethics, institutional frameworks and national considerations (Nokkala & Bladh, 2014). A senior faculty member in a Norwegian university college explained this complex balance between society's interest and academic freedom: "The first paragraph of that law says that researchers enjoy freedom in terms of choosing theories and methodologies, but they have to accept being governed by the overall priorities and areas of research set by the government and their employer."

Second, the balance between academic freedom and expectations to contribute to the public good results from trust. Nordic societies are described as trust-based (Välimaa, 2001). The European Commission's (2010) survey indeed showed that Nordic citizens had greater trust in science than the EU-27 average. Trust appeared as a symbolic capital through which academics secure a capital of credit (Bourdieu, 1984). Freedom for professors would be perceived as a legitimate demand for recognition in order to better contribute to society. Trust emanated not only from the apparent selflessness of the scientific endeavour, but also from the perceived utility and accessibility of higher education, as explained by a Finnish national-level actor:

> Citizens trust and praise researchers a lot. There is a general idea that university education and science are important activities in the country… One reason for that is the regional networks of universities and the "open access for all" to enter the scientific society. It is not a secret area or a place where people do very strange things.

Although Münch's (2014) claimed a shift from trust to suspicion, participants report that "there is an unusual high level of trust" and "open and supportive communications" between academics and public authorities.

Third, higher education was perceived as contributing to the public good (symbolic capital), so Nordic governments could invest massively in both research and PhD education. For a Danish government representative, "there is a high degree of trust in the society towards researchers and regarding the allocation of research resources… That is a precondition for us to maintain a percentage of our GDP to research." HERD as a percentage of the GDP is indeed 0.95 in Denmark, 0.92 in

Sweden, 0.77 in Finland, 0.52 in Norway, while the OECD average is 0.43 (OECD, 2014). In addition to funding research, governments increased graduation rates at the doctoral above the OECD average (OECD, 2014) so they could "use all the potential in a small population", in the words of a Finnish doctoral student. PhDs were said to contribute to their country economy, and while at the university, "PhD candidates and postdocs are contributing the most to the scientific production." Increasing PhD production would thus be another way to convert economic (human) capital into scientific capital.

The fourth element concerns the specificities of public funding in Nordic HES. In economic downturns, CMEs would retain a skilled workforce and outsmart the market with counter-cyclical investments in research, consolidating their comparative advantage. As reported by a Finnish researcher, "the research funding has increased dramatically; we were affected by a depression in the early 1990s and after, there was a common consensus in Finland that higher education would be the way to rise." Similarly, during the 2008, a Swedish representative from a quality assurance agency reported that, "while most other countries were cutting in their research budget, Sweden was not; it was possible to keep up with the international competition in terms of citations or ERC grants." Therefore, although private funding accounts for between 3.42% and 5.11% in the Nordic countries (OECD, 2014), public funding is more stable, and perceived as "freer" and explaining "the level of scientific activities and publications."

Fifth, "funding concentration" reached saturation in all countries but Norway. In Norway, Bauer and Kogan (2006) noted universities resisted reforms to become more socially relevant. Institutes would serve as protecting academic freedom since researchers "could afford not to apply for applied projects." In a Humboldt orthodoxy, universities would conduct basic research while institutes would do applied research, as explained by the representative of a Norwegian granting organization:

> The institute sector was developed in 1960s–1970s because we needed research on marine sector, transport, petroleum, etc. There was a view that universities could not cope with this kind of research… Institutes cooperate quite well with industries. And there might be a reason why universities are less connected to industries.

However, according to a university association representative, "institutes are in competition with universities for money and do quite well." Although it puts new demands on universities, merging them with institutes and concentrating public funding reinforces academic centrality in Nordic societies. For a representative from a Nordic cooperation organization, Finland and Denmark merged universities and institutes in order "to increase the quantity and quality of research." A Finnish national-level actor suggested that "mergers and collaborations are important in a small nation because there are limited resources." Instead of elaborating excellence initiatives, the symbolic construction of "institutional beacons" (Münch, 2014) in the Nordic countries seem to follow a merging strategy (Pinheiro, 2007).

Sixth, professors' influence and university autonomy obtained high survey scores but divergence in actors' perspectives preventd any conclusive statements on these two traditions. There was indeed divergence regarding organizational, financial, staffing and academic autonomies (Esterman, Nokkola, & Steinel, 2011). Autonomy could favour strategic decision-making, but actors felt autonomy was constrained by "little fiscal freedom" and "too much political involvement." Similarly, collegial influence achieved saturation in Sweden, Danish and Finnish actors criticized a "very hierarchical process."

In sum, in the Nordic variety of academic capitalism, the symbolic capital inherent to "trust" protects the academic freedom needed for science, and encourages increasing, maintaining and concentrating public economic capital into consolidated academic institutions.

Internationalization

Although internationalization is important for many countries, it was here framed as compensating for Nordic countries' population size (Maassen et al., 2008). At the political level, as it was explained by a Nordic organization representative, "We are five small countries, so it is important to get new contacts and new networks because, when we do it together, it is easier and we have a greater impact." On an economic level, research production has also been influenced by countries' "small, open, knowledge-based economy" (Swedish university administrator). It thus comes as no surprise that internationalization was the second most important factor. International collaborations and recruitment would contribute to the establishment of international networks (social capital) that, in addition to increasing researchers', institutions' and countries' reputation (symbolic), multiply project opportunities and allow academics to pool intellectual, material, financial and human resources (Münch, 2014).

First, international networks generate symbolic and economic capital. In addition to increasing publications and citations (Li, Liao, & Yen, 2013), a union representative suggested that international networks fostered recognition by the global scientific community: "Sweden will remain a small country… but we want to be part of the international research community and do research that other people will value." Symbolic capital also emerges from large and competitive European funding. While NordForsk provides small amounts of "seed money," a Finnish national-level actors said "ERC and Horizon2020 are huge in comparison with the grants that you can get in smaller nations." Its Norwegian counterpart rather focuses on excellence and suggested that "EU funding has the most effect…it is a question of academic excellence because you are competing now on a European level." International social and symbolic capitals thus appeared mutually reinforcing and contributing to the production of internationally-recognized academic research. International.

Second, internationalization serves to pool cultural capital. Scientific fields become narrower and it is not unusual in a smaller country to find few experts of one sub-discipline. A doctoral student noted that "Finland is a very small country. There might be only one researcher in one field, so it is obligatory for them to have connections because they don't have anybody to talk to here." A Danish professor reported that internationalization compensated for the small size of his department in stimulating exchanges of ideas, data, methods and theories. As Ulnicane (2014) noted, high-quality expertise and the combination of different mindsets are decisive reasons for international networks. Once established, these networks allow pooling competences and build stronger teams. An institutional-level actor explained, "We cannot know all methods. In a project, we have mice from Japan, structural 3-D analysis with a Spanish group, we did part of the study with a group from Harvard; a similar protein was found by the French."

Third, international networks bring more concrete resources such as equipment, funding and man-power. Although Münch (2014) criticized what he considered being over-investments in science, a professor argued countries' pooled resources would fund the large facilities (e.g. CERN) needed for scientific breakthrough. On a smaller scale, a professor of bio-chemistry reported that, twenty years ago, his field was not well recognized and thus could not attract the necessary funding to build equipment and had to "collaborate with a group in Germany and to have access to large facilities."

There was also convergence in actors' perspectives regarding the recruitment of foreign scholars who bring knowledge and conduct research. In Norway, non-Norwegian citizens accounted for 36% of the doctoral degrees awarded, including 51% in the natural sciences and 65% in technology (Bruen Olsen, 2014). It should also be noted that the proportion of international students in advanced research programs in Denmark and Sweden is respectively 22.6% and 26.8% (OECD, 2014). A researcher explained that his group was dynamic because it included "colleagues from 13 nationalities" and that mobile researchers "are those who want to do research the most." Although recruited scholars left after a short-term position, they nonetheless consolidated researchers' network. As one Norwegian professor said, "I keep in touch with the best of them and we continue to work together; these guys are clever and I have the equipment and the money."

In this "gift-exchange situation" (Münch, 2014), scholars carry out research, make contacts to further their academic career and then, praise the center all over the world, thus contributing to centers' symbolic capital and countries' science diplomacy (Royal Society, 2011). One Norwegian government representative commented:

> They have four years full-pay, and leave. But, so far, our policy has been that this is part of the global knowledge exchange. When they do their PhD in Norway, they do research, they influence the research environment and, when they leave, they take our knowledge out in the world, they have this background so they have connections.

In sum, small-size Nordic countries rely on international networks as a form of social capital to generate symbolic, economic and cultural capitals, which will be further converted into scientific capital.

CONCLUSION: TOWARDS A VARIETIES OF ACADEMIC CAPITALISM APPROACH?

The objective was to identify systemic factors contributing to academic research production in the Nordic HES. Based on a parallel mixed-method design based on 324 surveys and 56 interviews with Danish, Finnish, Norwegian and Swedish system actors, findings support hypotheses regarding the impact of academic traditions and internationalization. More precisely, a falsification process based on convergence between saturation in interviews and average survey scores suggested the importance for academic research production of academic freedom, public support for research, international research collaborations, the recruitment of foreign scholars, EU funding, equitable access, and the societal belief that higher education should serve the public good.

Despite its methodological and conceptual limitations, this approach combined sociological and political-economic lenses to understand how countries' institutional structure condition a Nordic comparative advantage in the academic capitalist race. If "nearly all aspects of higher education… are embedded in the political economy" (Cantwell & Kauppinen, 2014:3) further evidence could help develop a varieties of academic capitalism (VoAC) approach explaining the size and types of research produced in different contexts. Välimaa (2014) recognized academic capitalism also existed in Europe yet it followed different paths. Olson and Slaughter (2014) already suggested differences between LMEs and CMEs, yet a more fruitful VoAC approach should differentiate HES beyond the CME-LME dichotomy. Pechar and Andres (2011) showed how higher education participation and funding differed in social-democratic and conservative regimes. Similarly, Benner (2011) argued excellence initiatives were more present in the Continental European governance model, while the Nordic model relied more on block grants, mergers and horizontal differentiation.

This study exclusively focused on Nordic HES but findings inform a deeper understanding how comparative advantage in scientific capital production is conditioned by countries' political-economic structure. Nordic countries for instance built comparative advantage upon equality of condition and of opportunity, insiders' information about the market, and trust-based interactions (Hall & Soskice, 2004; Esping-Andersen, 1999). Nordic governments increased economic capital in the form of funding and of a new generation of PhD candidates who contribute massively to scientific capital in order to obtain external funding and an academic position (Kyvik & Thune, 2014). In the academic illusio (Münch, 2014), meritocracy (equality of opportunity) is supplemented by large block grants,

relatively equal wages inside academia, and as good conditions outside academia (equality of condition).

Like for other CMEs (Hall & Soskice, 2004), coordination and deliberation is achieved through non-market mechanisms, such as comprehensive quality assurance mechanisms (including site visits), performance metrics, yearly negotiations and development-contracts (Välimaa, 2005). A thicker common knowledge facilitates achieving multiple equilibria (Hall & Skoskice, 2004). In the Nordic countries, governments' intrusiveness is limited by academics' role in evidence-based policy-making (Arter, 2008) as well as by buffer organizations. The Swedish Higher Education Authority for instance "keeps some distance with the government" (as said by one national-level actor) by planning policy operationalization with universities. In Denmark, a national-level actor said the Government was the "policy arm" and relied for implementation on a constellation of organizations with specific missions (e.g. Danish Accreditation Institution, Cluster Excellence Denmark, Danish National Research Foundation, Innovation Fund Denmark and Danish Council for Independent Research). In Münch's (2014) terms, those buffer organizations belonged to the "subfield of evaluation" and they preserved the legitimacy of a trust-based governance since they understood and included members from the subfield of academic research, while providing accurate information to the subfield resource allocation.

In coordination with institutions and buffer organizations, the State keeps an essential role and can, for example, increase universities' scientific capital by bringing to them the capital formerly produced in research institutes. This construction of symbolic power in the academic field could reduce competition and efficiency (Ibid), yet it might create the critical mass need for breakthrough in expensive fields (Bloch & Sorensen, 2014). Nordic HES' comparative advantage may therefore rest in the economic capital and symbolic granted to researchers who have resources, networks and space for breakthrough research.

In sum, as Jessop (2011) predicted, the addition of marginal cases (like the Nordic HES) appeared to further differentiation within the VoAC approach. My findings could thus be re-explored through the lenses of 'variegated capitalism'. Yet a three-type model like the ones used by Benner (2011) Esping-Andersen (1999), and Pechar and Andres (2011) also appear robust and to facilitate the conceptualization of multi-dimension political-economic structures. This study however represents an additional step in understanding interactions between academic research production and countries' political-economic structure. It has identified possible Nordic advantages, yet are these factors constituting absolute or comparative advantages? Or to what extent can they explain cross-national patterns? Further studies will be needed to compare systemic factors within the Nordic cluster and with other clusters, and to test the VoAC approach in other contexts.

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REFERENCES

Aarrevaara, T., & Pekkola, E. (2010). A comparative perspective on the work content of the academic profession. In S. Ahola & D. Hoffman (Eds.), *Higher education Finland* (pp. 251–269). Jyväskylä: University of Jyväskylä.

Aghion, P. (2008). Higher education and innovation. *Perspektiven der Wirtschafspolitik*, *9*(Special Issue), 28–45.

Aghion, P., Dewatripont, M., Hoxby, C. M., Mas-Colell, A., & Sapir, A. (2009). *The governance and performance of research universities: Evidence from Europe and the U.S* (NBER Working Paper No. 14851). Retrieved from http://www.nber.org/papers/w14851.pdf?new_window=1

Altbach, P. G. (2004). The costs and benefits of world-class universities. *Academe, 90*(1), 20–23.

Arter, D. (2008). *Scandinavian politics today* (2nd ed.). New York, NY: Manchester University Press.

Bauer, M., & Kogan, M. (2006). Higher education policies: Historical overview. In M. Kogan, M. Bauer, I. Bleiklie, & M. Henkel (Eds.), *Transforming higher education: A comparative study* (2nd ed., pp. 25–38). Dordrecht, The Netherlands: Springer.

Becker, H. S., Geer, B., & Hughes, E. C. (2003). *Making the grade: The academic side of college life*. New Brunswick, NJ: John Wiley & Sons.

Benner, M. (2011). In search of excellence? An international perspective on governance of university research. In B. Göransson & C. Brundenius (Eds.), *Universities in transition: The changing role and challenges for academic institutions* (pp. 11–25). Ottawa: Springer.

Bleiklie, I., & Kogan, M. (2007). Organization and governance of universities. *Higher Education Policy, 20*(4), 477–493.

Bloch, C., & Sørensen, M. P. (2014). The size of research funding: Trends and implications. *Science and Public Policy, 42*(1), 30–43.

Bourdieu, P. (1988). *Homo academicus*. Standford, CA: Stanford University Press.

Bourdieu, P. (1993). *The field of cultural production: Essays on art and literature*. New York, NY: Columbia University Press.

Bruen Olsen, T. (2014). *Doctoral degree statistics – Norway: Tables and figures*. Oslo: NIFU.

Brundenius, C., Göransson, B., & Ågren, J. (2011). The role of academic institutions in the national system of innovation and the debate in Sweden. In B. Görasson & C. Brundenius (Eds.), *Universities in transition: The changing role and challenges for academic institutions* (pp. 307–325). Ottawa, Canada: International Development Research Centre.

Cantwell, B., & Kauppinen, I. (2014). Academic capitalism in theory and research. In B. Cantwell & I. Kauppinen (Eds.), *Academic capitalism in the age of globalization* (pp. 3–10). Baltimore, MD: John Hopkins University Press.

Creswell, J. W., & Plano Clark, V. (2011). *Designing and conducting mixed methods research* (2nd ed.). Thousand Oaks, CA: Sage Publications.

Derry, T. K. (1979). *A history of Scandinavia*. London: George Allen & Unwin.
Esping-Andersen, G. (1999). *Social foundations of postindustrial economies*. Oxford: Oxford Press.
Esterman, T., Nokkola, T., & Steinel, M. (2011). *University autonomy II: The scorecard*. Brussels: European University Association.
European Commission. (2010). *Science and technology – report. Special Eurobarometer 340*(73.1). Brussels: TNS Opinion & Social.
Fritzell, J. (2001). Still different? Income distribution in the Nordic countries in an European comparison. In M. Kautto, J. Fritzell, B. Hvinden, J. Kvist, & H. Uusitalo (Eds.), *Nordic welfare states in the European context* (pp. 18–40). New York, NY: Routledge.
Geiger, R., & Sá, C. M. (2008). *Tapping the riches of science: Universities and the promise of economic growth*. Cambridge, MA: Harvard University Press.
Gornitzka, A., & Langfeldt, L. (2008). Promoting interests, following rules, or learning from abroad. In A. Gornitzka & L. Langfeldt (Eds.), *Borderless knowledge: Understanding the "New" internationalisation of research and higher education in Norway* (pp. 141–153). Oslo: Springer.
Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability. *Field Methods, 18*(1), 59–82.
Hall, P. A., & Skoskice, D. (2001). Introduction. In *Varieties of capitalism*. New York, NY: Oxford University Press.
Hall, P. A., & Skoskice, D. (2004). An introduction to varieties of capitalism. In P. A. Hall & D. Skoskice (Eds.), *Varieties of capitalism: The institutional foundations of comparative advantage* (pp. 1–69). Oxford: Oxford University Press.
Hazelkorn, E. (2008). Learning to live with league tables and rankings: The experience of institutional leaders. *Higher Education Policy, 21*(1), 193–215.
Hazelkorn, E. (2013). World-class universities or world-class systems? Rankings and higher education policy choices. In P. T. M. Marope, P. J. Wells, & E. Hazelkorn (Eds.), *Rankings and accountability in higher education: Uses and misuses* (pp. 71–94). Paris: UNESCO.
Herstad, S. J., Bloch, C., Ebersberger, B., & van de Velde, E. (2010). National innovation policy and global open innovation: Exploring balances, tradeoffs and complementarities. *Science and Public Policy, 37*(2), 113–124.
Holmes, B. (1981). *Comparative education: Some considerations of method*. Boston, MA: George Allen.
Immergut, E. M., & Anderson, K. M. (2008). Historical institutionalism and West European politics. *West European Politics*, *31*(2), 345–369.
Jensen, H. S. (2007). Doctoral education in Denmark. In S. Powell & H. Green (Eds.), *The doctorate worldwide*. Berkshire, England: Open University Press.
Jessop, B. (2011). Rethinking the diversity of capitalism: Varieties of capitalism, variegated capitalism, and the world market. In G. Wood & C. Lane (Eds.), *Capitalist diversity and diversity within capitalism* (pp. 209–237). London: Routledge.
Kalpazidou Schmidt, E. (2007). Higher education in Scandinavia. In J. F. Forest & P. G. Altbach (Eds.), *International handbook of higher education* (pp. 517–537). New York, NY: Springer.
Kauppinen, I., & Kaidesoja,T. (2014). A shift towards academic capitalism in Finland. *Higher Education Policy, 27*(1), 23–41.
Kettunen, P. (2006). The power of international comparison – A perspective on the making and challenging of the Nordic welfare state. In N. F. Christiansen, K. Petersen, N. Edling, & P. Haave (Eds.), *The Nordic model of welfare: A historical reappraisal* (pp. 31–65). Copehangen: Museum Tusculanum Press.
Kim, S. Y. (2013). Government R&D funding in economic downturns: Testing the varieties of capitalism conjecture. *Science and Public Policy, 41*(1), 107–119.
King, R. (2009). *Governing universities globally*. Gheltenham: Edward Elgar Publishing.
Kogan, M., & Marton, S. (2006). The state and higher education. In M. Kogan, M. Bauer, I. Bleiklie, & M. Henkel (Eds.). *Transforming higher education: A comparative study* (2nd ed., pp. 69–84). Dordrecht, The Netherlands: Springer.
Kvil, T. (2004). The Norwegian quality reform: Will governance make a difference in higher education?. In I. Fägerling & G. Strömqvist (Eds.), *Reforming higher education in the Nordic countries – Studies*

of change in Denmark, Finland, Iceland, Norway and Sweden (pp. 89–135). Paris: International Institute for Educational Planning (IIEP) – UNESCO.

Kyvik, S., & Thune, T. (2014). Assessing the quality of PhD dissertations – A survey of external committee members. *Assessment and Evaluation in Higher Education*, *40*(5), 768–782. doi:10.1080/02602938.2014.956283

Li, E. Y., Liao, C. H., & Yen, H. R. (2013). Co-authorship networks and research impact: A social capital perspective. *Research Policy, 42*(9), 1515–1530.

Maassen, P., Vabø, A., & Stensaker, B. (2008). Translation of globalisation and regionalisation in Nordic cooperation in higher education. In A. Gornitzka & L. Langfeldt (Eds.), *Borderless knowledge: Understanding the "New" internationalisation of research and higher education in Norway* (pp. 125–140). Oslo: Springer.

Marginson, S. (2006). Putting 'public' back into the public university. *Thesis Eleven, 84*(1), 44–59.

Marginson, S., & van der Wende, M. (2009). The new global landscape of nations and institutions. In Organization of Economic Cooperation and Development (Ed.), *Higher education to 2030, Volume 2: Globalisation* (pp. 17–62). Paris: OECD Publishing.

Mok, K. H., & Chan, Y. (2008). International benchmarking with best universities: Policy and practice in Mainland China and Taiwan. *Higher Education Policy, 21*(1), 469–486.

Münch, R. (2014). *Academic capitalism: Universities in the global struggle for excellence*. New York, NY: Routledge.

Myklebust, J. P. (2013, May 18). Sharp rise in foreign PhD enrolments in Scandinavia. *University World News*, 272. Retrieved from http://www.universityworldnews.com/article.php?story=20130516151544633

Nokkala, T., & Bladh, A. (2014). Institutional autonomy and academic freedom in the Nordic context – Similarities and differences. *Higher Education Policy, 27*(1), 1–21.

OECD. (2014). *Main science and technology indicators*. Retrieved from http://stats.oecd.org/Index.aspx?DataSetCode=MSTI_PUB

Olson, J., & Slaughter, S. (2014). Forms of capitalism and creating world-class universities. In A. Maldonado-Maldonado & R. M. Bassett (Eds.), *The forefront of international higher education: A festschrift in honor of Philip G. Altbach* (pp. 267–280). Drodrecht, Netherlands: Springer.

Pechar, H., & Andres L. (2011). Higher-education policies and welfare regimes: International comparative perspectives. *Higher Education Policy, 24*(1), 25–52.

Pestre, D. (2003). Regimes of knowledge production in society: Towards a more political and social reading. *Minerva, 41*(3), 245–261.

Pinheiro, R. (2007). *Restructuring efforts in higher education: An analysis of the use of Mergers since the 1980s in four OECD countries*. Tampere: University of Tampere.

Popper, K. (2005). *The logic of scientific discovery*. New York, NY: Routledge.

Potì, B., & Reale, E. (2007). Changing allocation models for public research funding: An empirical exploration based on project funding data. *Science and Public Policy, 34*(6), 417–430.

Royal Society. (2011). *Knowledge, networks and nations: Global scientific collaboration in the 21st century*. London, UK: Royal Policy.

Salmi, J. (2009). *The challenge of establishing world-class universities*. Paris: World Bank Publications.

Slaughter, S., & Rhoades, G. (2004). *Academic capitalism and the new economy*. Baltimore, MD: The John Hopkins University Press.

SNAHE – Swedish National Agency for Higher Education. (2012). *Swedish universities & universities colleges* (Report 2012:18R). Stockholm: SNAHE.

Sörlin, S. (2007). Funding diversity: Performance-based funding regimes as drivers of differentiation in higher education systems. *Higher Education Policy, 20*(3), 413–440.

Teixeira, P. (2009). Mass higher education and private institutions. In OECD (Ed.), *Higher education to 2030* (pp. 231–258), Paris: OECD Publishing.

Unlicane, I. (2014). Why do international research collaborations last? Virtuous circle of feedback loops, continuity and renewal. *Science and Public Policy, 42*(3), 1–15.

Välimaa, J. (2001). A historical introduction to Finnish higher education. In J. Välimaa (Ed.), *Finnish higher education in transition – Perspectives on massification and globalisation* (pp. 1–31). Jyväskylä: University of Jyväskylä, Institute for Educational Research

Välimaa, J. (2005). Globalization in the concept of Nordic higher education. *RIHE International Publication Series, 9*, 93–113.

Välimaa, J. (2014). University revolutions and academic capitalism: A historical perspective. In B. Cantwell & I. Kauppinen (Eds.), *Academic capitalism in the age of globalization* (pp. 33–54). Baltimore, MD: John Hopkins University Press.

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4. THE 'DARK SIDE OF THE MOON'

The Non-Teaching Structures in the Portuguese Higher Education Institutions

INTRODUCTION

The overall purpose of this study is to analyse the transformations that, under the knowledge society and knowledge economy, have emerged in the Portuguese universities non-teaching units. More specifically the focus of attention is the units devoted to knowledge and technology transfer and to the promotion of innovation and entrepreneurialism. In Portugal, studies on this subject are almost inexistent, following a trend observed at the international level (Santiago, Carvalho, & Ferreira, 2014; Krücken, 2003; Geuna & Muscio, 2009). Universities have increasingly diversified their activities trying to materialize the so-called third mission – the economic mission (Etzkowitz & Leydesdorff, 2000) – and/or the transformation of knowledge in a marketable economic value (Wards, 2002; Olsen & Peters, 2005). Clark (1998, 2000) found that some entrepreneurial/innovative universities in Europe have changed their governance model, by strengthening the steering core in the universities top governance and management and expanding their organisational periphery in order to diversify their funding sources. The organisational impact of these strategic actions can be considered as the most prominent in the complexification of the universities structural organisation in the last three decades, particularly at the non-teaching unit's level (Geuna & Muscio, 2009).

In fact, this increasing complexity challenges the predominant distinction established in the traditional bureaucratic-collegial organisation (Weber, 1995) between the professional (teaching) units and the non-teaching ones, which are commonly known as support services and techno-structure (Mintzberg, 1990, 1995). This challenge is mainly based on external pressures and demands.

However, even if these non-teaching structures have an increasing importance in higher education institutions, representing a relevant dimension of their funding and the core of knowledge and technology transfer, less is known about the way they function. There is a lack of knowledge concerning its governance structures, their importance within higher education institutions and their relation with the other more traditional teaching and research units. Taking this lack of knowledge, one can argue that these non-teaching units represent a dark side, or an unknown area, for which more analysis and clarification are needed.

C. Sarrico et al. (Eds.), Global Challenges, National Initiatives, and Institutional Responses, 55–76.

In Portugal the pressures to materialise universities third mission were mainly induced by the HE science and technology policies of the Portuguese state, since the end of nineties, influenced by market, managerialism and entrepreneurialism ideas. In this context, it is relevant to analyse how the universities interpret and respond to these pressures. Are there convergent elements in these interpretation and responses configuring an isomorphic phenomenon?

SUMMARIZING THE INSTITUTIONAL CHANGES IN THE PORTUGUESE HE ENVIRONMENT

Since the middle of the nineties (Santiago & Carvalho, 2008; Santiago, Carvalho, Amaral, & Meek, 2006), following the international tendencies (Deem, Hillyard, & Reed, 2007; Frolich, Huisman, Slipersaeter, Stensaker, & Botas, 2013), the spread of the knowledge society/economy narratives started to be increasingly explicit in Portuguese HE environment, framed by the wider social and political ambiance of the enterprise and competition philosophy (Foucault, 2004). Knowledge society is the most popular narrative, used along the last three decades, to signify the importance of knowledge for society's economic and social development. It has become a popular concept, used with different meanings, even if inter-related. Bell (1973) was, along with others as Drucker (1993), one of the prominent authors referring to post-modern society as knowledge society. From an economic perspective, two reasons are appointed to classify contemporary society as knowledge society: first, Research and Development (R&D) is considered as essential to promote innovation and improve the economy; second, a large share of employment and a large proportion of Gross Domestic Product (GDP) are related with activities associated with knowledge. Even if the concept was already used, it was mainly with the European Council, held in Lisbon in March 2000, that knowledge society/economy started to be included in political discourses. In this Council, Europe redefined its policy and actions aiming to become the most competitive and dynamic knowledge-based economy in the world. To accomplish this, Europe proposed to: improve its attractiveness to researchers; reduce administrative obstacles to promote European researchers' mobility within the EU; enhance the interaction between universities, scientists and researchers and also between industry and commerce to increase technology transfer and innovation. Knowledge society/economy is here assumed as a political narrative sustained in the belief that knowledge production and dissemination play an important role in the acquisition of national competitive economic advantages.

Assuming Magalhães and Veiga perspective, knowledge society/economy is here presented as a narrative since it is used to understand how it can "enact and influence the development of social and political practices" (Magalhães & Veiga, 2015, p. 313).

The attempts to transform European societies into knowledge economies have been mainly visible in science and technology policies. As in Portugal most of the Portuguese scientific research is carried out in Higher Education (HE) (Santiago,

Carvalho, & Relva, 2008; Heitor & Bravo, 2010) this sector has been the main tool used to foster knowledge society/economy.

At the system level, the Portuguese state developed a new set of policies that tried to align HE with the knowledge society/economy narratives. These policies were sustained on the idea that knowledge is more valid if it is useful and transferable to the market, or if it has an economic value. Orient knowledge production to its utility is expected to lead to innovation, entrepreneurialism, economic growth, more qualified and better paid jobs and a "higher standard of living for all" (Ward, 2012, p. 129).

Framed by these expectations, a set of political measures were taken in the beginning of 2000s aiming at stimulating research and technological development on private enterprises, joint ventures and public organisations (Santiago, Carvalho, & Relva, 2008; Carvalho & Santiago, 2013). A system of tax incentives for private enterprises was approved in order to promote enterprises R&D activities (with 32.5% of costs in R&D being deductible). Since in Portugal knowledge production is highly concentrated in HEIs, this system of tax incentives was also a stimulus to the imposition of a triple helix model by incentivating articulated research practices between enterprises and HEIs. The HE Act, approved in 2007 (Law 62/2007), institutionally legitimated this purpose, with the article 2, clearly expressing that Higher Education Institutions (HEIs) have the right and the duty to participate in binding activities to society "(…) in particular for the dissemination and transfer of knowledge, as well as economic value of knowledge".

Shaped by this political scenario, Portuguese HEIs were induced to reconfigure their organisational structures, mainly through the creation of non-teaching units especially devoted to knowledge and technology transfer and to the promotion of entrepreneurship. Non-teaching units include all the organisational units which have as main purpose to promote interactions between HEIS and, on one hand, scientists and researchers and, on the other, industry, services or commerce. Even if some of these units may rely on the combination of teaching and research activities this is mainly developed with the purpose to transfer knowledge and not in a Humboldtian perspective. Meaning to improve the knowledge production to be transmitted to students in a lecture environment as is the case of the traditional teaching units (as, for example, faculties, schools and departments). These non- teaching units assume several organisational forms and do not fit into the traditional ideal type of a bureaucracy. They present distinct legal statute (it can be public, private, profit and non-profit) and incorporate different governance models. In this sense, key issues as their specific nature, roles inside universities and governance structures are an institutional 'dark side'.

The main political instrument used to activate the processes of knowledge transfer and entrepreneurialism was the funding constrains. Faced with budget cuts HEIs, and more specifically universities, were pushed to search and diversify their funding sources. Previous studies, although mainly focused in changes in the academic structures and processes, tried to analyze the way Portuguese HEIs

interpreted and responded to these changes. The main conclusions were that a more vertical integrated organisation, based in policy and strategic power concentration at the top and operational decentralization, emerged in HEIs aiming at to deconstruct the previous loosely coupled organisational order (Carvalho & Santiago, 2010ab; Amaral, Magalhães, & Santiago, 2003). The theoretical landmarks that framed these studies were inspired on Weber (1995) proposals on bureaucracy, on its collegial version, and, for some of them, on the new institutionalism (Carvalho & Santiago, 2010b).

HOMOGENIZATION OR DIVERSIFICATION IN STRUCTURE CHANGES?

Weber (1995) theory of bureaucracy is still a relevant conceptual instrument to support interpretations on how HEIs change their structures, processes and collective behaviors according to rational principles of hierarchy and efficiency. However, the classic and more recent sociological version of the organisational institutional theories (DiMaggio & Powell, 1991; Fligstein, 1999; Greenwood & Hinings, 1993; Lounsbury, 2002; Lounsbury & Ventresca, 2003; Scott, 2001; Thornton & Ocasio, 2008; March & Olsen, 1989) helps to address, conceptually and empirically, the increased complexity of the universities organizational non-teaching structures. Institutions refer to broader cognitive, normative, regulative (Scott, 2001) and cultural forces (Thornton & Ocasio, 2008), which are related with beliefs, values, interpretative schemes and principles of organisation settled in the wider environment, shaping the organisational forms and the organisations' internal and external interaction patterns and practices. In this sense, the non-teaching structures (and the teaching ones) can be considered as primarily influenced by broader social institutions (like government, enterprises, professional associations, non-profit institutions, etc.), working as supra-organisational patterns in the HE environment. These patterns shape cognitions, behaviors and actions in a conflicting process of construction and deconstruction of a given organisational order.

The classical perspective on the new institutionalism, assume that these supra-organisational patterns induce organisations to develop isomorphic mechanisms through the adoption of similar policies, strategies and structural configurations to face transformations in their institutional environment (Powell & DiMaggio, 1983; DiMaggio & Powell, 1991). In changing processes institutions, rather than becoming more differentiated, they become in fact more homogenous, namely when they are embedded in high institutionalized environments, as is the case of the Higher Education (HE).

A more recent approach of new institutionalism, based on the concept of institutional logic (Thornton & Ocasio, 2008), can be a useful tool to understand why the bureaucratic-collegial elements persist as supra-organisational patterns influencing the universities' organisational field, despite of its conflictual nature with the corporate or managerial transformations dominant in the broader environment. Both logics (the bureaucratic-collegial and the corporate) are forming the overall

institutional scenario where universities can select elements to build their identity and legitimacy and to transform their organisational structures, as well as their governance and management systems.

Other recent new institutionalism approaches (Fligstein, 1999; Lounsbury & Ventresca, 2003; Scott, 2001; Frolich et al., 2013; Greenwood & Lachman, 1996; Greenwood & Hinings, 1993) although maintaining the hypothesis on the key role played by supra-organisational patterns in the organisations structuring, contrary to classical perspectives, stress differences arising from these processes. Trying to avoid determinism, this approach draws on 'old' institutionalism (Selznick, 1996; Baldridge, 1971; March, Cohen, & Olssen, 1972; Simon, 1996) to emphasize the role played by the actors' preferences, values and concepts and by the conflicts and the negotiations about the organisations' interpretations and responses to their environmental pressures.

METHODOLOGY

Taking this context, the overall objective of this chapter is to contribute to construct knowledge on the Portuguese HEIs non-teaching dimension. It aims to analyse how non-teaching structures have been changing and, in a more specific way, to clarify the processes, content and meaning of these changes developed within the new institutional patterns of knowledge society/economy.

Framed by the theoretical context of bureaucracy and institutionalism, the first specific objective of the chapter is to identify and to characterize the different non-teaching structures existent and their function or purpose within HEIs.

The chapter intends to answer three main questions: Is there an isomorphic phenomenon in the interpretation and responses universities developed to the external pressures in the way non-teaching structures change? Which are the contents of these interpretations and responses? Are there any differences in them according to the universities specific characteristics (like age and size)?

To accomplish this objective a qualitative-interpretative method was developed, based on content analysis of HE policy and legal documents and also of HEIS' web pages and institutions' documents related to the internal statutes, institutional policies and strategies. The structural composition, profile, mission and objectives of all administrative services as well as of new organisational forms created in HEIs were examined along with their location in the organization structure. Based on these analysis it was possible to empirically characterize: the type of non-teaching structures existing in HEIs and, among them, those that have been readapted and created in the last decade; and the locus and modus operandi of these structures within HEIs organisational landscape (control, regulation, coordination, administrative and management routines, support to transference and support to teaching and research).

The multi cases study was the methodological strategy elected to support the analysis. The sample was composed by five public universities – two 'classical' and

three 'new' universities – selected in different regions of the country. This selection was developed in order to enable a comparative analysis based on the HEIs age, size and regional location.

This selection was based on universities: (i) public nature, as public institutions must comply with the same legal framework; (ii) age – old and new – based on the date of their establishment; (iii) juridical nature – public foundation or public university; (iv) dimension – number of students enrolled; (v) structural organisation; and (vi) geographical location (in the North, Centre or South regions of the country). (Table 1) It was assumed that these universities' characteristics corresponded to the variables that could have influence in their behaviour in terms of the way they organise their non-teaching activities and create organisational structures to support them.

It is relevant to clarify that Portugal has a binary HE system with both universities and polytechnics and public and private institutions. The reasons for restrict the sample to public universities are related with the fact that research activities are more concentrate in these institutions (polytechnics and private universities are more oriented to teaching then to research). Simultaneously, it was mainly through science and technology public policies that the state intended to implement knowledge society/economy. The use of budget constraints to foster entrepreneurialism and knowledge transfer was more evidenced in public HEIs, since these are more dependent from state funding.

Table 1. Universities' characterisation

University	*Age*	*Juridical Nature*	*Number of students*	*Structural organisation*	*Geographical Location*
UP	1911	Public Foundation	31.000	Based on Faculties	North
UA	1973	Public Foundation	15.000	Departmental and Interdisciplinary	Centre
UC	1290	Public university	23.386	Based on Faculties	Centre
UM	1973	Public university	18.940	Schools and Institutes	North
UNL	1973	Public university	19.000	Departmental and Interdisciplinary	South

Source: HEIs' official websites and CRUP's (Public Universities Rector's Council) website

Based on the theoretical framework, in order to grasp this complexity, a content analysis grid was built with the purpose of serving as a guideline for the interpretation of the meanings of the emergence of these non-teaching units in universities. The categories are presented in Table 2, as well as their short conceptual definition.

Table 2. Characterisation of the categories used in the content analysis

Category	*Content*
Purpose and legitimacy	The overall social and economic purpose of the units (for what?); main target (which areas and problems have to be attended?) The search for social prestige, social recognition and reputation (what is our position in the university internal field?)
Organisational forms and *locus*	The organisational profile of the units, their location in the organisational set and their relationship with other units (What type of units exist and where are they located?)
Authority and power	The main source of authority and power in decision-making to accomplish the management objectives (who are the main responsible and most influent in decision-making?)
Identity	The main features defining its specific nature comparing with the other types of units (who are we?)

FINDINGS: CHARACTERISING NON-TEACHING STRUCTURES

The content analysis of the five universities public documents and web pages show that the universities non-teaching units devoted to knowledge dissemination and technology transfer and to the promotion of innovation and entrepreneurialism have a high degree of complexity. This complexity goes beyond their structural dimension, involving also issues linked to the unit's affirmation as key instrument to the implementation of the universities policies and strategies in the framework of knowledge society/economy narratives.

Purpose and Legitimacy

The content analysis of the universities mission statements was only focused on those displayed in the non-teaching units and not in the universities institutional global mission. This analysis evidenced that the missions of the non-teaching units are very similar in their contents shaped by the knowledge society/economy narratives revealing isomorphic tendencies in institutional discourses. Independently from the specific nature of these units – knowledge transfer offices, science/technology parks, technological units, incubators and others – their missions are defined around very similar core themes. These are related with mode 2 of knowledge production (see Gibbons et al., 1994), post-academic science (Ziman, 1994) and third mission (Etzkowitz, 1997). The economic value of Knowledge, the knowledge and technology transfer to society (meaning by society mainly the entrepreneurial world), the innovation and the partnerships with enterprises and entrepreneurs are the most important themes included in the mission's statements. For instance, three

universities – two old and one new – defined the mission of their non-teaching units in very similar terms:

> The University of Porto is an institution that opens its doors to companies and other institutions interested in collaborating with our researchers to apply the university brand to discoveries and inventions (…). (UP – UPIN – old university)

> Innovation = University of Coimbra (…). The DITS's mission is to provide support services to the definition, promotion and implementation of University policies in the areas of the knowledge economy and entrepreneurship as part of an ecosystem of innovation (…). (UC – DITS – 'old' university)

> The TecnoMinho is a University of Minho interface unit that aims to promote their connection to society (…). (TecnoMinho – new university)

These mission statements express not only a commitment of each non-teaching unit with the narratives of knowledge society/economy, but also a broader desire, at least in rhetoric terms, to commit all the university campus. However, it is mainly at the level of these specific statements, and not in the global mission statement, that universities affirm their commitment to research and knowledge commercialization, marketization, innovation, entrepreneurialism, etc. In this sense, it is possible to argue that there is a multidimensional perspective in each university mission statement, which reflects, probably, the plurality of external pressures and demands mixed up with the traditional social, cultural and symbolic capital legacy. The two faces of Janus Head seem to be an accurate metaphor to characterize the co-existence of the two logics in the definition of the universities and non-teaching units: one, more general, is linked to the traditional academic archetypes historically institutionalized in the HE environment; the other, unveiled in the non-teaching mission statements, is linked to the ongoing institutionalization of new market and entrepreneurial archetypes attached to knowledge society/economy.

The transformation of knowledge in technological innovation and products, as well as the promotion of entrepreneurialism are not presented in a negative way by old and new universities. Furthermore, the majority of the universities in the sample assume themselves openly as agents/actors of the entrepreneurial values and culture, as well as relevant agents/actors in the creation of entrepreneurial and innovation systems. Apparently, the discourses on innovation are assumed by the universities uncritically as positive. However, as referred, this is still presented in separate terms when confronted with the universities global core mission, which is mainly traced on the shoulders of the traditional academic knowledge institutional logic.

In general, the Portuguese universities of the sample followed the same track promoted by the European and national policies in reframing the institutional framework of knowledge production and dissemination. Both European and national policies assumed the need to increase research partnership with economic agents (industry, services and commerce), knowledge transfer and entrepreneurship

as the only way to implement knowledge society/economy and foster economic development (Zaharia & Gibert, 2005; Shattock, 2005).

In their interpretation and evaluation of the pressures and demands created by knowledge society/economy, universities are giving isomorphic responses to "what problems must have to be addressed", "what actions have to be undertaken" and "what possible solutions can be sought".

But, if universities share similar archetypes in the construction of these isomorphic responses, they categorize them according to different political, cultural and social logics, configuring a phenomenon of embedded agency (Seo & Creed, 2002). Universities act under the influence of the same wider institutional logic, but they reinterpret this institutional logic in a different way. The two old universities, maybe due to their more consolidated social, cultural and symbolic capital (Bourdieu, 1984), see themselves as innovators, conceived as a component of their own nature. For instance, the University of Coimbra (the oldest university in the country, created in the XII century) assigns to itself the epithet of "innovator, together with tradition as a legacy of the past". In a similar vein, the University of Oporto claims also that it has always been in the "front-run of knowledge innovation and creativity". In this context, the new societal and knowledge economy exigencies are assumed as natural meaning as a characteristic that is part of the historical tradition of the institution.

The three new universities of the sample have a different approach in the selection of their fields of action. One of them (University of Aveiro) categorize these fields under the notion of "cooperation with society". This means that its strategic purpose is to be a central player in regional networks of entrepreneurial agents/actors, depending on them the fuelling of knowledge society/economy activities. Its strategic actions (namely knowledge and technology transfer, inter-institutional and inter-organisational networks) and instruments (park of science and technology, incubators, among others), together with pay-services and projects to get and diversify its source of funds, are mainly conceived to create nodal points in the relationship with the local and regional entrepreneurs. Technological innovation, knowledge commercialization and entrepreneurship are not conceived in one-way direction, as in the old universities sub-group, but seem to be thought as bi-directional.

> Partnerships in the design and development programs and strategies and the active participation in the realization of joint projects are now practices rooted in the institution to promote knowledge production and dissemination. (UA – Cooperation with society – New university)

The other new university (UM – University of Minho) follows a similar track, but through categorizing its strategic actions and instruments as a support to conquer a key leadership role in the formation of a regional ecosystem of innovation. The dependency from the external entrepreneurial agents/actors is more related to the external acknowledgment of its key role.

> Taking the extraordinary complex challenges that the textile industry faces in nowadays, [the university of Minho] is called to play a decisive role: to propose solutions to industrial problems and contribute to the good performance of the industry. (UM – DET – New university)

Finally, the third new university (UNL – New University of Lisbon) takes a different pathway on the definition of a global strategy of action to give sense to its non-teaching activities: a self-transformation in order to be in itself an internal teaching and research entrepreneurial-like ecosystem. This may correspond to what Clark (1994, 2004) and Shattock (2005) called the entrepreneurial university; in other words, the incrustation of the entrepreneurial culture in the university heartland as a central condition to meet the requirements of knowledge society/economy. In this case the attempts to institutionalise an entrepreneurial university maybe related with competitive strategies. In fact this university is situated in the capital of the country (with other public universities in the same city) and has a small dimension (taking the number of students), turning the need to present a distinctive element from the others more relevant.

In the deconstruction of parts of the prevailing institutional and organisational order, the universities, mainly through the instrumental support of their non-teaching units, imports and exports cultural, social and economic symbols which they use, deploy and mobilize to define new jurisdictions of legitimacy (Greenwood, 2005). However, these symbols are part of the new dominant institutional order in HE which provides universities with the drivers of sense making to transform, at least, some of their organisational parts. In this process, isomorphism exists only at the symbolic and rhetoric levels. But differences are detected on the way universities use them in strategic actions oriented to their internal and external environment.

The creation of non-teaching units as the Entrepreneurship office in Nova university is used as a way to stimulate the creation and development of an internal 'entrepreneurial ecosystem', meaning the creation and legitimation of a new organisational culture based on entrepreneurship values and norms able to legitimate the existence of a new cognitive-cultural framework in order to change the way internal actors (and more specifically students) think and act. On contrary, in old universities the creation of non-teaching units seem to be more related with the attempt to transfer to the external environment the knowledge/innovation they produce. In fact, these universities assume themselves as the main source of innovation which they have to spread to society and the entrepreneurial world in order to bring benefits to knowledge economy. The non-teaching units are considered as key actors or the main drivers in this externalization process.

Finally, the other two new universities adopt a more nuanced strategy in the legitimation of their non-teaching units through mixing the 'import' and 'export' of innovation and entrepreneurial cultures. They claim to be themselves committed to innovation in knowledge and technology transfer and its conversion in economic value (through the creation of knowledge based spin-offs and

employments), but they stress also the role achieved in this process by partnerships with the industry.

Organisational Forms and Locus

In the framework of the new institutional environment universities are impelled to become "more rationally organized, economically responsible, 'accountable', and to produce economically useful products" (Ward, 2012, p. 131). As seen above, universities readapt and create new units devote to promote entrepreneurialism, business incubation and knowledge and technology transfer.

Within the universities set, as it can be observed in the Table 3, the organisational forms supporting knowledge production under the frame of Mode 2 (Gibbons et al., 1994), post-academic science (Ziman, 1994, 2000) and third mission (Etzkowitz, 1997), are much diversified, as are also their organisational locus. In the former, the main organisational characteristics of non-teaching units are their hybridism combining elements of the academic and entrepreneurial cultures. The offices and units that assure the control and regulation of innovation, knowledge transfer and knowledge marketability (management of industrial propriety, partnerships with industry, entrepreneurship actions, technology transfer, networks and so on) are under the supervision of the Universities Rectorat, integrated into the logic of the university bureaucratic organisation (eventually a multidivisional logic), even if they are internally ruled according to the enterprise/entrepreneurial logic of organisation. In this sense, these non-teaching units can be categorized as quasi-enterprises. In the two old universities these units are located at the central administration level, being under the direct support services of the rectorate for knowledge and technology transfer.

Figure 1 presents the way DITS (Division of Innovation and Transfer of Knowledge) is assumed in the University of Coimbra organisational structure. This non-teaching unit was created in 2003 within the rectorate aiming at "– Identify opportunities to make the transfer of knowledge and innovation to society and the business world; – Support initiatives and projects that turn such transfer effective" (UC – DITS – 'old 'university). The office of DITS is in the Rectorate but other partners are part of it as: Companies; commercial associations; local government; R & D units; offices of technology transfer; Incubators; technology parks and other universities. This non-teaching unit is led by the university administrator. In this sense, this non-teaching unit can be assumed as a quasi-enterprise since it is an interface unit located in the top but ruled by an administrator and with a similar statute to their partners.

In opposition, in two new universities, similar units are located at the middle organisational level enjoying an organic equivalent statute to any other teaching unity. This may signify that in old universities, non-teaching units have an entrepreneurial dimension and are more clearly separated from the teaching units. In these two new universities (UA and UM), although non-teaching units have similar characteristics as those in the old universities, these are not a component of the universities central

Table 3. Non-teaching units' organisational forms

Organisational forms							
Academic units as quasi-enterprises		*Enterprises as quasi-academic units*		*Enterprises*		*Networks*	
Charac.	*Locus*	*Charac.*	*Locus*	*Charac.*	*Locus*	*Charac.*	*Locus*
Office/Units of Knowledge Transfer and Entrepreneurship Offices	Internal and external Interface units located in the top (Rectors Offices – UC; UP; NUL) and middle organisational levels (UA; UM).	Parks of Science and Technology Incubators	External interface units locate at the organizational periphery level (UC; UP; UA; UM)	Participation in the capital of private business enterprises	Units located outside the organisational boundaries (UP; UA; UM)	Participation in private and public associations – Local, National and International Networks	Units mainly located outside the organisational boundaries (autonomous) (UC; UA; UM; UP; NUL)

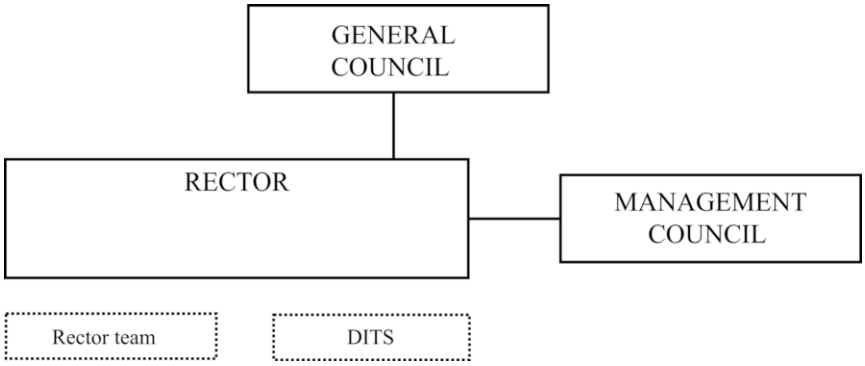

Figure 1. Organisational position of DITS (Division of Innovation and Transfer of Knowledge) at the UC.
Source: Elaborated based on the information in: http://www.uc.pt/gats/quem_somos

administration structures. In this sense, these non-teaching structures have an organisational statute quite equivalent to teaching units, being also more oriented to external activities. However, independently from their organisational settlement all the non-teaching units try to achieve a bi-directional role: an internal interface role, between research units and the incubators, parks of science and technology and like, being this role linked to the selection of transferable and marketable knowledge; and an external interface role between universities and the entrepreneurial world with these units helping to commercialize and sell knowledge in the marketplace.

The third new university of the sample configures a top-down attempt to embed all the university in the entrepreneurship policies, strategies, culture and behaviour. All the university is an internal/external interface entrepreneurial-like unit behaving as a quasi-enterprise (Etzkowitz, 1997). This encompasses the assumption of the university-enterprise idea in an anthropological sense – the university as a collective actor involved in its entrepreneurial-like self-governance in order to maximize its participation in the HE market (Etzkowitz & Zhou, 2008; Geuna & Muscio, 2009).

> The Office of Entrepreneurship at the NOVA University of Lisbon (NOVA entrepreneurship Office) has as main objective the creation and development of entrepreneurial ecosystem within the University, through the involvement of various entities. In this way, the University created a new structure called the Council for Entrepreneurship, were all the schools from the University have participation in all decisions relating to the activities of entrepreneurship, ensuring the involvement of the University and the existence of a true multidisciplinary work. (NOVA entrepreneurship Office – new university)

Other non-teaching units from old and new universities, as the parks of science and technology and incubators, are more autonomous, turning the boundaries between universities and the entrepreneurial tissue apparently more fluid and

mutually inter-permeable. Furthermore, the existence in these non-teaching units of scientific councils, as instruments mediating the interactions with the external spaces, allows to categorize them as quasi-academic enterprises.

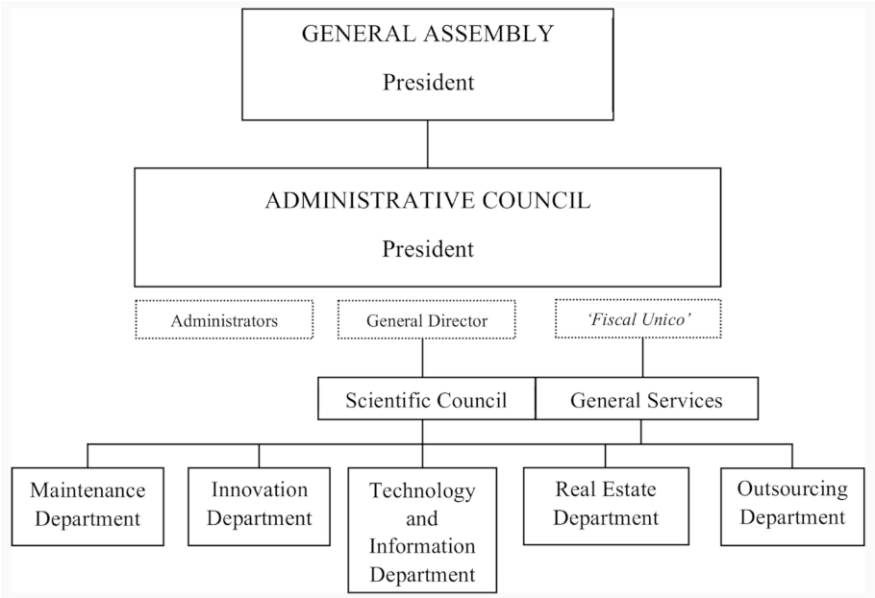

Figure 2. Organisational structure of AVEPARK

This diagram of AVEPARK (Figure 2) can be seen as an example of an Enterprises as quasi-academic units. The AVEPARK, created in 2004, is juridically classified as an anonymous society (or a corporation), whose main shareholders are: City Council of Guimarães (51%); Association of S&T Oporto Park (15%); University of Minho (15%); Minho Industrial Association (15%) and Commercial Association of Guimarães (4%). Although it is a corporation it has closer relations with academia. For instance, the President of the Administrative Council is a full professor from the University of Minho and to be approved projects have to be evaluated by the Scientific Council.

The graphic examples of these two units demonstrate that hierarchical control deployed by universities over their activities is much more indirect and diffuse in units classified as Enterprises as quasi-academic units, when compared with that deployed over the offices and units of knowledge and technology transfer, settled at the universities central administration (rectorate) level.

In fact, the more peripheral non-teaching units, dealing with the production of special products and services (spin-offs, start-ups, acceleration of enterprises, services to and partnerships with mature enterprises, partnerships with private and

public non-profit associations, partnerships with local, regional and national public entities) are more difficult can be to establish networks and exchange knowledge and information with the central administration of the university.

It is important to mention that the science and technology parks and incubators are also supported by enterprises and local and regional private and public non-profit associations, which can have a relevant role in the definition of these units strategies and management (as in the example of AVEPARK). However, this post-bureaucratic mode of organisation, appealing to more horizontality, displays complex mechanisms that do not avoid verticalization (Lundholm, Rennstam, & Alvesson, 2002). The non-teaching units are not loosely coupled structures but, on contrary, they are straight integrated in the universities key policies and strategies developed to face the new supra-organisational patterns attached to knowledge economy. The participation of full professors in the administrative councils of these parks are a good example of this.

Another field explored by universities outside their organisational boundaries is connected to their participation in business enterprises and in different networks on local, regional, national and even European systems, programs or actions on innovation and entrepreneurialism. Universities can have important positions in business enterprises when these emerge as an outcome of their commercial strategies. They can be also the main nodal point in the local and regional networks oriented to the building up of systems of innovation and entrepreneurship, which, often, emerge as a response to incentives offered by state or European Union. These networks, if they assume the professional and entrepreneurial association form, are organisationally ruled by a bureaucratic-collegial model (executive collegiality – see Weber, 1995) as is stated by the Portuguese non-profit associations general law (an elected executive board, a general assembly and an audit committee).

The implications of the adoption by universities of a set of rules and organisational forms similar to those existent in the entrepreneurial world may be that universities, or parts of them, start to be considered as productive units, like other private organisations. This is a first step of the emergence of a wider isomorphic phenomenon in the HE field towards the reproduction of the market principle of organisation. The old universities of the sample include their units of knowledge transfer in a hierarchical line of decision-making. Simultaneously, they clearly separate these units from the other instrumental non-teaching units (incubators and parks of science and technology) which were located in the organisational periphery or outside it (for instance when these units are co-managed in partnership with enterprises, municipal authorities and associations). On contrary, two of the new universities of the sample assign an organic statute to their non-teaching units, setting them at the organisational heartland, but, on the other hand, as the old universities, placed also incubators and science and technology parks on their organisational periphery or outside. Finally, one of the new universities assume all of its organisational units (teaching and non-teaching) as embedded in the entrepreneurship principle of organisation, but under

the direct hierarchic control of the university central administration (the NOVA entrepreneurship Office is directly dependent from the rector).

Authority and Power

Universities relation with society has become a crucial issue because society, and more specifically, the entrepreneurial world, is assumed as an increasing source of funding for university research and, more generally, identified as a source of economic development.

The attempts to associate knowledge production and industry is assumed as promoting structural changes in universities (Geuna & Muscio, 2009). However, the analysis of the authority and power relations within non-teaching structures reveal that this structural changes can take place outside the university control.

The analysis of the way non-teaching units are controlled and regulated reveals that the power structures supporting them are probably closer to what Clark (1998, 2000) depicted in his case studies on the entrepreneurial/innovative universities – the power strengthening of a small group located at the top universities governance and management, who takes the main strategic decisions, and its spreading to periphery along the hierarchical line. In fact, so far as it is allowed by available data in public documents (universities statutes, unit's statutes, universities and units and strategic statements and internets sites information), the knowledge and technology transfer offices or units are primarily dependent from the rectors' authority. However, there are other non-teaching units where this control and power is shared with other actors (see Table 4).

Table 4. Non-teaching units' sources of authority

Units	*Source of authority*
Office/Units of Knowledge Transfer and Entrepreneurship Offices	Rectors (or Vice-Rectors) assisted by management teams composed by 'non-academics'.
Parks of science and technology (associations)	Rectors shared with public and/or private associations and with business enterprises (networks); assisted by management teams composed by 'non-academics'.
Incubators (association)	Rectors shared with public and/or private associations and with business enterprises (networks); assisted by management teams composed by 'non-academics'.
Participation in non-profit associations and in the capital of business enterprises	Public and/or private associations and of business enterprises – shared with rectors.

Concerning non-teaching units (instrumental units) placed outside the direct jurisdiction of the universities central administration, as the parks of science and technology and the incubators, the sources of authority are usually shared between

the universities (rectors or their representatives), public bodies (city council, local government and local, regional and national associations), private associations (entrepreneurial associations) and business enterprises. Even if this shared authority can be sustained by some sort of collegial model this does not obey to bottom-up dynamics streaming from the universities operational centre, as described in Mintzberg (1990) professional organisation model, but from inter-organisational ones crossing the universities boundaries. These units are neither academic nor support services and techno-structures units but a mixed of both permeated also by external values, scripts, interpretative schemes and principles of organisation coming from the entrepreneurial world. This is the field where ruptures with the institutions of the bureaucracy are more visible and relevant for the analysis of changes brought to the campus by knowledge society/economy wider narratives. This is also the field where the embedded agency role of universities in interpreting and responding to the wider HE environment induces more differentiation in the modes of control and regulation of non-teaching organisational forms in the universities landscape.

Taking the analysis of the sources of authority in non-teaching units is possible to sustain that academic elits are far from having the exclusive control of universities third mission.

Identity

Non-teaching units represent new organisational forms that are distant from the traditional activities of universities. In fact, non-teaching units have an hybrid character being in the crossroad of research, education and innovation. Taking this, it is relevant to analyse the way they are constructing their identity. This is an important element since it is is likely to influence any attempt at transformative change within universities.

Since the first studies, in the middle eighties, that the concept of identity is presented as those features of an organization that its members deem to be the most central, distinctive, and enduring (Albert & Whetten, 1985). More recently, authors as Rajiv Nag and colleagues (2007), based on a constructivist perspective, defend that organisational identity entails members' consensual understanding of who we are as an organization. This perspective is assumed here to mean non-teaching units collective notion of who they are as an organization. Or more explicitly, their notion about their specific aims and roles compared with the existent organisational structures (teaching and research units) in universities. The construction of a specific identity is assumed as crucial to frame their institutional practices.

The issues linked to the non-teaching units construction of identity are of major importance due to units invisibility in the universities organisational landscape (Whitcurch & Gordon, 2010; Szekeres, 2004). Taking this invisibility, related with the fact that they do not have assigned the traditional universities tasks of teaching and research as its primary mission (Mintzgerg, 1990, 1995), the non-teaching units try to give consistence to their identity as key structures in the establishment of

interactions between academics/universities and the entrepreneurial world which allow them to develop their own distinct organisational logic (Thornton & Ocasio, 1999). This attempt to define a specific identity can be categorized around two purposes: to be interface (internal and external) units in knowledge and technology transfer; to be innovators and entrepreneurs in these activities and tasks.

The first purpose is the more common among the non-teaching units, independently from their field of action and structural configuration. For instance, the University of Aveiro unity on the Technology Transference (UATEC), the University of Oporto Innovation Unity (UPIN) and the University of Coimbra unity on Innovation and Knowledge and Technology Transfer (DITS) seeks to position themselves as: "drive[s] for excellence in technology transfer, ensuring a close link between the University and the national and international business community via the valuation and marketing of the knowledge produced within the academic community" (UA – UATEC – 'new' university).

Undoubtedly, this process of identity construction expresses tendencies to affirm interface units on knowledge and technology transfer and entrepreneurialism promotion as the main locus of applied knowledge management. The trend to knowledge marketization and privatization, which includes the commodification and the protection of the universities (and academics) propriety interests – restrictions of the flow of knowledge to society, at a large, through product patents and craft guilds to produce useful knowledge to the marketplace – create opportunities for non-teaching units to define their own specific identity space embedded in the universities global identity. In fact, the non-teaching units are the bridge that universities and knowledge cross towards the market and the entrepreneurial world.

The second purpose – innovators/entrepreneurs – is also included in the frame of non-teaching units' identity construction. This means that the non-teaching units have their distinctive character anchored in the idea of being like an 'epistemic filter' of what can be considered as a 'non-useful' vs. 'useful' knowledge, or 'transferable' vs. 'non-transferable' knowledge, as well as the transferable-useful knowledge that can be converted into technologies, products and applications in knowledge based industries and services. In some cases, the epithet of innovators, as a mark of identity building, is extended to actions involving entrepreneurial-like behavioural changes within the university which can be exported to outside. In this trend, the non-teaching units aspire to be also important players in the creation of innovation or entrepreneurial ecosystems within and outside the campus.

The identity building of the non-teaching units is also submitted to isomorphic tendencies which seem to depend both from the reproduction of the new knowledge society/economy institutional logics, and of its exportability to the entrepreneurial world. This is enacted by the strategic actions taken by universities to acquire more favourable or dominant positions in the HE institutional and organisational fields.

The non-teaching units are considered, in universities of our sample (old and new), as catalysts and organizers of the flows of innovative, entrepreneurial, marketable and transferable knowledge from the academic traditional spaces to their own

peripheral spaces (as is the case, for instance, of parks of science and technology and of incubators) and from here to the local, regional and national entrepreneurial tissue and economy. However, the individual universities strategic actions to affirm the non-teaching unit's identities seem to be deployed in two, but complementary, directions: one is more turned to internally stimulate the fabric of an innovative and entrepreneurial 'soul' in the campus (more in the new universities); the other (the old universities) acknowledge that the innovative and entrepreneurial spirit are already part of the university culture, together with the traditional culture, and what is at a stake is to export it to outside the campus.

CONCLUSIONS

The overall purpose of this study was to analyse the transformations that, under the knowledge society and knowledge economy, have emerged in the Portuguese universities non-teaching units. The qualitative analysis of the institutions documents and websites reveals that there are isomorphic tendencies in the definition of the non-teaching structures mission. All emphasise the knowledge society/economy values, and principles of organisation. In a closer association with the principles of mode 2 of knowledge production (see Gibbons et al., 1994), post-academic science (Ziman, 1994) and third mission (Etzkowitz, 1997), these units highlight in their missions the importance of the economic value of Knowledge, of the need to transfer knowledge and technology to society, of improving innovation and partnerships with enterprises and entrepreneurs. These units are working as the main drivers for a change in the direction of new modes of knowledge production within each university.

But if the definition of their missions reveals isomorphic tendencies, the fields in which they decide to develop their entrepreneurial/innovate activities are not similar. It reveals, in fact the existence of phenomenon of embedded agency. The old universities characterise themselves as innovators. Innovation is presented as a component of their own nature, being their selection of fields of action assumed as a natural extension of this character. The new universities present more diverse options in their fields ranging from the local communities to the internal assumption of their core activities as being related with innovation and entrepreneurship.

Concerning the organisational structures there is also an isomorphic tendency with four different types being identified. The Academic units as quasi-enterprises emerge when the control and regulation of the unit is assured by the Universities Rectorate, even if internally structured according to the enterprise/entrepreneurial principle of organisation logic. The Enterprises as quasi-academic units are assumed by those units that are more autonomous, turning the universities and the entrepreneurial boundaries apparently more fluid and mutually inter-permeable. Finally, the Enterprises is the one more far from the traditional organisational forms dominant in universities and the Networks translated the partnerships universities develop with other formal or informal units. The hierarchical control deployed by

universities over their non-teaching activities is more indirect and diffuse as we go from the academic units as quasi enterprises to the networks.

The analysis of the authority and power allocated to these units reveals that we are in presence of a soft bureaucracy, with power structures supporting them closer to what characterises the entrepreneurial/innovative universities – a power concentration in a small group, located at the top universities governance and management, who takes the main strategic decisions, spreading them to the periphery along the hierarchical line. Even if some non-teaching units, located outside the direct jurisdiction of the universities central administration, have their sources of authority usually shared between the universities (rectors or their representatives), the public institutions (cities, government, local, regional and national associations), the private associations (entrepreneurial associations) and the business enterprises, this does not obey to bottom-up dynamics and do not correspond to collegial models. The identity of these units is defined along two main purposes: to be defined as interface units (internal and external) in knowledge and technology transfer and to be innovators and entrepreneurs in these activities and tasks.

To sum up one can say that from the analysis of these non-teaching units is possible to acknowledge the existence of isomorphic processes but only at the symbolic and rhetoric levels, with differences being detected on the way universities use them in strategic actions oriented to their internal and external environment. However, it is important to highlight that the organisation of these units is highly complex presenting itself as the 'Dark side of moon' concerning organisational structures in universities. In other words, behind its simple appearance, the scale and relevance of organisational forms existent within universities, or with its participation, to promote university-society relations is highly complex being simultaneously the main protagonist of universities reestructuring. Further clarifications, especially in what concerns the governance of knowledge transfer activities, are needed to assert to what extent universities still have the control over their knowledge transfer activities. The analysis presented in this chapter can be a relevant approach to uncover the meaning of the hidden side of 'the moon' and its purposes in the current context of universities'transformations.

REFERENCES

Albert, S., & Whetten, D. (1985). Organizational identity. In L. L. Cummings & B. M. Staw (Eds.), *Research in organizational behavior* (Vol. 7, pp. 263–295). Greenwich, CT: JAI Press.

Carvalho, T., & Santiago, R. (2010a). NMP and 'middle management': How do deans influence institutional polycies? In L. V. Meek, L. Gooedgbuure, R. Santiago, & T. Carvalho (Eds.), *The changing dynamics of higher education middle management* (pp. 165–196). London: Springer.

Carvalho, T., & Santiago, R. (2010b). Still academics after all… *Higher Education Policy*, *23*, 397–411.

Deem, R., Hillyard, S., & Reed, M. (2007). *Knowledge, higher education, and the new managerialism: The changing management of UK universities*. Oxford: Oxford University Press.

DiMaggio, P., & Powell, W. (1991). Introduction. In W. W. Powell & P. DiMaggion (Eds.), *The new institutionalism in organizational analysis* (pp. 1–38). Chicago, IL: University of Chicago Press.

Etzkowitz, H. (1997). The entrepreneurial university and the emergence of democratic corporatism. In H. Etzkowitz & L. Leydesdorff (Eds.), *Universities and the global knowledge economy: A triple helix of university-industrygovernment relations*. London: Pinter.

Etzkowitz, H., & Leydesdorff, L. (2000). The dynamics of innovation: From National Systems and "Mode 2" to a Triple Helix of university – industry – government relations. *Research policy, 29*(2), 109–123.

Etzkowitz, H., & Zhou, C. (2008). Introduction to special issue Building the entrepreneurial university: A global perspective. *Science and Public Policy, 35*(9), 627–635.

Fligstein, N. (1999). *Fields, power and social skill: A critical analysis of the new institutionalisms*. Berkeley, CA: Center for Culture, Organizations and Politics

Frolich, N., Huisman, J., Slipersaeter, S., Stensaker, B., & Botas, C. P. (2013). A reinterpretation of institutional transformations I European higher education: Strategizing pluralistic organisations in multiplex environments. *Higher Education*, *65*,79–93.

Geuna, A., & Muscio, A. (2009). The governance of university knowledge transfer: A critical review of the literature. *Minerva, 47*(1), 93–114.

Greenwood, R., & Hinings, C. R. (1993). Understanding strategic change: The contribution of archetypes. *Academy of Management Journal*, *36*(5), 1052–1081.

Krücken, G. (2003). Mission impossible? Institutional barriers to the diffusion of the "third academic mission" at German universities. *International Journal of Technology Management, 25*(1–2), 18–33.

Lounsbury, M. (2002). Institutional transformation and status mobility: The professionalization of the field of finance. *Academy of Management Journal*, *45*, 255–266.

Lounsbury, M., & Ventresca, M. (2003). The new structuralism in organization theory. *Organization*, *10*(3), 457–480.

Magalhães, A., & Veiga, A. (2015). The narrative approach in higher education research. In *Theory and method in higher education research* (pp. 311–331). Bingley: Emerald Group Publishing Limited.

March, J., & Olsen, J. P. (1989). *Rediscovering institutions: The organizational basis of politics*. New York, NY: Free Press.

Mautner, G. (2005). The entrepreneurial university: A discursive profile of a higher education buzzword. *Critical Discourse Studies, 2*(2), 95–120.

Nag, R., Corley, K. G., & Gioia, D. A. (2007). The intersection of organizational identity, knowledge, and practice: Attempting strategic change via knowledge grafting. *Academy of Management Journal, 50*(4), 821–847.

Santiago, R. A., Carvalho, T., Amaral, A., & Meek, V. L. (2006). Changing patterns in the middle management of higher education institutions: The case of Portugal. *Higher Education*, *52*, 215–250.

Santiago, R., & Carvalho, T. (2008). Academics in a new work environment: The impact of new public management on work conditions. *Higher Education Quarterly*, *62*(3), 204–223.

Santiago, R., Carvalho, T., & Ferreira, A. (2014). Knowledge society/economy and managerial changes: New challenges for Portuguese Academics. In J. Brankovic, M. Klemencic, P. Lazetic, & P. Zgaga (Eds.), *Global challenges, local responses in higher education. The contemporary issues in national and comparative perspective* (pp. 35–58). Rotterdam: Sense Publishers.

Scott, W. R. (2001). *Institutions and organisations*. Thousand Oaks, CA: Sage.

Seo, M. G., & Creed, W. D. (2002). Institutional contradictions, praxis, and institutional change: A dialectical perspective. *Academy of Management Review*, *27*(2), 222–247.

Shattock, M. (2005). European universities for entrepreneurship: Their role in the Europe of knowledge the theoretical context. *Higher Education Management and Policy*, *17*(3), 13.

Szekeres, J. (2004). The invisible workers. *Journal of Higher Education Policy and Management*, *26*(1), 7–22.

Thornton, P. H., & Ocasio, W. (2008). Institutional logics. In R. Greenwood, C. Oliver, & R. Suddaby (Eds.), *The sage handbook of organizational institutionalism* (pp. 99–129). Los Angeles, CA: Sage.

Whitchurch, C. (2008). Shifting identities and blurring boundaries: The emergence of third space professionals in UK higher education. *Higher Education Quarterly*, *62*(4), 377–396.
Whitchurch, C., & Gordon, G. (2010). Diversifying academic and professional identities in higher education: Some management challenges. *Tertiary Education and Management*, *16*(2), 129–144.
Zaharia, S. E., & Gibert, E. (2005). The entrepreneurial university in the knowledge society. *Higher Education in Europe, 30*(1), 31–40.

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PART II

HOW ARE INSTITUTIONS MANAGING THEIR QUALITY AND PERFORMANCE?

CORT-DENIS HACHMEISTER, SINDY DUONG
AND ISABEL ROESSLER

5. MAKING NEW MISSIONS POSSIBLE

Obstacles for and Measures to Promote Research and Third Mission at German Universities of Applied Sciences

INTRODUCTION

Changing Missions of the (German) UAS

German Universities of Applied Sciences (UAS) ("Fachhochschulen") are representatives of a special type of Higher Education Institutions (HEI), which also exists in some other European countries, e.g. in Austria, Switzerland, the Netherlands, UK or Portugal.

Introduced in Germany in the late 60s/early 70s as an instrument for the "massification" of Higher Education, the UAS were originally dedicated solely to teaching. They are covering applied academic disciplines like engineering, business studies, computer studies and social work. In 1985, applied research was included as an additional mission for UAS in the German Federal Higher Education Law ("Hochschulrahmengesetz"). In the following years, all 16 federal states of Germany adapted their state laws accordingly and thus gave the UAS a mandate to pursue (applied) research. In some of the states, this mandate is restricted to research related to teaching and education (Hachmeister, Herdin, Roessler, & Berthold, 2013).

Looking at Europe as a whole, Lepori & Kyvik came to the conclusion that it seems accepted in nearly all countries that UAS should have the right to do research. According to the authors it's rather a question,

> […] if these institutions will succeed in developing a distinct profile with emphasis on use-inspired research. (Lepori & Kyvik, 2010)

Definition of Research and Third Mission

In its "Frascati Manual" the OECD defines two different kinds of research activities. Basic research is defined as

> […] experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, without any particular application or use in view. (OECD, 2002, p. 77)

C. Sarrico et al. (Eds.), Global Challenges, National Initiatives, and Institutional Responses, 79–97.

Applied research on the other hand

> […] is also original investigation undertaken in order to acquire new knowledge. It is, however, directed primarily towards a specific practical aim or objective. (OECD, 2002, p. 78)

As the name Universities of Applied Science already implies, applied research is the more common of the two activities at UAS.

In addition, related activities like development and technology transfer, which belong to the so-called "Third Mission" (Görason, Maharajh, & Schmoch, 2009; Benneworth & Zomer, 2011), have also become more important for the UAS, as we showed in a recent paper (Roessler, Duong, & Hachmeister, 2015). During the last years, Third Mission has turned into a multidimensional concept. It contains cultural and social as well as political and economic dimensions. It is fair to say that Third Mission has become "a mature additional mission of universities" (Benneworth & Zomer, 2011, p. 98).

In a holistic view, Third Mission is an umbrella term for HEI activities that are directed towards society and activities in which the attention lies on civil trends, needs and requirements (Roessler, Duong, & Hachmeister, 2015). Third Mission comprises activities like technology and knowledge transfer, continuing education, social and regional engagement or projects in cooperation with a non-academic partner. These examples point out, that Third Mission cannot entirely be separated from research. Some activities like research-cooperation with non-academic partners can be classified as Third Mission as well as (applied) research.

Literature on Inhibiting and Promoting Factors for Research and Third Mission

Even though about half of the Higher Education Institutions in Germany are UAS, only 7 % (454 Mio. Euros) of the total external research funds for German HEI went to the UAS-sector. In 2012, UAS professors received an average of 27,000 Euros of external funds per capita while university professors raised 286,000 Euros, ten times as much (Hachmeister, Duong, & Roessler, 2015). Thus, for the case of Germany, the conclusion of Lepori and Kyvik is supported that UAS are rather a "marginal actor in national research systems" (Lepori & Kyvik, 2010).

However, the online-database Research Map of the German Rectors Conference (HRK) currently lists nearly 200 "key research priorities" at German UAS. These priorities spread over 14 different academic fields, showing already a broad range of research activities taking place at UAS (HRK, 2016).

In 2010, the German Council of Science and Humanities pointed out some of the reasons for the still restricted influence on the national research systems. Table 1 sums up the inhibiting and promoting factors identified by the council. The members of the council identified the high teaching obligation, different staff structure and lack of equipment (with staff as well as with facilities) as the main structural deficits of

UAS in comparison with universities (German Council of Science and Humanities, 2010).

Table 1. Inhibiting and promoting factors for research at UAS, as identified by the German Council auf Science and Humanities

Inhibiting factors	*Promoting factors*
High teaching obligation	Differentiation of teaching load of the professors (between 9 and 18 hours/week)
Staff structure	Additional staff for research administration (to support acquisition of external funds and for project management)
	Obligations of professors taken over by junior staff
Lack of equipment (staff and facilities)	Support cooperation with full universities
	Cooperation platform with suitable partners
	Structural facilitation of already research-active areas at the UAS
No right to award doctoral degrees*	Reliable perspective for qualified UAS graduates to earn a doctoral degree
Disadvantages in acquiring external funds*	German Research Foundation requested to assess applications for funds only by their scientific quality

** These factors were not explicitly named in the publication*

The council also made suggestions on how to deal with these deficits. One of these recommendations was to differentiate and to introduce flexible staff structures: Additional staff for the administration of research was considered necessary for the support of the acquisition of external funds as well as for project management. The professors' teaching load should be differentiated, e.g. by establishing professorships which focus on research with only 9 hours of teaching per week (as opposed to 18 hours for regular UAS professors). On the other hand, junior staff members were supposed to take over some of the obligations of the professors, e.g. in teaching, student support and research.

The Federal States were recommended to put an emphasis on the structural facilitation of research areas already active at the UAS and on supporting research in cooperation with full universities. Therefore, emphasis of promoting research by the Federal States is supposed to be put on supporting structures – rather than directly supporting single research projects.

The council further advised UAS to establish cooperation platforms with suitable partners according to their periphery. This strongly relates to Third Mission (cooperation with local enterprises and non-profit organisations), but also to partnerships with local universities or publicly funded research institutes.

To further enhance research at UAS, a reliable perspective to earn a doctoral degree should be given to qualified UAS graduates. At present, there a number of constraints concerning this. At last, the German Research Foundation, the largest donor of external funds for the full universities, was requested to assess applications for funds only by their scientific quality and not by the type of institution it comes from.

An earlier study by Kulicke & Stahlecker (2004) yielded similar results: According to the study, the higher teaching load at UAS is one of the main differences between UAS and full universities. Another central factor is the short run-time of R&D projects (and employment contracts) combined with problems to provide possibilities to earn a doctoral degree. This causes problems in recruiting junior staff, because qualified alumni (especially in engineering science) find more attractive job alternatives in the free economy.

The study showed that strategies to support research and Third Mission at UAS are as follows:

- promote and concentrate on research priorities
- make public funding contingent on the participation of small and medium enterprises
- provide additional funding without die UAS having to cooperate with enterprises
- reduce UAS-discriminating peer-review (for funding)
- reduce the effort for applying for funding
- establish central research institutes or at-institutes (independent, private institutes which are located at a UAS)
- provide UAS-internal research funding
- provide UAS-internal financial incentives for the professors
- reduce teaching load (for some professors)
- consider the R&D-orientation of the candidates when appointing new professors
- enable cooperative doctoral degrees
- build (alumni-)networks with science and free economy

Open Questions

Looking at the results of the studies presented above, the reasons why UAS do not conduct as much research and Third Mission (e.g. technology transfer) as full universities, seem to be known already. The same applies to the measures that could be taken to promote these activities.

However, the recommendations of the German Science Council are a political paper, with the aim to primarily solve the main problems which are relevant for all UAS. Kulicke & Stahlecker's results are more than 10 years old, which is quite a lot, considering the dynamics of the UAS sector. There also might be further, operative problems at UAS as well as more individual ways to solute them. An assessment of which factors are how important or effective is also missing.

The resulting research questions have been tackled in the context of a research project called "FIFTH – Facets of and Indicators for Research and Third Mission at Universities of Applied Science". In the course of this project, we had the opportunity to conduct semi-structured interviews with rectors and research-/Third Mission-active professors of some selected German UAS. The main objective of the interviews was to understand, which kinds of research and Third Mission activities take place in UAS and which indicators for measuring these activities would be useful.

However, questions on how these activities could be promoted and which obstacles exist for pursuing research and Third Mission at UAS, were also a topic in almost every interview. Even though questions regarding the inhibiting factors for research and Third Mission were not explicitly asked, the interviewees made them a topic themselves. This again revealed the importance and timeliness of the topic to us.

Therefore, inhibiting and promoting factors for research and Third Mission at UAS were analysed in detail. The research questions for the interview material were:

- What are factors inhibiting research and Third Mission activities at UAS?
- What can be done to promote research and Third Mission activities at UAS?

The result of this first analysis were two lists of inhibiting and promoting factors for research and Third Mission at UAS. The resulting factors were then validated by quantitative surveys among rectors, professors and research managers. The questions of the quantitative study were:

- How inhibiting are the identified inhibiting factors?
- How beneficial are the identified promoting factors?

METHOD

Interview Study with Rectors and Professors

The interview study consisted of guideline-based interviews with rectors and other professors of a selected group of UAS. As our project-resources for conducting face-to-face interviews in UAS all over Germany were limited and as the research and Third Mission activities are unevenly distributed over the UAS, we decided to concentrate on those institutions that would presumably be able to give us information on ongoing research and Third Mission activities.

For these reasons, we selected ten rather research and Third Mission intense institutions, identified by the amount of gathered external research funding and by website research. Still, the group included larger as well as smaller institutions, public as well as private and church-sponsored institutions located in eight of the 16 German federal states. So, a sufficient variation between the selected UAS was achieved.

Next to the rectors of the UAS, we interviewed professors that were chosen by the rectorate and were active in research and/or Third Mission. The interviewed professors represented a wide range of scientific fields, mostly from engineering sciences but also from social sciences. As a result, the interviewees were not a fully representative group but rather a group of noticeable active UAS and professors with respect to research and Third Mission. Twelve members of the UAS management and 20 professors were interviewed.

The interviews were analysed and semantically coded using the software MAXQDA. Based on the interviews, a first list of obstacles and possible measures to promote research and Third Mission activities was generated. The various aspects were then further clustered into a shorter list of inhibiting and promoting factors (each including various aspects).

Quantitative Studies

Following the interviews, a series of three quantitative studies (using an online-questionnaire) was conducted to verify these lists of the inhibiting and promoting factors. The three target groups for the studies, were UAS rectors, UAS research managers and UAS professors.

While all the participants could be expected to be familiar with the concept of (applied) research, this could not be expected for Third Mission. Therefore, Third Mission was described to the participants as "[…] activities that go beyond the classical (applied) research and teaching, including science and technology transfer, cooperative projects with external partners from the economy or society, continuing education and regional and social engagement of the universities."

Rectors. The first quantitative study was conducted among the rectors and presidents of 198 out of the 212 German UAS. Some of the 212 institutions, formally classified as UAS, were left out of the sample: In the German higher education system all institutions that are not (yet) allowed to award doctoral degrees are classified as UAS (with the exception of schools of music and art). As a result, the group of the German UAS includes e.g. a private institution with only 12 students, offering philosophy as the only field of study. As these types of institutions are structurally very different from the other institutions, they were not invited to the survey.

The rectors were asked to evaluate the list of eight inhibiting factors as well as a list of 17 promoting factors for research and Third Mission. There were various reasons for asking the rectors to assess the factors for research and third mission in combination (while the research managers and professors got separate lists for both areas). The main reason was that research and (research related) Third Mission activities are closely related. We did not expect very many differences between research and Third Mission regarding e.g. the assessment of the benefits of the reduction of the teaching load.

In total, 84 rectors/presidents participated in the survey, 78 of them answered our questions regarding obstacles and promoting factors for research and Third Mission.

Research managers. Another study was conducted among members of a network of research and technology transfer managers. This group consists of people who are working at departments for research and technology transfer at higher education institutions (UAS as well as universities).

The possibility to survey this group was a result of a workshop given at an annual meeting of these research managers. Within the workshop it became clear, that this stakeholder group has got deep insights into the different activities of the UAS staff. Therefore, the research managers were presented the same list of inhibiting and promoting factors for research, but a slightly modified list for Third Mission: The aspect better possibilities to award doctoral degrees did not seem to make sense as a promoting factor for Third Mission-activities, and therefore was only included in the "research"-list.

In order to keep the whole questionnaire to a reasonable length the questions regarding the benefits of external research funding by various sources (EU, federal government, state government, private sponsoring or private purchasers) were omitted. Another reason for deleting these aspects was that we did not expect very different assessments of the research managers as opposed to the rectors on these questions.

All of the nearly 800 members of the network were invited, 184 of them answered the questions regarding the obstacles for and the ways to promote research and Third Mission activities, 59 from UAS. Here we only present the results from the UAS research managers.

Professors. The last of the quantitative online-surveys was conducted among UAS professors. Altogether, 409 UAS Professors participated in the study. The professors were asked to evaluate only the list of eight inhibiting factors for research and Third Mission from their own point of view. We wanted to know, what personally restrains them from doing (more) research and Third Mission and saw them as experts in this question. Regarding the question, which measures should be taken to promote research, we believed that the answers of the rectors and research managers would give us better information, because the professors are not in the situation to change the basic situation.

The professors have been surveyed during a time period of seven months and three different ways of invitation have been used. Therefore, the survey was adapted according to our findings during the duration of the survey. When we learned from the workshop with the research managers, that the inhibiting factors for research and Third Mission could well be different, separate questions for Third Mission were introduced in the questionnaire.

As a result, 349 professors answered the questions regarding research, but only 242 professors answered the questions regarding Third Mission.

FINDINGS

Identifying Inhibiting and Promoting Factors

Inhibiting factors. Table 2 shows the list of the eight inhibiting factors generated from the interviews with UAS professors and UAS rectors. We classified the factors into internal and external factors.

The first internal inhibiting factor was named "personal aspects". Some interviewees estimated that only about 20 percent of the professors are currently engaged in research/Third Mission projects. In their opinion, many UAS Professors are not particularly interested in pursuing research or Third Mission activities besides their teaching obligation; others do not even have the necessary qualification. Professors that work part-time or just recently appointed professors were said to be in a special situation where they do not find the time to start research or Third Mission activities.

This leads to the second factor called "missing time budget". The comparatively high teaching obligation (16–19 hours/week) and additional time for academic self-administration limits the time that professors can spent for research or Third Mission. A reduction of the teaching load cannot always be granted for various reasons (e.g. if no substitute can be found). As some professors pointed out, the high teaching obligation prevents them from attending exhibitions or meetings with potential project partners to initiate cooperative projects.

The third factor is "missing financial budget, facilities and equipment". It includes the aspects that there is hardly any basic funding for research (i.e. external funds have to be acquired for almost every research project) and that there are sometimes not enough rooms, laboratories, devices or materials available at the institution to conduct research.

Closely related to "missing time and financial budget" is "missing junior staff". UAS mainly employ professors as permanent scientific staff and hardly any non-professorial, junior scientific staff. In the eyes of the interviewed rectors and professors, this staff would be necessary to support the professors in conducting and administering research and Third Mission projects, preparing publications or applications for external funding and in teaching.

Even If there is funding for additional junior staff, e.g. because of external research funds, problems to recruit junior staff might arise. According to the interviewees, highly qualified junior engineers have good job opportunities outside academia, with good payment and longer lasting up or open-ended work contracts. In most cases, the UAS can only offer contracts lasting as long as the (externally funded) project. The only advantage academia could offer is to provide junior staff with the possibility to earn a doctoral degree. As UAS cannot award doctoral degrees

themselves, UAS are dependent on the good will of a professor of a full university to cooperate.

Table 2. Inhibiting factors for research and Third Mission, as indicated by the rectors and professors

Factors	*Aspects*
internal	
Personal aspects	low interest in research and development/Third Mission; missing competence and qualification; employed only part-time; just recently employed at the UAS
Missing time budget	lack of time because of high teaching obligation; lack of time because of obligations in the academic administration; reduction of teaching obligation is not granted; reduction of teaching obligation is granted in general but cannot be realized; missing flexibility to attend meetings (e.g. with possible project partners)
Missing financial budget, facilities and equipment	missing basic budget for research; not enough required rooms and laboratories; required devices and materials not available at the institution
Missing junior staff	missing junior scientific staff for: the conduction of research, preparing publications, research-administration, the administration in general, assisting in teaching
Problems to recruit junior staff	because of lacking opportunities to earn a doctoral degree; because of too low salary; because of too short run-times of the employment contracts; because of attractive job-alternatives outside academia
Problems with administration/ management	missing support from the university management for projects; lack of support for funding-application from the administration; lack of administrative support for the administration of projects with funding organisations; lack of administrative support for the administration of projects with firms and partner organisations; lack of support for the acquisition of projects; legal/tax restrictions for the acquisition realisation of projects
external	
Missing facilitation/ sponsorship	lack of research tradition and culture at UAS, missing (public) support programmes (UAS specific, subject specific), lack of competitiveness regarding the acquisition of external funds; too low success rate for funding applications (federal government, German Research Foundation), too little possibilities of funding from firms; lack of possibilities for cooperation with: firms/NGO's, national and international universities
Problems with providers of funding	too much effort to apply for: national/EU funds; too much effort to administer national/EU projects/projects with firms; too long forerun for (co-)funded projects

The following factor was named "problems with administration/management". Especially the interviewed professors often claimed that the administration was not suited (i.e. lacking qualification and resources) for administrating research projects, especially EU-funded projects with a lot of administrative effort and communication in English. In some cases professors saw too little support by the university management for their research or Third Mission activities. The interviewees also named legal/tax-restrictions that could impede projects.

The last two factors deal with external funding. "Missing facilitation/sponsorship" contains the aspect that UAS do not have a research tradition yet. In the interviewees' opinion, public and private funders give money for research projects rather to universities because they expect a higher quality of the research. In addition to that, there are only a few UAS specific funding programmes and the specific UAS funding programme from the federal government were said to have a very poor granting rate. In the opinion of the interviewees, funding opportunities for applied research are often concentrated on certain themes that are currently popular (e.g. Industry 4.0), leaving other themes with no funding opportunity. The large public research funding by the German Research Community (DFG) is supposed to prevent this kind of selective funding. However, up to now the UAS rarely get funding from the DFG as it has traditionally focuses on basic research projects rather than on applied research.

The very last factor, "problems with providers of funding", includes the aspect that applying for a research project and administering was often described as a large and bureaucratic effort. According to the interviewees, this holds true especially for EU funded projects. Another described problem is that applying and waiting for a funding decision takes too much time.

Promoting factors. Table 3 shows the promoting factors for research and Third Mission extracted from the interviews with the UAS professors and UAS rectors. The factors were grouped into "soft factors", "structural factors", "internal allocation of resources" and "external funding".

The group of soft factors includes "integration of research and Third Mission into the mission statement or strategy plan of the UAS". This factor said to be the basis to build on. Once research and Third Mission are declared as missions for the UAS, the management has a legitimacy to expect professors to engage in these activities.

On the other hand, especially the already active professors we interviewed regarded it as necessary that a "culture of enablement" is established between the professors and the management. This means that if professors want to engage in research or Third Mission, they are convinced that the UAS management will support them in a non-bureaucratic way, e.g. by authorizing and financing official trips to possible project partners or reducing the teaching load.

Table 3. Promoting factors for research and Third Mission, as indicated by the rectors and professors

Factors	
Soft factors	Research/Third Mission integrated in mission statement/strategy plan
	"Culture of enablement" established
	Management expecting professors to engage in research and Third Mission
Structural factors	Central services to facilitate research/Third Mission
	Central research institutes (internal/associated)
	Strategic cooperation with universities, research institutes, enterprises
	Better possibilities to award doctoral degrees
Internal allocation of resources	Reduction of teaching obligation
	Provision of rooms, laboratories and equipment
	Money from management to finance research and Third Mission activities
	UAS paying awards for the acquisition of external funds
	Including performance in research/Third Mission in performance related salary
External funding	Better possibilities for funding… …by the EU or other international organisations …by the federal government …by the state government …by private sponsoring (e.g. funded professorships) …by private or public or private purchasers (industry and NPOs)

The next four factors have to do with the structure of the UAS. Especially larger UAS have established central services to facilitate research as well as Third Mission projects. In most cases, these are Technology Transfer Offices and/or a specific vice president for research. As we have seen in the description of our groups of participants in our quantitative surveys, some UAS even have additional research managers. Central structures assist professors e.g. by providing information on research funding, helping to develop research proposals or administering research projects.

Another way to support these activities is by establishing central research institutes, which can use synergy effects: Research active professors are brought together and resources, such as staff or facilities or means to gain attention (website, publications, and expositions), can be used jointly.

Another way to facilitate research/Third-Mission projects is to establish a strategic cooperation, for example with universities, non-university research institutions or enterprises. Having established such a cooperation was said to reduce the effort to initiate projects, as the partners already know each other.

A close cooperation with a national or international university may then also lead to better possibilities to award doctoral degrees to UAS students. At present, UAS cannot award doctoral degrees themselves, and thus they need professors from universities who cooperate in supervising doctoral students and award the degree. Establishing a joint graduate school together with a full university serves the same purpose.

The following factors have to do with the internal allocation of resources. The reduction of the teaching load of the professors (usually between two and nine hours of reduction off the usual 18h/week) is – as the rectors pointed out – one of the main instrument of the university management to provide resources for research/Third-Mission projects. Next to time resources, rooms, laboratories and equipment have to be provided.

As UAS mostly do not have an own financial budget for research, almost every research requires extra funding from external sources. Thus, the UAS management providing internal money to finance initial research and Third Mission activities was also described as a promoting factor by the interviewees.

Another way of distributing UAS central money to active professors, described by some rectors, was to pay awards for the acquisition of external funds. Most external funds also include a percentage of overhead costs (for the administration, provision of rooms, electricity etc.). Some UAS pass on the overhead share to the departments and professors, thus providing additional resources and an incentive to acquire more external funds.

Yet another way to provide an incentive for the professors to engage in respective projects is to include the performance in research/Third Mission into the calculation of the performance related salary for the professors. The performance related salary for the professors ("W-Besoldung"), was established in 2005. Since then, professors gain a basic salary and can increase this salary e.g. for outstanding performance in research, continuing education or HEI management.

The last factor is to provide better possibilities for funding by various funding institutions like the EU, the federal and national government, private sponsors or project partners/purchasers. The EU provides funding through the Horizon 2020 programme. The German Federal Government provides over 40% of the external funding of the UAS. The Federal States have different facilitating programmes as well (like financing special "research professorships").

Quantitative Analyses of the Inhibiting and Promoting Factors

As stated above, the findings of the interview study were validated by three quantitative studies among rectors, research managers and professors from UAS.

The results of these assessments of the inhibiting and promoting factors for research and Third Mission at UAS are presented in this section.

Inhibiting factors. Table 4 shows the degree of inhibition of the eight inhibiting factors as assessed by the rectors, research managers and professors. The assessments of the rectors apply for both research and Third Mission; the research managers and professors were asked separate questions regarding the two fields.

With some exceptions, the various factors are assessed as inhibiting or very inhibiting by the majority of the participants (>50%). Some of the factors were even reached nearly complete approval (up to 96.6%). Still, an order of precedence of the perceived effectiveness of the different factors becomes visible.

Table 4. Degree of inhibition of the inhibiting factors for research and Third Mission

Group		*Rectors*	*Research Managers*		*Professors*	
Field(s)		*Research/Third Mission*	*Research*	*Third Mission*	*Research*	*Third Mission*
Factors		*Percentage (%) of answers "inhibiting" / "very inhibiting"***				
Internal	Personal aspects	59.7	94.5	90.6	8.1	13.9
	Missing time Budget	96.2	96.6	88.7	93.1	88.8
	Missing financial budget, facilities and equipment	64.9	63.6	57.7	51.8	42.6
	Missing junior staff	88.5	96.5	80.8	94.5	83.5
	Problems to recruit junior Staff	48.1	65.5	68.8	59.3	48.7
	Problems with administration/ management	46.1	59.3	69.2	46.9	39.4
External	Missing facilitation/ sponsorship	80.5	88.1	84.6	74.1	72.0
	Problems with providers of funding	76.6	81.4	78.4	75.6	62.9
Maximum number of answers (n)		78	59	53	349	242*

** The questions regarding Third Mission were only asked for part of the professors' sample. This explains the large difference in the number of answers between research and Third Mission.*

*** Scale ranging from "very inhibiting", "inhibiting", "less inhibiting" to "not inhibiting at all". The professors could also mark "does not apply to me".*

"Missing time budget" as well as "missing junior staff" were seen as the most inhibiting factors by the participants. In second place, both external factors, "missing facilitation/sponsorship" and "problems with providers of funding" were assessed as "inhibiting/very inhibiting" by about 80% of the rectors and research managers. The professors found them a little less inhibiting.

Thirdly, "missing financial budget, facilities and equipment" was rated as (very) inhibiting by around 50–60%, with the exception of the professors assessment of this factor regarding Third Mission (only 42.6 %). At last, problems to recruit junior staff and problems with administration were seen as comparatively less inhibiting by all groups.

The results also show some differences between the assessments of the factors regarding research versus Third Mission: In general, the research managers and professors perceived the factors as a little more inhibitive for research then for Third Mission. However, there are some exceptions from this rule: From the research managers' point of view, "problems with administration/management" are more inhibitive for Third Mission (69%) than for research (59%). Furthermore, "personal aspects" were more often (14 % vs. 8%) seen as (very) inhibitive for Third Mission than for research by the professors.

Further comparing the assessments of the three groups of participants, the research managers perceived all factors as a little more inhibitive compared the other two groups. An extremely inconsistent pattern was found regarding the evaluation of the factor "personal aspects" (low interest or qualification of the professors for research/Third Mission): The research managers assumed this to be a major inhibiting factor, with over 90% of the research managers rating it as inhibiting or very inhibiting. The professors hardly saw it as an obstructing factor for themselves at all (answering "does not apply to me" in over 50% of the cases). Of the rectors, nearly 60% estimated that these personal factors are either "very inhibiting" or "inhibiting".

Promoting factors. Now turning to the promoting factors, Table 5 shows the benefit of the various factors for research and Third Mission as assessed by the rectors and the research managers. Again, the assessments of the rectors apply for both research and Third Mission together; the research managers gave separate answers for the two fields, the professors did not have to answer these questions (see method section for an explanation).

All promoting factors identified in the interview study were seen as "beneficial" or "very beneficial" by the vast majority of participants. Still more than 70% of by both rectors and research managers assessed the least beneficial factor "UAS paying awards for the acquisition of external funds" as "beneficial" or "very beneficial".

Reducing the teaching obligation was perceived as most beneficial by the rectors while the research managers evaluated UAS central services to facilitate research and Third Mission as even a little more important.

Table 5. Benefit of promoting factors for research and third mission

Group	*Rectors*	*Research Managers*	
Field(s)	*Research/Third Mission*	*Research*	*Third Mission*
Factors	*Percentage of answers "beneficial" / "very beneficial"**		
Research/Third Mission integrated in mission statement/strategy plan	82.9	96.4	95.8
"Culture of enablement" established	94.7	96.5	96.0
Management expecting professors to engage in research and Third Mission	88.0	81.5	77.1
Central services to facilitate research/ Third Mission	93.3	98.2	92.2
Central research institutes (internal/ associated)	94.7	92.2	89.1
Strategic cooperation with universities, research Institutes or enterprises	94.6	91.1	94.1
Better possibilities to award doctoral degrees	90.7	92.7	not asked
Reduction of teaching obligation	98.7	96.5	86.3
Provision of rooms, laboratories and equipment	94.7	92.9	82.0
Money from management to finance research and Third Mission activities	96.1	96.5	87.8
UAS paying awards for the acquisition of external funding	78.7	74.5	71.4
Including Performance in research/Third Mission in Performance Related Salary	83.8	90.2	84.8
Better possibilities for funding…			
...by the EU/other international organisations	89.2	not asked	
...by the federal government	94.7		
...by the state government	96.1		
...by private sponsoring (e.g. funded professorships)	78.4		
...by private or public purchasers (industry and NPOs)	89.0		
Maximum number of answers (n)	76	57	50

** Scale from "very beneficial", "beneficial", "less beneficial" to "not beneficial at all".*

Measures that directly try to influence the behaviour of the professors (i.e. mission statement, management expecting professors to engage in research and Third Mission, awards for the acquisition of external funds, including performance in research/Third Mission in performance related salary) were the factors seen as less beneficial. This holds true especially when looking at the results from the rectors' survey. In opposition, a "culture of enablement" was seen as highly beneficial by rectors as well as research managers, for research as well as Third Mission.

Looking at funding, providing money from the UAS management to finance research and Third Mission was estimated as equally beneficial as money provided by the federal government or the state government. All three sources were perceived as a little more beneficial as external research promotion from EU/other international organisations, private sponsors or private or public purchasers.

The research managers considered almost all of the different factors a little more beneficial for research than for third mission. The only exception was strategic cooperation with universities, research institutes and enterprises.

DISCUSSION

The aim of our research was to identify and evaluate (further) inhibiting and promoting factors for research and Third Mission an UAS. Eight inhibiting factors and 17 promoting factors were found in an interview study and later were validated by three quantitative surveys.

It has to be considered, that the method for the identification and the validation of the factors was restricted to gathering (subjective) descriptions and assessments. In order to further quantify and validate the effect of the factors, (quasi-) experimental research designs and/or regression analyses would be needed, e.g. to evaluate, if the introduction of a central service to facilitate research and Third Mission really causes higher research output. In addition, there might be more inhibiting and promoting factors in effect, that were not identified in our study.

Still, considering the expertise and size of the three surveyed groups, the consistency of the answers between the groups and between the interviews and the surveys we regard the results as quite viable. Especially because they also show a lot of consistency with the other studies presented in the introduction, as we show in the next section.

Inhibiting Factors

Comparing our list of inhibiting factors with the factors identified by Kulicke & Stahlecker (2004) and the German Council for Science and Humanities (2010), we find many analogies but also some differences:

- Personal aspects were not in the focus of the other studies, so this was a new aspect in our study.

- Missing time budget has also been described in the other studies. Additional aspects from our study were, that the reduction of the teaching obligation might not be granted for various reasons (no budget, no adequate substitute) and that the high teaching load also causes a missing flexibility to meet potential project partners (e.g. at exhibitions).
- Missing financial budget, facilities and equipment, missing junior staff as well as problems to recruit junior staff were quite similarly discussed in the other studies.
- Problems with administration/management is closely related to the factor staff structure reported by the Council for Science and Humanities.
- Missing facilitation/sponsorship encompasses various problems in acquiring external research funds. That it is a problem was already stated above in comparing the amount of acquired research funds between UAS and full universities.
- In contrast, the problems with providers of funding (e.g. too much effort to apply for and to administer external funding) was not described in the other studies.

Of the factors listed above, missing time budget and missing staff seem to be the most striking, presumably because they have the most direct effect: If there is no extra time and no extra staff available, all resources go into teaching and not research or Third Mission. Missing financial budget and missing facilitation/sponsorship in combination with problems with providers of funding cause a lack of time and staff so they are indirectly inhibiting factors. Problems to recruit junior staff as well as problems with administration may only occur in some UAS and in certain cases – not generally. This might be the reason why these factors were seen as comparatively less inhibiting especially by the rectors and professors.

The contradictory results regarding the factor personal aspects raise questions for further research: While for the research managers this was one of the most inhibiting factors, there was nearly complete disapproval that these aspects were keeping them from doing research or Third Mission. In other words, the research managers think, the professors do not want (or are not able) to do research/Third Mission whereas the professors think they would do research/Third Mission if they had more time, staff etc. The rectors were rather undecided, a few more (59.7%) of them found this factor (very) inhibitive than less or not inhibiting at all.

Promoting Factors

Comparing also our list of promoting factors with the factors identified by Kulicke and Stahlecker (2004) and the German Council for Science and Humanities (2010), we found only very few factors that we could add. It is limited to the two "soft" factors expecting professors to engage in research and Third Mission and the establishment of a culture of enablement.

Especially the "culture of enablement" was perceived as extremely beneficial by rectors and research managers; as beneficial as e.g. the provision of rooms, laboratories and equipment.

This might be a speciality the UAS as comparatively small institutions, where the professors can literally "walk into the rectors office at any time" and the rector is able to find a quick and non-bureaucratic solution. This direct contact also works the other way around: A rector reported that he would regularly contact newly appointed professors and ask them how they are doing with their research-activities – a case of "the management expecting professors to engage". In any way, this "informal" behaviour of the members of HEI, the organizational culture as Schein (1990) puts it, is a field worth studying, as these result show.

At large, all of the 17 identified promoting factors for research and Third Mission are seen as beneficial or very beneficial by at least two thirds of the rectors and the research managers. Our interviews also showed that it is not a single instrument that needs to be used to promote research and Third Mission but rather an "orchestra" of measures that need to be taken in order to make the new missions of the UAS, research and Third Mission possible for the UAS.

After all, it is a political decision and a matter of fund allocation between full universities, publicly funded research institutes and UAS, to what extend UAS will be able to contribute to the innovation system of Germany or in other European countries. UAS need to find a new role, without giving up their primary mission of teaching young academics in applied subjects.

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REFERENCES

Benneworth, P., & Zomer, A. (2011). The rise of the university's third mission. In J. Enders, H. de Boer, & D. Westerheijden (Eds.), *Reform on higher education in Europe* (pp. 81–101). Rotterdam: Sense Publishers.

German Council of Science and Humanities. (2010). *Empfehlungen zur Rolle der Fachhochschulen im Hochschulsystem*. Cologne: German Council of Science and Humanities.

Görason, B., Maharajh, R., & Schmoch, U. (2009). New activities of universities. *Science and Public Policy, 36*(2), 157–164.

Hachmeister, C.-D., Herdin, G., Roessler, I., & Berthold, C. (2013). *Forschung an deutschen Fachhochschulen/HAW: Gesetzliche Regelungen, Zielvereinbarungen und Förderprogramme im Jahr 2013*. Guetersloh: CHE Center for Higher Education.

Hachmeister, C.-D., Duong, S., & Roessler, I. (2015). *Fachhochschulen aus der Innen- und Außenperspektive: Rolle der Forschung, Art und Umfang*. Guetersloh: CHE Center for Higher Education.

HRK. (2016). *Research map*. Retrieved from http://www.forschungslandkarte.de/en/institutional-research-priorites-at-universites-of-applied-sciences/map-search.html

Kulicke, M., & Stahlecker, T. (2004). *Forschungslandkarte Fachhochschulen*. Bonn: Federal Ministry of Education and Research.

Lepori, B., & Kyvik, S. (2010). The research mission of universities of applied sciences and the future configuration of higher education systems in Europe. *Higher Education Policy*, 295–316.

OECD. (2002). *Frascati manual 2002: Proposed standard practice for surveys on research and experimental development. The measurement of scientific and technological activities*. Paris: OECD Publishing.

Roessler, I., Duong, S., & Hachmeister, C.-D. (2015). *Teaching, research and more?! Achievements of universities of applied sciences with regard to society*. Guetersloh: CHE Center for Higher Education.

Schein, E. (1990). Organizational culture. *American Psychologist, 45*(2), 109–119.

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6. STUDY SUCCESS IN HIGHER EDUCATION

Mind the Gender Gap

INTRODUCTION

Improving study success has become an important topic in most Western higher education systems. Societies require more and better educated people as the basic driving force for the further sustainable development of their knowledge economies. However, after the rise of participation rates throughout Europe, we are now presumably on a level that makes it difficult to raise the rates substantially further. This can be seen as a reason for higher education policymakers to shift their focus to increasing the success of those in the system. Drop-out rates have to be reduced, time to degree has to be shortened and the quality of graduates should be maintained, or even improved. This has proven to be a challenge, given the diversity of the student population and the inclusion of non-traditional students.

An emerging group of students who are at risk of being left behind are male students. Not only is the female participation rate in higher education higher, women are also outperforming male students in terms of success rate. This trend may become problematic as it implies that talents remain underdeveloped, which comes at high costs for both society and the individual students. Policymakers need to be aware of this (potential) problem and what can be done to prevent or halt the trend. There is a large body of knowledge on what may explain differences in study success in higher education. Most explanations originate from sociology and educational sciences, but more recently results from neuro-physiological studies have added an interesting and promising view on the issue.

Recently, the Dutch Ministry of Education and Science, through its directorate responsible for gender equity, commissioned a study to look for possible explanations for the differences in success rate and potential policy interventions to redress unwanted gender disparities. Based on the first results of this study, done by a consortium of researchers, these issues will be addressed in this chapter. The research questions guiding our research are the following:

1. To what extent is there a difference in study success between male and female students?
2. To what extent is the difference in study success between male and female students considered to be a problem by policymakers at various levels?

C. Sarrico et al. (Eds.), Global Challenges, National Initiatives, and Institutional Responses, 99–117.

3. What theories can explain the difference in study success between male and female students?
4. What policy instruments are used to close the gender gap in study success performance on national and institutional level and how effective are they?

METHODOLOGY

The collected empirical data originates from four sources. The first source are existing statistical databases, like Eurostat and some national statistical datasets. The second source is the HEDOCE-project. As part of this research project for the Directorate General Education and Culture of the European Commission on dropout and completion, in which CHEPS was involved, experts in 35 European countries were asked to reflect on the extent to which gender is a factor influencing study success (Vossensteyn et al., 2015). The third source is a series of case studies for which we conducted interviews or focus groups at seven Dutch higher education institutions (three research universities and four universities of applied sciences), in the period from March to June 2015. The institutions were selected on the basis of:

- small difference in study success between male and female students,
- active policies on study success differences,
- distinct educational models or activating learning environments, or
- programmes in educational domains that are regarded as typically male or female.

In the case studies we aimed to get input from different hierarchical layers within institutions: members of the executive boards, policy makers on institutional level, policy makers on faculty level, researchers, teachers and study counsellors. The institutions will remain anonymous. Therefore, we use the coding as presented in Table 1.

Lastly, academic literature on study success in (higher) education with a special focus on the gender issue was used. As a first step we reviewed overview articles. Using these articles we identified other relevant publications. Additionally, we used a search strategy, using key word such as ‘gender gap’ and ‘study success’ to find the most recent relevant publications. Insights related to the development of the brain were mainly found using the insights provided by one the partners in the earlier mentioned research project.

GENDER DISPARITIES IN PARTICIPATION AND STUDY SUCCESS

At the end of the last century there was only limited attention for the influence of gender on access to and study success in higher education. Gender was seen as an intervening variable, mediating the influence of two mainstream explanations: socioeconomic status and ethnicity. Likewise, the strong rise in the participation rates of women in higher education by the end on the 20th century, let to gender

Table 1. Coding of case study institutions

Institution type	*Function*	*Code*
Comprehensive research university	Member of the executive boards	UNI1A
	Policy makers on institutional level	UNI1B
	Policy makers and researchers on faculty level	UNI1C
Comprehensive research university	Policy maker on institutional level	UNI2A
	Policy makers and researchers on faculty level	UNI2B
Technical research university	Policy makers on institutional level	UNI3A
	Study counsellors on faculty level	UNI3B
University of applied sciences in primary teacher education	Policy maker/teacher on institutional level	UAS1
University of applied sciences	Policy maker on institutional level	UAS2A
	Policy makers, research and teachers on faculty level	UAS2B
University of applied sciences	Policy maker on faculty level	UAS3A
	Researcher on faculty level	UAS3B
University of applied sciences	Members of the executive boards	UAS4A
	Policy makers on institutional level	UAS4B
	Policy makers on faculty level	UAS4C

being gradually side-lined from (inter)national higher education agendas. However, after the turn of the century the issue reappeared, be it in another shape. Male students had lost their 'lead-position' in participation and study success and had started to lag behind female students. In the international research and policy literature this relative shift in performance was highlighted for higher education (Evers, 2006; OECD, 2008; Jorgensen et al., 2009) and for vocational education (Olsen et al., 2014; Jørgensen, 2015). In a recent article in the Economist, the issue was once more reiterated (The Economist, 2015). The abovementioned trends are confirmed by international databases, which show that there is clear gender gap in participation and that it has widened since the turn of the century (see Figure 1). However, the gender gap differs within Europe, both across countries (see Figure 2) and across disciplines (see Figure 3).

The Dutch case does not differ from the international trends; the gender gaps in study success have grown in both higher education (Langen & Driessen, 2006; Severiens & ten Dam, 2012; Claessen, 2013; Schaacke, 2014) as well as in post-secondary vocational education (Herweijer, 2008; Elffers, 2011; Kennisnet, 2013; Kenniscentrum Beroepsonderwijs Arbeidsmarkt, 2014; Onderwijsinspectie, 2014; Platform Beleidsinformatie, 2014).

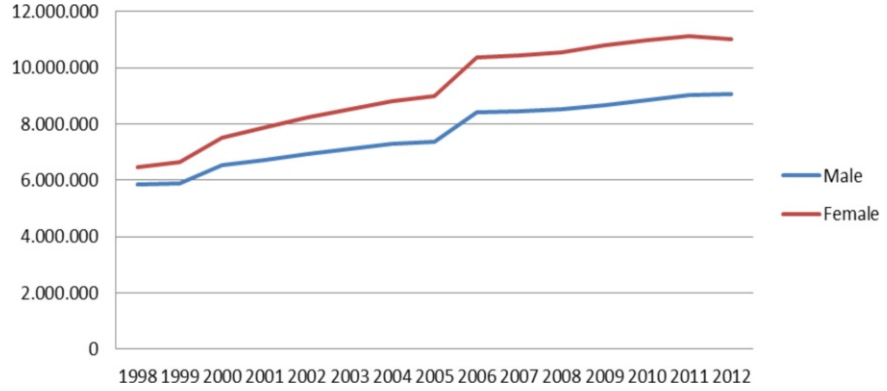

Figure 1. Tertiary students (ISCED 5–6) by sex, European Union, 27 countries. Source: Eurostat, table educ_enrl5

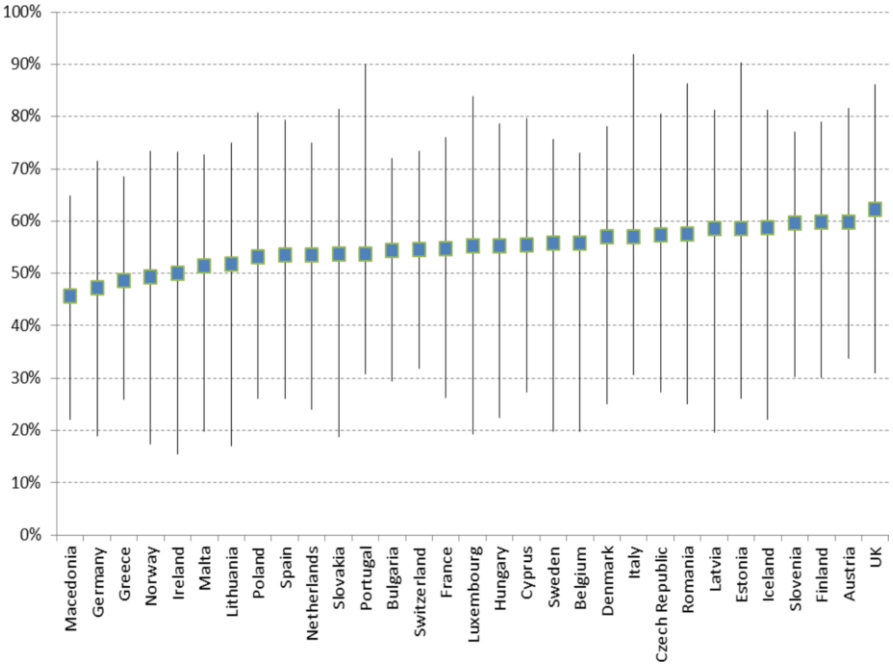

Figure 2. Proportion of female students in total enrolment in tertiary education, 2013, by country. Source: Eurostat, table educ_uoe_entr04. Note: The squares show the average of the proportion of female students, and the lines indicate the range between disciplines

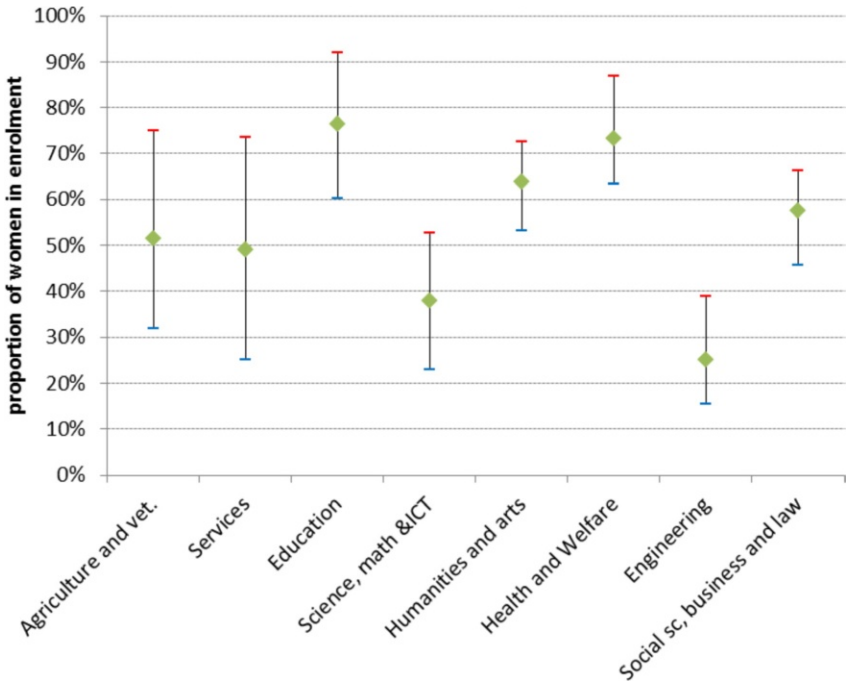

Figure 3. Proportion of female students in total enrolment in tertiary education, 2013, by broad educational field, average of 31 European countries. Source: Eurostat, table educ_uoe_entr04. Note: The markers indicate the average proportion of the 31 countries, the lines indicate the variance in scores in the individual countries

IS IT A PROBLEM?

The extent to which the gender gap in study success is perceived as a problem varies by country, but also by institution and department. Moreover, European countries differ in the degree to which study success in higher education gets priority. In general, we observe that countries that prioritise efficiency of higher education also have policies aiming to improve study success. Even if there are study success policies, they seldom address group differences in study success, related to gender or ethnicity. The Dutch case provides an interesting example of the lack of attention for group differences: in a recent policy document the government identifies study success as a policy priority for the next ten years, but although the gender gap in study success is mentioned at the beginning of the document it is not mentioned again (Ministerie van Onderwijs Cultuur en Wetenschap, 2015), thus not detailing policies to address gender differences.

We do see that some countries have policies aiming to increase the inflow of certain groups into higher education. An example is the United Kingdom were institutions are encouraged to focus their outreach on attracting male students, particularly those from less privileged backgrounds.

By asking experts in 35 European countries to reflect on the extent to which gender is a factor influencing study success, we get an impression of the differences in problem experience. Results show that most experts (13) indicate gender to have some influence on study success. Twelve experts see a limited or no influence. Seven experts see a reasonably strong influence. Three experts say not to have evidence for any influence (see Figure 4).

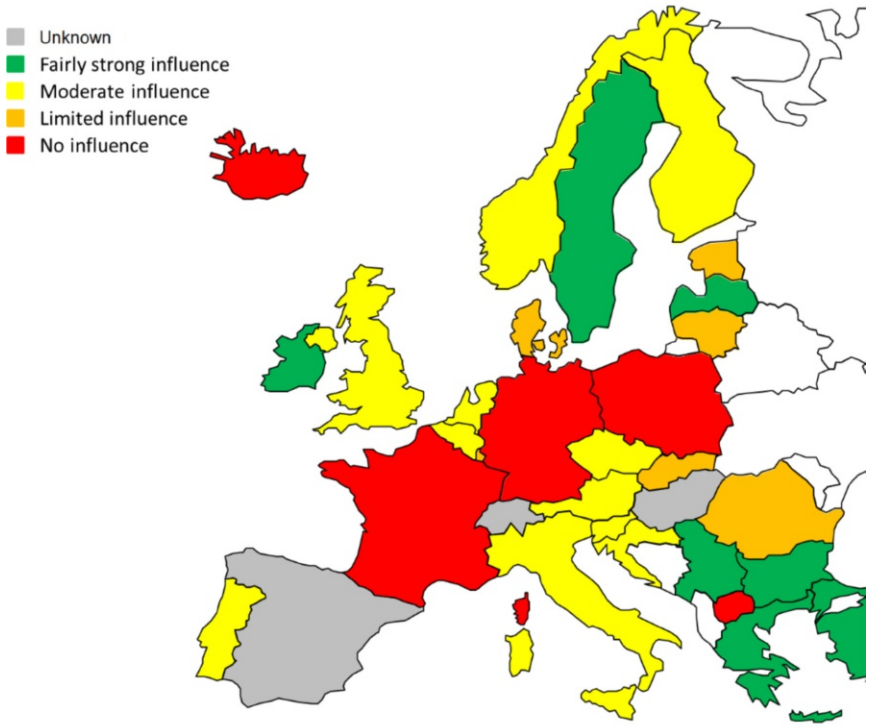

Figure 4. Expert opinion on influence gender has on study success

Generalising the observations we conclude that European experts do see differences in study success between male and female students, but in most cases they do not regard this is as an important factor that influences study success.

The European insights mainly focus on the national level. We assume, however, that on the levels below difference might be more apparent. Consequently, the institutions involved in our case studies were also asked to indicate the extent

to which they experience the gender gap in study success as a problem for their institution, faculty or study programme.

All the Dutch case study institutions pay attention to study success, for which they have introduced different policies. On institutional level, differences in study success between male and female students are known. For instance, one institution states in its institutional plan that the relatively lower study success of male students is an issue to which the institution is to pay attention to (Hogeschool van Arnhem en Nijmegen, 2012, p. 24). Likewise, a policy study on higher education institutions in the largest cities in the Netherlands states: "Men more often drop out in the first year, and even if they progress to the next years, their completion rates continue to be lower" (own translation: Zijlstra et al., 2013, p. 13). The interviewees have shed more light on the differences by indicated several aspects on which male students lag behind or differ from female students. In Table 2, these aspects a clustered in three broad groups: skills and competences, attitudes, and effects on study success.

Table 2. Aspects on which male students lag behind or differ from female students

Cluster	*Aspects on which male students lag behind or differ from female students*
Skills and competences	• Planning (UNI3B, UAS1, UAS2B) • Study skills (UNI3B) • Self-insight (UNI3B) • Discipline (UNI2B) • Academic competences (UNI3B) • 21st century skills (UNI3B)
Attitudes	• Less intrinsic motivation (UAS2B, Geerdink, 2010) • Unfounded optimism (UNI3B, UNI2B) • Late realisation of necessity to start (UNI3B) • Lag behind because of weaker effort (UNI2B) • Less willingness to ask question or for help from study councillors (UNI2B) • In the end, make more use of support services (UNI2B) • Less ambition to do more than strictly necessary (UAS3A) • Difficulties with complying to study programmes' expectation (UAS3A) • Lower interest in studying (UAS3A)
Effects on study success	• Have a higher drop-out rate (UAS3A, UAS3B, UAS4A, UAS1, UAS2B) • Study progress often remains behind (UNI2B, UAS3A) • Take longer to complete studies (UNI1A, UAS3A) • Attain less high grades (UNI3B)

Nevertheless, male students also have some positive aspects as compared to girls: they are more pragmatic effort (UNI1C, UNI3B), have more self-confidence

(UNI3B), are able to deal better with uncertainty (UNI3B), have less fear of failure (UNI1C), and are still able to attain a job sooner after graduation (UAS3B).

Insights from the interviewed institutions highlight that gender differences in study success (if experienced) mainly apply to bachelor level students. On the more advanced academic levels, study success differences appear not to be an issue. In fact, male students appear to perform slightly better on PhD-level (UNI1A).

In this section we have shown that there are indeed differences in study success. However, these differences are certainly not recognised problematic by all European experts and interviewees. Yet, the 'gap' appears to be more visible on lower levels in the organisation, e.g. by student counsellors.

THEORETICAL PERSPECTIVES ON STUDY SUCCESS AND GENDERS

Tinto's model of student integration (Tinto, 1975) is the most prominent among the different approaches to explain student success. Tinto identifies social integration as a key determinant for student success and retention at a university. The main proposition of this theoretical approach is that the more students are integrated in the social and academic community of a higher education institution, the less likely they will be to leave the university or study programme. Adequate interaction with peers and academics gives the students the chance to socialise with the institution and to internalise social as well as academic values.

Tinto distinguishes a number of different factors that may contribute to study success. The first group of factors are background variables like family background, the peer group, individual competencies and pre-schooling experiences that have a strong influence on the individual's educational aspirations and expectations. These aspirations and expectation have an impact on the initial individual's goal or institutional commitment. This commitment will show in all three aspects of engagement of the student: behavioural engagement (the student attends classes, cooperates in assignments, does not show any deviant behaviour, and participates in school related activities), emotional engagement (the student feels involved and has a general feeling of belonging), and cognitive engagement (the student invests in his/her learning and has a clear intrinsic motivation to study) (Fredricks et al., 2004). A student who is more engaged is more likely to perform academically and have a stronger feeling of belonging in the class, the programme and the institution. A higher level of academic and social integration will add to the initial commitment, which will increase the likelihood of study success (in terms of completion or grade). This process is not a linear process, but comprises of a number of feedback loops focusing on goal and institutional commitment (see Figure 5).

A slightly different perspective is presented in the expectancy value model in which key elements of the Tinto model are integrated with a psychological and an economic perspective (Eccles, 2005). In this model the 'self-concept' is the central element (see Figure 6). This self-concept has a strong influence on the perception of costs and benefits of decisions regarding study behaviour. Other elements of the

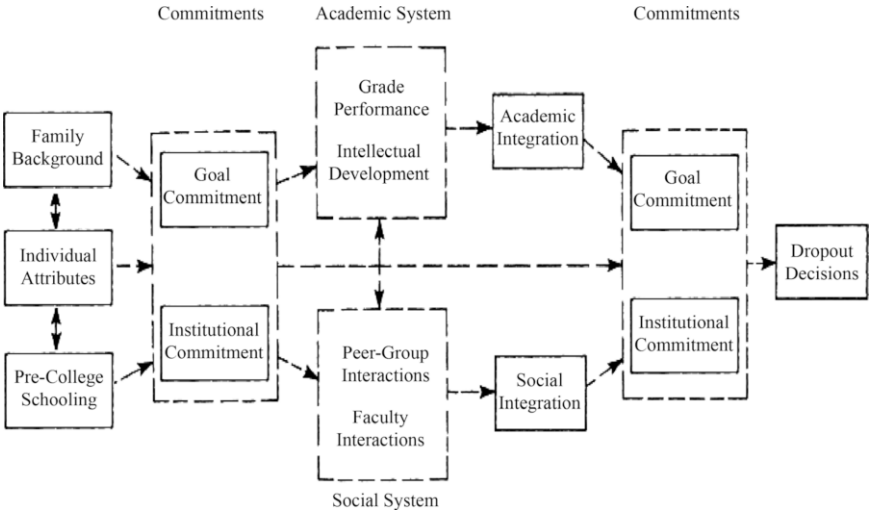

Figure 5. Tinto's interactionist model for dropout decisions.
Source: Tinto (1998)

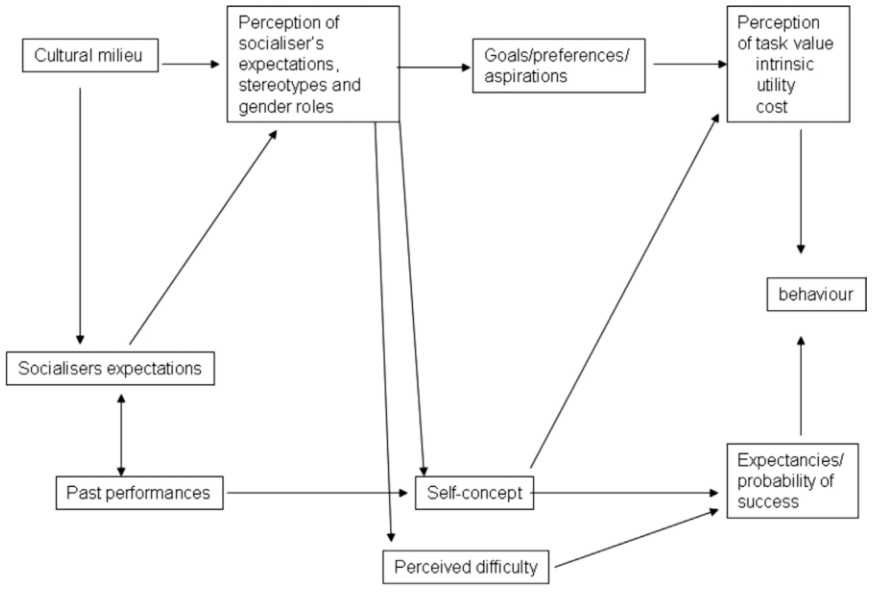

Figure 6. Expectancy value model (simplified version, based on Eccles, 2005)

Eccles model refer to characteristics of the programme (perceived difficulty) and characteristics of the peer group (as a major socialiser, next to the family).

The theoretical perspectives described above have a strong focus on individual characteristics and the influence of the social environment on those individual characteristics, both prior to access to higher education and during participation in higher education. Policy makers who want to change the behaviour of students may either want to influence the characteristics or influence the context within which the individuals take their decisions.

Psychology can add to this model. Academic performance and social integration requires not only cognitive skills, but also non-cognitive skills. These non-cognitive skills refer to self-reflection, self-regulation, motivation, curiosity, taking initiative and empathy. Non-cognitive skills are essential for using the cognitive skills. Consequently, less developed non-cognitive skills may lead to less social and academic integration and less study success (van der Velden, 2015).

Having outlined the general conceptualisations of variables associated with study success, we can address the links of the conceptualisation to the gender gap in study success. The conceptualisations offer some footing to do so. Important in this respect is the role socialisation (addressed in the expectancy value model), which may influence the expectations of students, parents, teachers, and policy makers. The role socialisation suggests that actors' behaviour and actions are guided by what they perceive to be expected from them. This may explain students' study choices, study performance, self-concept (Eccles) and their goals and institutional commitment (Tinto). Similarly, it may differentiate unconsciously teachers' expectations of male and female students, thus leading to different interactions and, consequently, social and academic integration outcomes. However, unawareness of the sex-role socialisation, may explain why institutions and teachers have different expectations, but largely use undifferentiated didactical approaches.

Not included in the conceptualisations are the physiological aspect of the maturation of the (late) adolescent brain, which may offer an additional explanation for the gender gap. More specifically, during adolescence certain 'executive functions' are still developing. These functions mature after puberty till the young adulthood, and relate to the non-cognitive skills like self-reflection, self-regulation, curiosity, empathy and the ability to assess the (long-term) consequences of choices and actions. There are indications that female students are a few years ahead of male students regarding this maturation in late adolescence. That implies that female students, on average, on entry into higher education have a head start regarding the non-cognitive skills that play an important role in study success. However, the process of brain maturation is not a completely autonomous process. It is also influenced by the social context in which the young adolescent grew up and currently lives. Culturally and socially determined gender stereotyping has a strong influence on both the development of the brain and the behaviour of individuals (Spencer et al., 1999; van der Velden, 2015).

POTENTIAL POLICY INSTRUMENTS

In the policy literature there are three types of policy instruments that are used or discussed to influence study behaviour, thus also study success at the institutional and national level:

- Information and support: Here we find policies that aim at changing the perception of (potential) students regarding the options available and the consequences of those options, in terms of costs and benefits. Students do not always have a correct idea of programmes, in terms of the content, the difficulty, its direct costs, and its future benefits in terms of the position on the labour market and the type of future jobs. Expectations based on biased information may lead to lower study success, which these type of instruments try to prevent. Policies focussing on support comprise student counselling and support structures like mentoring systems and tutoring. With these policies policymakers do not (primarily) try to change cognitive skills, but they are more concerned with improving non-cognitive skills.
- Funding and financial incentives: Policymakers can try to influence the behaviour of students with financial carrots or sticks. Higher fees for students that progress too slowly, changing grants into loans for drop outs or providing scholarships for excellent students, are some of the most frequently used financial instruments.
- Organisation of education: Policies on the organisation of the educational process refer to all interventions that may have an effect on the learning environment. The learning environment consists of social settings within which formal learning in a school or university takes place (Fraser, 1982). The main aspects of the learning environment are relations and interactions between students, interactions between students and teachers, the relations between students and content and teaching method, as well as the student perceptions of the structure of the setting. In a number of higher education systems alternative teaching models have emerged. In these alternative models, the teacher is no longer the most important source of information, students are taught using problem based or project related teaching methods, in small scale settings, with a high frequency of exams and high individual autonomy. These alternative models have, under certain conditions, an impact on study success: if the student is well integrated and if there is a close match between teaching model and individual learning style, study success tends to be higher. Furthermore, the size and composition of the class/group is also an aspect of the learning environment that policymakers may influence. Size and heterogeneity of the groups may have an effect on social integration and study success, although this is not a straightforward relation.

Having discussed the general instruments, we can focus on the question: which instruments have an effect on the study success of male and female students? We address this question with a literature overview, followed by the outcomes of our case studies.

The policy literature on instruments focussing on financial incentives is scarce, and offer no indications that financial motivations differ between male and female students. Different perceptions of benefits of studies do exist between male and female students (men have in general a better position on the labour market and women are more risk averse), but there is no evidence that this is related to differences in study success. An interesting line of argumentation focusses on the paradox that the expected benefits, in terms of position on the labour market, for women are lower than for men, yet participation of women has grown continuously (Mickelson, 1989).

Educational sciences have contributed a lot in understanding why there are differences in study success between male and female students. Most of the literature addresses the influence of the learning environment (Claessen, 2013). There are indications that girls perform better in alternative models. Study success in these alternative models rely more on non-cognitive skills, which in general are better developed among women (in the early years of the higher education career).

There is also a relation between social integration and alternative models, although there is no clear relation to gender (Severiens et al., 2014). It is also shown that the learning style of women are more adequate for the alternative model, leading to higher performance (Kolb, 1984; Philbin et al., 1995; Reints, 2013). The learning style is to some extent related to non-cognitive skills, however, also to group culture (Legewie & DiPrete, 2012). The composition effect is well researched. A strong gender imbalance has a negative effect on study success. Moreover, the sense of belonging of the underrepresented gender is relatively low, which has a negative effect on study success (Mastekaasa & Smeby, 2008; Severiens & ten Dam, 2012).

Although there is a growing body of literature on the gender gap in study success, the evidence of the effectiveness of policy instruments is scattered. Furthermore, the existing literature mainly looks at gender in terms of participation. This outcome is likely partly due to the complexity of the issue of study success, but does indicate that gender is (still) seen as a minor factor in explaining and influencing study success. Consequently, not much is known about how gender interacts with the literature's two priority factors: socioeconomic status and ethnicity.

Case Studies

To further our understanding of potential policies to stimulate study success of male students and their effectiveness we asked the interviewees to describe the used policies. The found policies described in the case studies are clustered in the following groupings: (1) policy dimensions (context, general institutional policies, and gender specific policies and (2) type of policy instrument (see previous section) in Table 3.

Table 3. Policy instruments to influence the gender gap in study success

	Information and support	*Funding and financial incentives*	*Organisation of education*
Context	• Improving the image of certain disciplines among prospective male or female students (e.g. teacher education and mathematics) (UNI1A, UNI1C, UAS1) • Early study choice decision deadline, ensuring students make a conscious choice (Geerdink, 2010)	• Performance funding, potentially making it more attractive for institutions to recruit female students (UAS2B) • Stringent study financing system, punishing a noncommittal attitude (UAS3B)	• Selection criteria, such as entrance exams on math and language, can reduce the drop-out rates of male and female students (UAS1) • Retention criteria for first year students, motivating lagging male students to perform (e.g. minimal achievement of 75% of the first year's ECTS)
General institutional policies	• General study counselling; tutors (UNI1C, UNI3B), tutor groups (UNI2B), peer tutors (UAS2B, UAS4B), personal study counsellors (UNI3A), target group specific/ specialised tutors (UAS4B) • Skills and competences trainings (UNI3B, UAS2B) • Matching activities; ensuring the right students enrol in the right study programmes, warn students for potential barriers (UNI2B), set expectations (UNI2B)		• Study culture can be positively influenced by international students (UNI1C) • Educational model: small-scale education with personalised attention (UNI1A), problem-based learning where students work in groups (UNI2B), regular progress assessments (UNI3B)

(Continued)

Table 3. (Continued)

	Information and support	*Funding and financial incentives*	*Organisation of education*
Gender specific policies on institution or programme level	• Recruitment policies with a particular gender focus (e.g. more males in teacher education studies) • Gender specific study counselling; male study counsellors for male students (UAS1), (subconscious) male specific study counselling (UNI3B, UNI2B, UAS3A, UAS2B), • Male only training sessions on planning and professional skills (UAS1)		• Adjustments in learning environments to support male students; males grouped in classes (UAS3B, UAS1), male groups for internships (UAS2B), male supervisors for internships (UAS2B). • Gender balanced teaching/ research groups (UNI1A, UNI3A, UNI2B) • Recruitment initiatives to make gender balanced student populations (UNI3B, UAS1, UNI1C, UAS4A, UAS2B). • Curriculum adjustments to make it more male friendly: assessment type (Geerdink, 2010), sport courses in first year (UAS1), less reflective assignments (UAS1, UAS2B) • Study programme differentiation by offering it in part-time or in an academic variant (UAS1)

We found both general and gender specific policies that can have an effect on the gender gap in study success. As discussed by the interviewees some achieve the intended effects, but others show to have potentially unintended effects. An example of the latter may be the inclusion of study success indicators in performance funding, which could lead to institutions aiming to recruit more female students. Also in relation to national policies, an effect of the retention criteria set in the first year (e.g. attaining 50 of the 60 ECs) is that male students set priorities. Without the fixed criteria, more male students would postpone studying actively to the second year in higher education. However, setting criteria for retention can also lead to rejecting students to pass to the second year, who do have the potential the complete the study programmes, but who were in terms of personal and brain development not yet ready for higher education. Interviewees also suggested that the policy instruments specifically focussing on male students in some cases lead female students to also aspire additional attention.

Unfortunately, little is known about the effect of the policy instruments. This is because the gender specific policy instruments are often not the only measures taken, making it difficult to quantify the specific effect of one instrument. Furthermore, the instruments are implemented as experiments and often changed or abandoned after a short period. An exception are the initiatives of one institutions' teacher education programme, where they had student groups consisting of at least six male students and made male groups for internships, which had male supervisors. These instruments led to lower drop-out rates amongst male students, and are now fully implemented. Interesting is also that the part-time programme of a teacher education programme manages to attract an equal inflow of male and female students. Explanations for this are: (1) that participants of part-time education are usually more mature, suggesting that teacher education becomes a more acceptable educational alternative for males later in life, or (2) perhaps it could also be related to the good employment prospects for male teachers. These insights suggest that role socialisation may indeed play a part in students' expectations and behaviour.

The gender specific instruments were mainly implemented in the primary teacher education programmes at universities of applied sciences. We can with reasonable certainty say this is because the gender gap problems are mostly experienced there. Looking at the other institutions' problem experiences and the found policies addressing the gender gap, we can conclude that most institutions do see differences, some also considered this a problem, but few institutions and study programmes have dedicated policies addressing the differences in study success. The lag of policies suggests that making gender specific policies could be a sensitive topic. Nevertheless, looking at the increased gap in enrolment and existing differences in study success, introducing gender specific policies might become unavoidable. An emerging question is if the problem should be solely addressed in higher education because known is that the differences also surface in secondary and post-secondary vocational education.

CONCLUSION

The gender gap in study success – or the 'boys problem in higher education' – is in general – by the European experts, by the case study institutions and in the literature – recognised, but not perceived as an urgent problem. Only in a few female dominated programmes, like primary teacher training, we have come across a clear sense of urgency. In the literature the gender gap in terms of participation is discussed more frequently, but that is a different 'problem' with different potential solutions. However, the by the interviewees indicated aspects on which male students lag behind (Table 2), as well as the distribution of male and female students over educational fields (Figure 3), do indicate that there is a gender gap.

As for possible solutions (or at least, policy instruments) to the gender gap in study success, the results of the literature review, the expert consultation and the case studies offer largely inadequate evidence to reach solid conclusions. Most initiatives focus on the composition of the group in (heavily) female dominated programmes. There are indications that restoring a more balanced gender composition has a positive effect on social integration of male students as well as their engagement. All-male groups have a similar effect, albeit the resulting all-female groups can be seen as a negative side effect.

In addition to the initiatives to change the organisation of the educational experience, there are also some gender specific initiatives in information provision and student counselling. National information campaigns to redress the gender balance in STEM programmes are well known and prove to become increasingly effective, but the information issues related to study success (improving the information on programmes and the jobs they may give access to) are only in a few cases gender specific. National policy makers, but also institutional policymakers and counsellors at secondary schools can play a role in providing such information to (prospective) students.

In the general discussions on how to increase study success in massified higher education systems, we have come across quite a number of initiatives to change the teaching models and methods. In these new, alternative models (i.e. small scale, student oriented, and activating learning environments) non-cognitive skills are much more important than in the traditional models. The brain development of those skills, especially the ones the alternative models call for, lasts till late adolescence or early adulthood. There are strong indications that male students lag behind female students in brain development of non-cognitive skills, in the early years of their higher education careers. Yet, they do catch up later on. This can be linked to the observation of some interviewees that the gender gap was most evident at the bachelor level.

In addition to the biological factor, male students tend to have different learning styles that fit less with the alternative models. A strong policy focus on alternative teaching models may therefore have a negative effect on the gender gap if these

differences in skills and learning styles are not taken into account by national, institutional and study programme specific educational regulations and policies.

The differences in the development of non-cognitive skills may have a gender specific effect on study success, also if testing and selection is strong in the early stages of higher education programmes. In the Dutch higher education policy context there is a strong push to expel underperforming students in the first year, which may have a negative effect on men as they are excluded prior to their natural capacity to further develop their non-cognitive skills. Therefore, policymakers have to be aware of the effects early selection has on male and female students in specific learning environments.

Is the gender gap in study success a problem? Yes it is, and it has the potential to affect the study success of male and female students. Yet, the visibility of the problem appears to be limited, with the exception of heavily female dominated programmes. Best known are primary teacher training programmes, but there are other programmes, like psychology and health related programmes that are becoming heavily female dominated. Consequently, the problem might surface more often in the future, particularly in study programmes where the gender participation differences continue to grow. Raising awareness among policy makers, as well as teachers and counsellors of the effects of group composition and changing learning environments on the study success of male and female students is therefore crucial.

Further empirical research on the gender gap in study success and its consequences is needed. On the one hand, insights are needed to create awareness of the effect the gender gap has on the overall effectiveness and efficiency of higher education institutions and systems. Likewise, insights are needed to create awareness that a growing number of female dominated programmes may lead to a magnification of the 'boys problem'. On the other hand, further conceptual research is needed to address the complexity of the issue of study success and the role of gender. This complexity arises from the strong interaction of gender, socioeconomic status and ethnicity in explaining study success. Needed are observation and understandings derived from a large variety of disciplinary perspectives (biology, psychology, sociology, economics, educational sciences), and from the dynamic character of the higher education process with various short and long term feedback loops. Accordingly, raising questions with practical relevance, such as: what is the effect of more female graduates on the labour market on the participation rate of next generation female students? To allow this and other questions related to the gender gap to be understood requires scholarly research, but to address the issue, increased attention is required from stakeholders on national and institutional level.

Whether we can do something about the problem remains unclear. The effectiveness of the few policy instruments we have come across proved difficult to establish. This is also because of the complexity of the issue. We underlined this complexity because the key explanations for the gender gap – learning environment and brain development – are strongly embedded in cultural and social settings. The

interdependency makes it difficult to determine what part of the differences in study success can be attributed to gender and to build a comprehensive theoretical model to understand what the main drivers of the gender gap are. Given the complexity of the problem, it also remains to be seen whether prioritizing the gender gap is justified. In particularly compared to – at least equally important – issues such as the inclusion of underprivileged students.

It is clear that addressing the gender gap will add to the already stretched mission and responsibilities of higher education institutions, study programmes, and teachers. But if the research community and policy makers start and continue to mind the gender gap, substantial societal and individual costs of leaving talents underdeveloped can be avoided.

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REFERENCES

Claessen, J. (2013). Meisjessucces of jongensprobleem? De groeiende achterstand van jongens in het onderwijs ofwel de voorsprong van meisjes. *LOOK*, 43.

Eccles, J. S. (2005). Studying gender and ethnic differences in participation in math, physical science, and information technology. *New Directions for Child and Adolescent Development, 110*, 7–14.

Elffers, L. (2011). *The transition to post-secondary vocational education: Student's entrance, experiences, and attainment*. Amsterdam: University of Amsterdam.

Evers, F., Livernois, J., & Mancuso, M. (2006). Where are the boys? Gender imbalance in higher education. *Higher Education Management and Policy*, *18*(2), 1–13.

Fraser, B. J. (1982). *Assessment of learning environments: Manual for learning environment inventory (LEI) and my class inventory (MCI)* (Third Version). Perth: Western Australian Institute of Technology.

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of evidence. *Review of Educational Research*, *74*(1), 59–109.

Geerdink, G. (2010). Studierendement en sekseverschillen. In *Congresbundel Hanovatie themadag 2010* (pp. 13–26). Arnhem: Hogeschool van Arnhem en Nijmegen.

Herweijer, L. (2008). *Gestruikeld voor de start, De school verlaten zonder startkwalificatie*. Den Haag: Sociaal en Cultureel Planbureau.

Hogeschool van Arnhem en Nijmegen. (2012). *Instellingsplan 2012–2016: Kennis in Interactie*.

Jørgensen, C. H. (2015). Some boys' problems in education; what is the role of VET? *Journal of Vocational Education & Training,* 67(1), 62–77.

Jorgensen, S., Ferraro, V., Fichten, C., & Havel, A. (2009). *Predicting college retention and dropout: Sex and disability* (ERIC Online Submission ED505873).

Kenniscentrum Beroepsonderwijs Arbeidsmarkt. (2014). *Benchmark middelbaar beroepsonderwijs 2013, bouwsteen studiesucces*. Nijmegen.

Kennisnet. (2013). *Big data, van hype naar actie. Op zoek naar waardevolle inzichten voor het vergroten van studiesucces*. Zoetermeer.

Kolb, D. A. (1984). *Experiential learning: Experiences as the source of learning and development.* Englewoords Cliffs, NJ: Prentice-Hall.

Langen, A. M. L., & Driessen, G. W. J. M. (2006). *Sekseverschillen in onderwijsloopbanen; Een internationaal comparatieve trendstudie.* Nijimegen: ITS.
Legewie, J., & DiPrete, T. A. (2012). School context and the gender gap in educational achievement. *American Sociological Review, 77*(3), 463–485.
Mastekaasa, A., & Smeby, J. C. (2008). Educational choice and persistence in male- and female-dominated fields. *Higher Education, 55*, 189–202.
Mickelson, R. A. (1989). Why does Jane read and write so well? The anomaly of Women's achievement. *Sociology of Education, 62*, 47–63.
Ministerie van Onderwijs Cultuur en Wetenschap. (2015). *De waarde(n) van weten, Strategische Agenda Hoger Onderwijs en Onderzoek 2015–2025*.
OECD. (2008). *Higher education to 2030. Volume I: Demography*. Paris: OECD.
Olsen, O. J., Høst, H., & Tønder, A. H. (2014). *Key challenges for Norwegian VET: The state of play. Nord-VET*. Denmark: Roskilde University.
Onderwijsinspectie. (2014). *Kwaliteit kleine MBO-opleidingen*. Utrecht.
Philbin, M., Meier, E., Huffman, S., & Boverie, P. (1995). A survey of gender and learning style. *Sex Roles, 32*(7/8), 485–494.
Platform Beleidsinformatie. (2014). *Factsheet: Geslacht als factor van succes?*
Reints, A. (2013). *Leerstijlkenmerken van digitale leermiddelen en het effect op de leerprestaties van jongens en meisjes*. Utrecht: Expertisecentrum leermiddelenontwikkeling.
Schaacke, J. (2014). *Onderwijsongelijkheid tussen jongens en meisjes; bijeenkomst Platform Beleidsinformatie*. Dienst Uitvoering Onderwijs (DUO).
Severiens, S., & ten Dam, G. (2012). Leaving college: A gender comparison in male and female-dominated programs. *Research in Higher Education*, *53*, 453–470.
Severiens, S., Meeuwisse, M., & Born, M. (2014). Student experience and academic success: Comparing a student-centred and a lecture-based course programme. *Higher Education*, *70*(1), 1–17.
Spencer, S. J., Steele, C. M., & Quinn, D. M. (1999). Stereotype threat and women's math performance. *Journal of Experimental Social Psychology*, *35*(1), 4–28.
The Economist. (2015). The weaker sex, gender, education and work. *The Economist.*
Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research, 45*, 89–125.
Tinto, V. (1998). Colleges as communities: Taking research on student retention seriously. *Review of Higher Education, 21*, 167–177.
van der Velden, R. (Ed.). (2015). *De jongens tegen de meisjes, Onderzoek naar verklaringen voor verschillen in studiesucces van jongens en meisjes in mbo, hbo en wo*. Amsterdam: ROA, CHEPS, VU.
Vossensteyn, H., Kottmann, A., Jongbloed, B., Kaiser, F., Cremonini, L., Stensaker, B., Hovdhaugen, E., & Wollscheid, S. (2015). *Dropout and completion in higher education in Europe: Main report*. Luxembourg: Publications Office of the European Union. Retrieved from: http://doc.utwente.nl/98513/1/dropout-completion-he_en.pdf.
Zijlstra, W., Asper, H., Amrani, A., Tupan-Wenno, M., Crul, M., & Van Stapele, N. (2013). *Generiek is Divers: sturen op studiesucces in een grootstedelijke context. Evaluatie G5-studiesuccesprogramma's 2008–2011.*

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7. STRATEGIC POSITIONING IN AUSTRALIAN HIGHER EDUCATION

The Case of Medical Schools

INTRODUCTION

The emergence of the concept of strategy in higher education can be traced to the late 1970s and 1980s as American universities, at that time, moved from a "managerial revolution" to an "enterprising evolution" (Thelin, 2004, p. 337). Rooted within the planning school of thought (Ansoff, 1965), higher education's conception of strategy emphasised its use as a rational tool for orderly, systematic management—as a "disciplined effort to produce fundamental decisions and actions that shape and guide what an organization is, what it does, and why it does it" (Bryson, 1988, p. 74).

Strategic planning in higher education became widespread although scepticism towards it had also begun to emerge (Baldridge, 1971; March & Olsen, 1976; Mintzberg, 1983). Further, it was argued that business strategy does not apply to a substantially public and more institutionalised sector such as higher education (Amaral, Jones, & Karseth, 2002; Gumport, 2001) and is not achievable in complex, loosely coupled organisations such as universities (Leslie, 1996; Musselin, 2007). Universities began to move away from the rigidity of the planning paradigm to a more flexible paradigm such as the interpretive model of strategy (Chaffee, 1985; Maassen & Potman, 1990)—which focuses on institutional culture and its influence on the motivation of individuals—to a mixed strategy approach which combines two or more strategies to better meet institutional diverse goals and policies. More recently, others have extended the notion of strategy in higher education to a more positioning focus (see examples of Fumasoli & Huisman, 2013; Fumasoli & Lepori, 2011; van Vught, 2008).

This chapter extends the notion of strategic positioning in higher education by investigating strategic positioning in higher education within the context of Australian medical schools. Medical schools operate in a regulated environment which can impact the role and character of strategy. Within this regulated environment, medical schools need to deal with the operational or technical aspects of regulation (Tan & Litschert, 1994) such as responding to accountability frameworks set up by the government, and managing their interactions with external entities such as regulatory agencies (Post & Mahon, 1980). It has been argued that a more focused

C. Sarrico et al. (Eds.), Global Challenges, National Initiatives, and Institutional Responses, 119–141.

strategy is not feasible in regulated environments which are deterministic (Smith & Grimm, 1987). Indeed, strategies for organizations in such regulated situations would seem to be negotiated (Murray & Isenman, 1978).

This chapter reports on the findings of one component of a larger study which investigates the relationships between strategic positioning, environment and performance. Accordingly, this chapter presents the findings on the strategic positioning and performance of medical schools, and responds to two main research questions:

- In what ways are medical schools distinctive from each other?
- How does visualisation of performance affect strategy formulation in medical schools?

This chapter is divided into five sections. The first section reviews the limited literature on strategy in medical education. The second section advances the conceptual framework which was used to guide analysis of the study. The third section provides the research methods. Subsequently, the fourth section discusses the findings of the study. Finally, the last section offers a discussion of the findings and implications for theory and practice.

STRATEGY IN MEDICAL EDUCATION

There is very limited research which focuses on medical schools as a whole and from an institutional perspective. The vast majority of studies on medical schools have focused on basic medical education and conducted within a single medical school (Brosnan, 2010). Consequently, differences between medical schools have remained largely unexamined (Brosnan, 2009; Cribb & Bignold, 1999; Jefferys & Elston, 1989; Light, 1988). The lack of comparative studies could be attributed, among other reasons, to the theoretical background of medical education researchers (Brosnan, 2010). More often than not, medical researchers are focussed on clinical disciplines, education or psychology rather than the study of organisations such as medical schools. This section reviews the somewhat limited literature available.

In a study of medical schools in Canada, the authors analysed the positions of Medical Education Research and Innovation (MERI) units within medical schools (Varpio, Bidlake, Humphrey-Murto, Sutherland, & Hamstra, 2014). Looking at MERI as the unit of analysis, they found that the performance of those units could be measured through indicators of teaching, faculty mentoring, building collaborations, delivering conference presentations, winning grant funding, and publications. Additionally, they identified behaviours which MERI directors use to negotiate, strategize and position their units within their local contexts. These include: advocacy, promoting growth, managing expectations and building relationships with individuals. Varpio et al. (2014) concluded that their findings can produce insights which can be used to improve the academic output and status of MERI in the local, national and international contexts.

Research and practice in medical education must take into account the position of each medical school in relation to its competitors and to external agencies (Brosnan, 2010). In her study of 30 medical schools in the United Kingdom (U.K.), Brosnan (2010) argued that U.K. medical schools' varying curricula and admissions criteria serve to distinguish them from their competitors and to facilitate access to different forms of capital, including economic, cultural, social and symbolic. She further highlighted the need and importance of rendering the medical school an object of study and of examining the differences between medical schools.

Trumble (2010) drew an analogy of Brosnan's (2010) study to the Australian medical school context. He argued that medical schools in Australia can be characterised within two distinct positions: academic and vocational. In particular, the newer medical schools have a more vocational focus, in that they are more distinctly geared to produce a primary medical workforce. Trumble (2010) further explained that what counts as capital in the academic arena such as gaining a high ranking on international league tables or winning competitive research grants, has little value in the vocational field, which focuses on preparing and retaining best-suited health professionals for the region.

In a study of new Australian medical schools established in the early 2000, Lawson, Chew and Van Der Weyden (2004) found that the new medical schools differ from each other and from the more established medical schools. These differences include the ways the new schools structure themselves, employ resources for delivering the curricula, and prioritise and specify qualities they wish to foster in their graduates. In the study, the authors did not find any distinctiveness in the curriculum and medical programs, as all the new medical schools obtained their curriculum from an established medical school, which include recent reforms in medical education such as problem-based, self-directed learning, horizontal integration between disciplines, vertical integration between basic and clinical sciences, early exposure to patients, and increased emphasis on communication skills, ethics, and personal and professional development. Only one medical school, at the time, obtained its curriculum from a medical school overseas (Lawson et al., 2004).

It has been argued that medical schools, like any other organisations have to take into account of their external environment when developing strategies (Gordon et al., 2000). Looking at the issues raised by practical challenges in the environment across several contexts, Gordon et al. (2000) recommended four strategies for medical schools to promote more effective learning in clinical settings: using approaches to teaching and learning that are consistent with what medical schools already know about what, why and how students learn; providing students and their clinical supervisors with a clear and realistic understanding of the goals that they are expected to achieve and with coping strategies to achieve them; structuring the clinical environment in ways that will reinforce professional values and make the best use of learning opportunities; and capitalizing on the potential of new IT

resources to promote efficient learning in clinical settings. They believed that, in considering the external environment, these strategies lie within the reach of a well-positioned medical school.

In a case study of one medical school in the United States, the authors illustrate the emergent change in the medical school's informal curriculum as a successful and novel approach to organizational development (Cottingham et al., 2008). Despite operating in a regulated environment, large-scale change within a medical school can be promoted with an emergent and non-prescriptive strategy. This can be achieved through an appreciative perspective, as well as a focused and sustained attention to everyday relational patterns.

From the review of limited research on medical schools, a number of issues can be derived as a point of departure for this study. Firstly, there is a need to study medical schools as organisations. Secondly, there is some evidence to show that medical schools can be distinctive from each other but that further research is required which examines the differences between medical schools. Finally, strategy formulation with respect to medical schools' positions should take into account the environment and performance of medical schools. Consequently, this study is well-placed to contribute to perspectives, methods and insights which provide a basis for better understanding strategy formulation in medical schools.

THE CONCEPTUAL FRAMEWORK

The central tenet of the conceptual model proposed in this study is that strategy formulation is influenced by a medical school's external environment. In turn a medical school uses data and information on performance to develop strategy to adapt to that environment. In essence, the conceptual framework, as illustrated in Figure 1, consists of the external environment, the strategic positions, and the performance of universities. The next sub-sections will describe the strategic positioning and performance as conceptualised within the framework. Due to scope of the chapter, the first element of the conceptual framework, environment, will not be discussed here.

Strategic Positioning in Higher Education

The second element of the conceptual framework, the strategic positions of universities, is conceptualised as the position or the niche of the university within the wider environment in which it sits. Strategic positioning in higher education is the process through which higher education institutions locate themselves in specific niches within the higher education system (Fumasoli & Lepori, 2011). It involves institutions selecting a number of dimensions of activities (Popielarz & Neal, 2007) such as research, teaching and learning, knowledge exchange, international or regional engagement (van Vught & Huisman, 2013a). Universities make strategic choices in which dimensions to focus their efforts on, not necessarily for direct

profit-making but for a variety of other reasons, including improving academic reputation. This will take into account the continuous relationship between procuring and allocating of resources, and the dynamic interactions between universities and other organisations within the system as well as with the state and national governments (Fumasoli & Huisman, 2013).

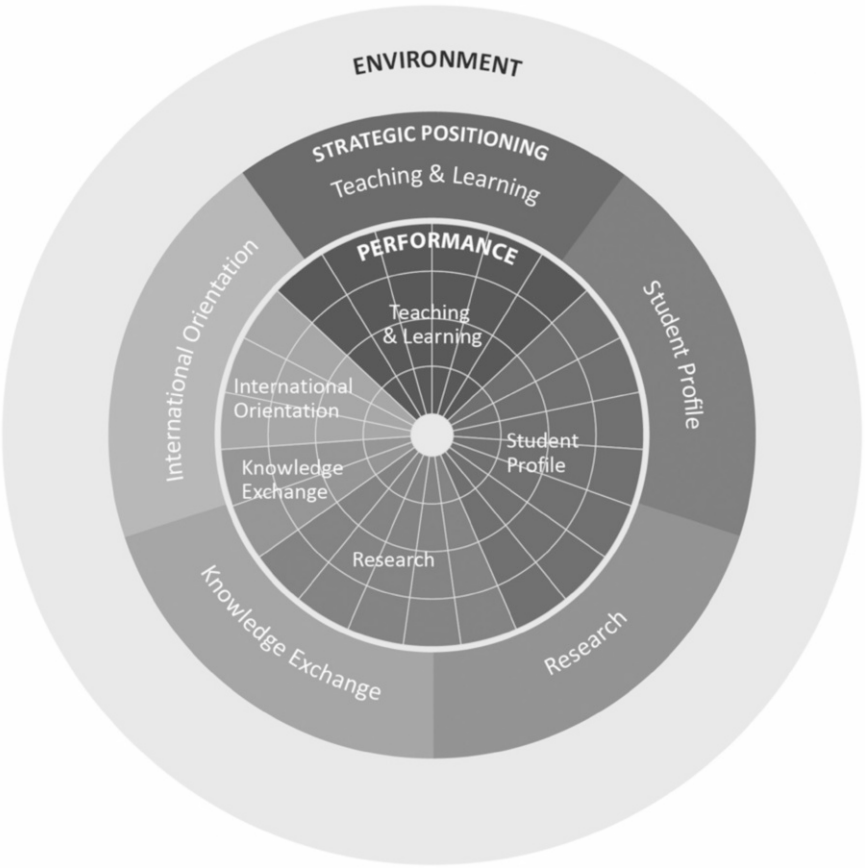

Figure 1. The conceptual framework

The dimensions of teaching and learning, research involvement and knowledge exchange reflect the core functions of higher education institutions (van Vught et al., 2010) and consequently, positions of institutions can be carved out within these three dimensions. However, a classification of positions into the three dimensions is a simplification of the complex world of higher education. In a profiling project of European universities (van Vught et al., 2010), two additional dimensions of international orientation and regional engagement were included, which concern the

extent to which the three core functions are directed at international and regional audiences. An additional dimension of student profile was also incorporated, which focuses on various aspects of the institution's student body as well as its total student enrolment. The authors argued that the nature and positioning of institutions can be partly determined by its student body (van Vught et al., 2010). In the study, the six dimensions were established for validity, reliability and feasibility through a detailed process of stakeholder consultations and a pilot test involving 70 institutions which confirmed that the dimensions are able to capture the essence of what institutions actually do.

In an Australian profiling project built on the European project (Coates et al., 2013; Mahat et al., 2014), the authors excluded the regional dimension. Acknowledging the limitation of this, they argued that there is difficulty in defining a university's 'region' in the Australian context. Further, even if some proxy for geographic region was derived, Australia lacks sector-wide data at sufficient granularity. In the study, the authors found a diversity of missions in Australian universities within the five dimensions of teaching and learning, research, knowledge exchange, international orientation, and student profile.

A review of existing program rankings (see Table 1) also found that league tables tended to focus mostly on teaching and learning, and research. A few of the program rankings also look at the activities of medical schools within knowledge exchange, international orientation, and student profile. Like the U-Map, the field based U-Multirank has an additional regional dimension.

Further, for some universities which see themselves in 'blue ocean' (Kim & Mauborgne, 2005), they may be able to position themselves distinctly through a focus on a single discipline such as business; or particular territory such as postgraduate business engagement or internationalisation; or emphasising on a particular research focus; or on learners; or based on academic enterprise or business-facing mission, as well as attributes such as commitment to diversity, serving the local area and religious affiliation (Morphew & Hartley, 2006).

Previous studies have also shown that organisations may direct their resources towards a limited set of strategic dimensions, in order to avoid becoming 'stuck in the middle' (Mahon & Murray, 1981). For example, organisations have been found to adopt strategies which emphasised some dimensions at the expense of others (Kim & Lim, 1988) or choose between alternative strategies (Lukas, Tan, & Hult, 2001; Tan & Litschert, 1994).

From a review of the literature and program rankings of medical schools, the position of medical schools can be described within the five dimensions of teaching and learning, research, knowledge exchange, international orientation and student profile. Further, for some medical schools which see themselves in 'blue ocean' (Kim & Mauborgne, 2005), they may be able to position themselves distinctly through other markets such as a focus in particular research areas or attributes such as commitment to diversity (Morphew & Hartley, 2006).

Table 1. Summary of program rankings

Program rankings	*Teaching and Learning*	*Research*	*Knowledge exchange*	*International Orientation*	*Student profile*
Academic ranking of World Universities – Clinical Medicine and Pharmacy		✓			
Find the best – medical school	✓				✓
QS World University Rankings by Subject – Medicine and Life Sciences	✓	✓			
The Guardian League Table for Medicine	✓				
THE World University Ranking by Subject – Clinical pre-clinical & health, Life sciences & Physical Sciences	✓	✓	✓	✓	
U-Multirank Field based – Medicine[1]	✓	✓	✓	✓	✓
US News & World Report – Best medical school	✓				✓

Visual Representation of Performance

The focus of the third element of the conceptual framework is on performance. It has been argued that the fit between environmental dimensions and strategy will lead to better organisational performance (Venkatraman & Prescott, 1990). There is also agreement in the literature that strategy is an important determinant of performance when strategic agency is relatively unconstrained (Schendel & Patton, 1978). Furthermore, Miller (1988, 1991) found that the match between strategy and environment was related to performance, especially in challenging settings.

The literature on strategy and performance has mostly been devoted to a study of the conditions under which organizations achieve different levels of effectiveness (see examples of Christensen & Montgomery, 1981; Jauch, Osborn, & Glueck, 1980; Palepu, 1985; Rumelt, 1974, 1982; Tan & Litschert, 1994).

The focus of this study is on the visual representation of a medical school's performance. The importance of visual representation to support decision making has been emphasized by many researchers (Eden & Ackerman, 1998; Foil & Huff, 1992; Lohse, Biolsi, Walker, & Rueter, 1994; Morgan, 1993; Tan & Platts, 2003; Tufte, 1990). From a synthesis of the literature, Tan and Platts (2004) found that visualisation techniques have many cognitive and operational functions, including focuses attention, shares and stimulates thinking, bridges missing information, identifies structure, trends and relationships, highlights key factors, and provides an overview of complex data.

There are a number of published techniques used to visualise performance in a strategy process, none of which capture rapidly, and display immediately in a simple, readily understandable form, all the varied aspects of a strategy (Richards, 2001). Platts and Tan (2004) advanced a number of techniques: performance profiling, strategy charting and tool for action plan strategy, and argued that different techniques should be used at different stages of the strategy process. In the context of higher education, van Vught and Huisman (2013b) identified a number of visual tools which could be used to analyse strategic positioning of higher education institutions: activity profiling, degree profiling, multidimensional performance ranking, and benchmarking. Particularly as a first step in the strategy process and in the context of aligning the environment and its performance (Platts & Tan, 2004), a profiling method would be useful to enable comparisons across multiple dimensions and range of attributes in order to assess the fit between environment and performance (van Vught & Huisman, 2013a).

The Australian University Profiles (Mahat et al., 2014) is an evidence-based visual tool which has been used to profile Australian universities. It was built to mirror two international profiling tools—the U-Map (van Vught et al., 2010) and U-Multirank (van Vught & Ziegele, 2012)—initiated in Europe. The U-Map and U-Multirank tools were developed to allow the creation and analysis of institutional profiles. While both are multi-dimensional—recognising that higher education institutions serve multiple purposes and perform a range of different activities—and user-driven, there are some marked differences between the two. In particular, the U-Map is a European classification mapping tool of higher education institutions which focuses on an institution's activities, while the U-Multirank is a global tool which focuses on performances of institutions.

This study extends the Australian University Profiles to the medical school level. There are a number of reasons why the Australian University Profile has been selected for this study. Firstly, the profiling tool could be utilised to display a comparative picture and the alignment between environment and achieved performance (Platts & Tan, 2004). Secondly, it could be used to make a range of profiles visible and transparent and only focuses at comparing "apples with apples and oranges with oranges" (van Vught & Huisman, 2013b, p. 30). Finally, it was found that the use of multiple colour-coded dimensions was engaging and provides a clear visual representation of performance (Mahat et al., 2014).

In the context of the present study, the tool was adapted to focus on the performance of medical schools. Through a rigorous process of validation (see Figure 2), a number of indicators were removed, adapted or included to suit the medical school context. A final set of 23 indicators were selected based on three criteria of practical consideration, technical consideration, and substantive consideration.

Practical criterion refers to data availability, data comparability and data stability. If the data was not available, or comparable, or stable, it was not included in the

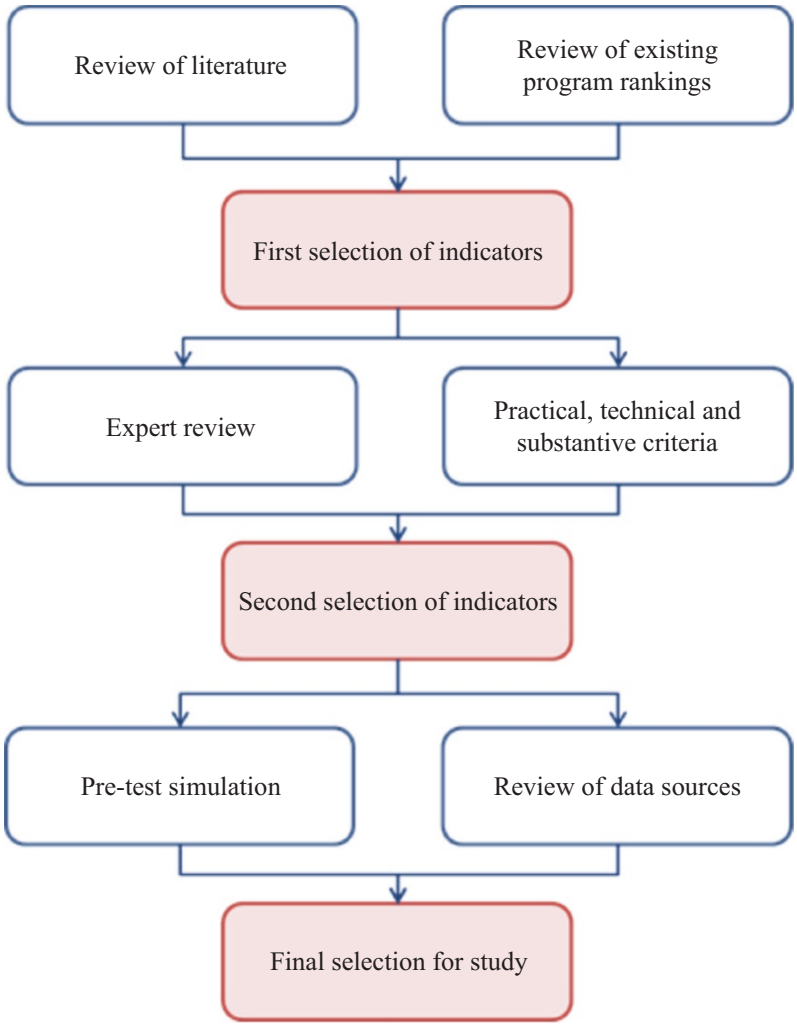

Figure 2. Indicator selection process

tool. The ideal scenario in terms of data availability from the point of view of validity, reliability and parsimoniousness of data collection (i.e. not bothering medical schools with unnecessary questionnaires) is to use existing databases or other publicly available sources, where, for the most part, third parties would have validated data. For this study, data was gathered from various established sources, including from the Department of Education, government and other databases (e.g. *uCube* and SciVal); websites (e.g. National Health and Medical Research Council (NHMRC) and Medical Deans Australia and New Zealand (MDANZ)); and other organizations (e.g. Social Research Centre and Graduate Careers Australia).

In terms of comparability, the indicators allow comparisons between medical schools (i.e. broadly similar definitions are used across medical schools so that data are comparable). For instance, some of the Australian medical schools combine a number of different foci including nursing and dentistry within the medical school framework. Consequently, the internal academic organizational structures vary between medical schools, as medical schools have different fields of education depending on their areas of disciplinary focus. Fields of education as defined by Australian Standard Classification of Education (ASCED) were initially mapped for a number of medical schools. In order to be consistent across medical schools, a broad range of fields of education were used in the profiling tool. Hence, while the data was comparable across medical schools, the profiling tool presented for each medical school may not reflect the actual internal academic structure of individual medical school.

Technical criterion included whether the data was valid and reliable. Validity means that the indicator measures what it claims to measure and is not confounded by other factors. This criterion is broken down into concept and construct validity (i.e. the indicator focuses on the performance of medical schools) and is defined in such a way that it measures 'relative' characteristics (e.g. controlling for size of the institution), and face validity (i.e. the indicator is used in other benchmarking and/or ranking exercises and thus may be regarded as a measure of performance which already appears to be used). Reliability indicates that the measurement of the indicator is the same regardless of who collects the data or when the measure is repeated. The data sources and the data to build the indicator are reliable and consequently consistent.

Substantive criterion indicates whether it was linked with outcomes, whether there were meaningful differences or whether it was research-, practical- or policy-driven. While many indicators could be of potential interest, there is no value in collecting information that is unlikely to distinguish between medical schools. Additionally, it is desirable that the data have prior research, or practical, or policy foundations. Evidence on such grounds is used to inform the use of individual indicators.

In arriving at the final tool, the evaluation of each indicator was both theory- and data-driven. Annexure A summarises the dimension and indicators used in the profiling tool for the current study.

RESEARCH METHODS

The research methods consist of quantitative analysis of data to assess and benchmark the performance of medical schools in Australia and qualitative interviews of academic and professional staff at six case study medical schools. Medical schools were selected, through purposive sampling (Kerlinger, 1986) in order to gain a range of perspectives from different size and/or groupings of universities in Australia. A total of 21 semi-structured interviews were conducted at the six medical schools. Interviews were conducted with the head/dean of the medical schools, as well as a range of staff who, at the time of the interviews, had substantive role in the management of the medical school and/or with specific responsibility in one or more of the following areas: teaching, learning, research and management. A profile of staff interviewed and the schools and universities is provided in Tables 2 and 3.

Analysis of the qualitative data took the form of relatively straightforward thematic analysis. This involved initial listening of all audio files to gain an overall sense of the data. These interviews were transcribed, read and re-read and 'open-coded' to produce an initial code list until, the analysis had reached theoretical saturation. Although some codes were adapted which directly used the language of the participants, the majority were researcher-led and analytic. From

Table 2. Profile of participants

	N = 21 *n*	*Percent*
Gender		
Female	7	38%
Male	14	62%
Function type		
Academic	19	90%
Professional	2	10%
Position type		
Heads/Deans of medical schools	6	29%
Clinical Deans	1	5%
Heads of others schools/departments	3	14%
Associate Dean or similar (with specific responsibility)	3	14%
Professors/Chairs	5	24%
Senior lecturer	1	5%
Professional staff	2	10%

Table 3. Profile of universities and medical schools

	N = 6 *N*	*Percent*
Age of university		
Under 50 years	2	33%
50 – 70 years	2	33%
Above 70 years	2	33%
Size of university		
Small (Under 25,000 students)	0	0%
Medium (25,000 – 45,000 students)	4	67%
Large (Above 45,000 students)	2	33%
Age of medical school		
Under 10 years	2	33%
10 – 50 years	2	33%
Above 50 years	2	33%
Size of medical school		
Small (Under 500 students)	1	17%
Medium (500 – 1000 students)	2	33%
Large (Above 1000 students)	3	50%

this basis, the data were then selectively coded in terms of categories identified with the initial code list directly related to the research questions of the study mentioned earlier.

Analysis of the quantitative data involves an analysis of the performance of all 18 medical schools in Australia. The indicators exhibited normal characteristics and hence the four benchmark categories were set by taking quartiles of the national distribution. Each medical school was placed in the first, second, third or fourth group or quartile on each indicator. The output was compiled graphically into a sunburst performance profile for each medical school.

FINDINGS

The qualitative and quantitative findings are illustrated pictorially in Figure 3, based on the conceptual framework described earlier. Based on the thematic analysis of the interview data, grey-shaded dimensions indicate the dimensions in which medical schools has made strategic decisions to focus on. Dimensions which are not shaded means that a medical school does not consider these dimensions as ones it focuses its efforts and resources on although it may conduct some or limited

activities within those dimensions. Figure 3 also provides the performance profile for each medical school.

Strategic Positioning of Medical Schools

The qualitative findings suggest that the medical schools seem to focus predominantly on teaching and learning, and research (Brosnan, 2010; Trumble, 2010). From Figure 3, all case study medical schools seem to strive for graduate outcomes through a focus on teaching and learning. Within a regulated environment where the Australian Federal government sets the student numbers and fees, developing a distinctive position through teaching and learning is probably one of the most obvious ways medical schools can position themselves. From the analysis of the data, this seems to be the case as each medical school has attempted to develop a distinctive medical curriculum as compared to other medical schools. This is particularly more so in the younger medical schools as they are more focused on the vocation rather than research (Trumble, 2010).

Research can also be seen as one differentiating factor common across all medical schools. Research is perceived by the more established medical schools as a strategic position it already occupies, and for the younger ones, something it aspires to have in the future. This finding challenges Trumble's (2010) notion that research has little value for those medical schools focused on the vocation. It also points to a more global agenda to improve reputation and prestige through a highly regarded research profile and consequently a higher position in global rankings (van Vught, 2008). In all the case study medical schools, the choice of which research areas to focus on is increasingly deliberate—either as a distinctive feature for the medical school or in an attempt to focus on high performing research areas.

As can be seen from Figure 3, not all medical schools position themselves through the dimensions of knowledge exchange, student profile and international orientation. This concur with previous studies (Kim & Lim, 1988; Lukas et al., 2001; Tan & Litschert, 1994), in that medical schools emphasised some dimensions at the expense of others. Remarkably, only one medical school (M5) seem to occupy a position in which its activities cut across all five dimensions. Location, age and size are seen as distinctive attributes for some medical schools.

From the analysis of the findings, some medical schools do attempt to position themselves in 'blue ocean' (Kim & Mauborgne, 2005). For the more established medical schools, M3 and M5, their international orientation in teaching and learning and research could be seen as an attempt to position themselves in distinctive markets. Furthermore, medical schools, M1, M2 and M6, pride themselves in having a focus on medical education research despite it not being a high national priority area.

The findings of the study concurs with previous studies (Brosnan, 2010; Lawson et al., 2004) in that medical schools are not all the same. They diverge in terms of their core functions of teaching and learning, research, and knowledge exchange as well as have varying histories, locations, size, student profile and international

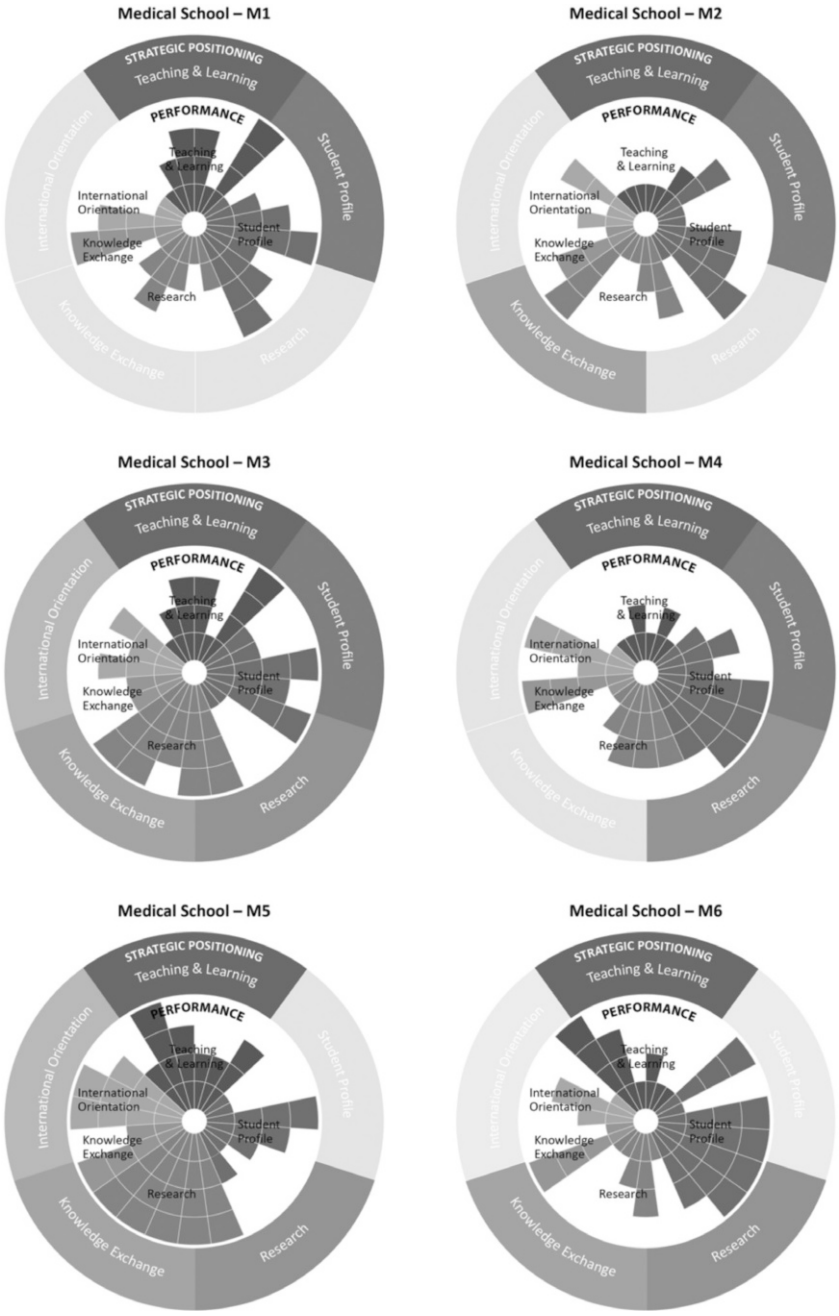

Figure 3. Positions and performances of medical schools

orientation. Attributes such as location and size are used to differentiate medical schools, but on their own are not sufficient to position medical schools strategically within the system. It would seem that all medical schools position themselves against the two differentiating factors of teaching and learning, and research, and make use of other attributes to strengthen its position within the system (Morphew & Hartley, 2006).

Performance of Medical Schools

The quantitative findings suggest that the performance of medical schools, for the most part, is aligned to the positions of medical schools. As illustrated in Figure 3, while all medical schools have some activities across all dimensions, the visual profiling tool seems to indicate that the performance of each medical school is quite aligned to the individual strategic position. For medical school M1, for instance, their performance in teaching and learning and student profile seems to be quite consistent to the position it has defined for itself. Likewise, the performance of medical school M3 across all five dimensions seem to correspond to its strategic position within the system.

Only one medical school's performance did not seem to fit the strategic position it has articulated for itself. While participants in M6 perceive its position to be focused in teaching and learning, research, and knowledge exchange, their performance in these dimensions did not seem to measure up. This could just mean that the medical school was not performing as well as it could be in those areas. Additionally its performance in student profile, seem to indicate a distinctive feature for the medical school, one which was not perceived by participants.

When presented with the profiling tools, participants found that the visual profiling tool was better than just numbers on a page, visually engaging across the different dimensions of activities and colour, and provides an overview of the performance of the medical school. Participants agreed that the tool would be useful for strategy formulation: for external accountability purposes, to effect improvements, to direct discussions and enable more-focussed planning, to encourage a system of accountability that sets clear expectations of standards for performance, to promote a culture of evidence-based decision-making and continuous improvement, and to provide evidence to senior management and other stakeholders of the achievements of the medical school. The profiling tool could also be used to analyse strengths and weaknesses, focus resources and investment in areas where it might improve strategic positions of medical schools, and enable medical schools to outline priorities.

Analysing medical schools' performance suggests that performance standards and their degree of achievement do have an impact on strategy formulation in medical schools. A poor performance on one measure or activity may lead to strategic decisions aimed at effecting improvements, if it was considered to be of strategic importance to that medical school. The key to executing strategy is to have staff in the medical school understand it. It is evident from the findings, that a visual

profiling tool, which can convey instantly and memorably relationships that would otherwise be obscure, could be used effectively in the strategy formulation process (Platts & Tan, 2004).

DISCUSSION AND IMPLICATIONS FOR THEORY AND PRACTICE

Despite the highly structured and regulated field in which medical schools are located, the results of the empirical analyses provide evidence of strategic positioning and niche-finding behaviour of medical schools. Additionally, the findings of the study support the contention that within the regulated environment, medical schools are indeed able to formulate coherent strategies in order to achieve superior performance. Despite previous research, which has argued that strategy is contested due to the nature and complexity of the sector and the university (Amaral et al., 2002; Gumport, 2001; Leslie, 1996; Musselin, 2007), the findings of this study have shown the contrary, and accordingly challenge these assertions.

The findings also challenge prevailing notions which suggest that organizations functioning in regulated contexts will be unable to achieve sustainable competitive advantage given the extent of regulatory control of competitive dimensions (for example, Mahon, & Murray, 1980, 1981; Smith & Grimm, 1987). This has implications for strategic leadership and management in higher education. Australian universities have seen the emergence of professional middle management that complements a similar structure at the central university level (Goedegebuure & Schoen, 2014). As well, there is likely to be an expansion and diversification of roles—reflecting an increasing variety of broad functions required in the future (Coates & Goedegebuure, 2010, 2012) such as business, commercial, and general capabilities. These include the management of multiple functions in a complex environment, delivering a wide transformational agenda, conducting a bridging role with external partners, organisational skills, and the capacity to create, navigate and lead networks and alliances locally and internationally across sectors, and with business and governments (Perkmann et al., 2013; Varpio et al., 2014).

The findings also suggest that the visual profiling tool provides evidence that transparency is of major importance for strategy formulation in higher education. Higher education institutions function in an increasingly complex environment and as a result require more reflective and data-driven strategic leadership and management. Such strategic leadership and management must be evidence-based and occur within transparent internal and external frameworks that can structure evaluation and application of data. The profiling tool provides indication that transparent reporting of the right kind of data is possible. In an era of greater accountability, such a transparent profiling tool can assist institutional leaders and policy makers to better understand, analyse and position themselves in rapidly changing contexts, nationally and internationally.

This study is based on specific conceptual choices: strategic positioning, which is analysed according to its alignment to environment and performance. From the

profiles of medical schools, strategic positioning can also be inquired as institutional spaces whose meaning is dynamically constructed by social actors through collective processes (Mohr & Lee, 2000; Rawlings & Bourgeois, 2004). A power approach could also be useful for understanding strategy formulation in medical schools, particularly from perspectives of bases of power in organisations (Emerson, 1962; French & Raven, 1959).

Finally, it would also be useful to address the prescriptive question of what types of alignments among environment, strategy, and internal features are important to organizational performance. Particularly in the early years of medical schools, a systematic comparative investigation of the relationships between organizational structure and situational variables would produce promising insights for structural configurations of medical schools (Blau, Heydebrand, & Stauffer, 1966; Hall, 1962; Pugh, Hickson, & Hinings, 1968).

NOTE

[1] Include one additional dimension of regional.

REFERENCES

Amaral, A., Jones, G., & Karseth, B. (2002). *Governing higher education: National perspectives on institutional governance* (Vol. 1). New York, NY: Springer Science & Business Media.

Ansoff, H. I. (1965). *Corporate strategy*. New York, NY: McGraw-Hill.

Baldridge, J. V. (1971). *Power and conflict in the university: Research in the sociology of complex organizations*. New York, NY: John Wiley.

Blau, P. M., Heydebrand, W. V., & Stauffer, R. E. (1966). The structure of small bureaucracies. *American Sociological Review, 31*(2), 179–191.

Brosnan, C. (2009). Pierre Bourdieu and the theory of medical education: Thinking "relationally" about medical students and medical curricula. In C. Brosnan & B. S. Turner (Eds.), *Handbook of the sociology of medical education* (pp. 51–68). Abingdon: Routledge.

Brosnan, C. (2010). Making sense of differences between medical schools through Bourdieu's concept of "field". *Medical Education*, *44*(7), 645–652. Retrieved from http://doi.org/10.1111/j.1365-2923.2010.03680.x

Bryson, J. M. (1988). A strategic planning process for public and non-profit organizations. *Long Range Planning*, *21*(1), 73–81.

Chaffee, E. E. (1985). Three models of strategy. *The Academy of Management Review*, *10*(1), 85–98.

Christensen, H. K., & Montgomery, C. A. (1981). Corporate economic performance: Diversification strategy versus market structure. *Strategic Management Journal*, *2*(4), 327–343.

Coates, H., & Goedegebuure, L. C. J. (2010). *The real academic revolution: Why we need to reconceptualise Australia's future academic workforce, and eight possible strategies for how to go about this*. Melbourne: LH Martin Institute.

Coates, H., & Goedegebuure, L. C. J. (2012). Recasting the academic workforce: Why the attractiveness of the academic profession needs to be increased and eight possible strategies for how to go about this from an Australian perspective. *Higher Education*, *64*(6), 875–889.

Coates, H., Edwards, D., Goedegebuure, L. C. J., Thakur, M., van der Brugge, E., & van Vught, F. A. (2013). *Profiling diversity of Australian universities*. Camberwell: Australian Council for Educational Research. Retrieved from http://www.lhmartininstitute.edu.au/userfiles/files/Projects/Australian Institution Profiles (updated 310513)/LHMI ACER Research Briefing -- Australian Institution Profiles_updated050613.pdf

Cottingham, A. H., Suchman, A. L., Litzelman, D. K., Frankel, R. M., Mossbarger, D. L., Williamson, P. R., Baldwin, D. C. J., & Inui, T. S. (2008). Enhancing the informal curriculum of a medical school: A case study in organizational culture change. *Journal of General Internal Medicine*, *23*(6), 715–722.

Cribb, A., & Bignold, S. (1999). Towards the reflexive medical school: The hidden curriculum and medical education research. *Studies in Higher Education*, *24*(2), 195–209.

Eden, C., & Ackerman, F. (1998). *Making strategy*. London: Sage Publications.

Emerson, R. E. (1962). Power-dependence relations. *American Sociological Review*, *27*(1), 31–41.

Foil, C. M., & Huff, A. S. (1992). Maps for managers: Where are we?, Where do we go from here? *Journal of Management Studies*, *29*(3), 267–285.

French, J. R., & Raven, B. (1959). The bases of social power. In D. Cartwright (Ed.), *Classics of organization theory* (pp. 311–320). Belmont, CA: Wadsworth.

Fumasoli, T., & Huisman, J. (2013). Strategic agency and system diversity: Conceptualizing institutional positioning in higher education. *Minerva*, *51*(2), 155–169. Retrieved from http://doi.org/10.1007/s11024-013-9225-y

Fumasoli, T., & Lepori, B. (2011). Patterns of strategies in Swiss higher education institutions. *Higher Education*, *61*(2), 157–178. Retrieved from http://doi.org/http://dx.doi.org/10.1007/s10734-010-9330-x

Goedegebuure, L. C. J., & Schoen, M. (2014). Key challenges for tertiary education policy and research – An Australian perspective. *Studies in Higher Education*, *39*(8), 1381–1392. Retrieved from http://doi.org/10.1080/03075079.2014.949542

Gordon, J., Hazlett, C., ten Cate, O., Mann, K., Kilminster, S., Prince, K., O'Driscoll, E., Snell, L., & Newble, D. (2000). Strategic planning in medical education: Enhancing the learning environment for students in clinical settings. *Medical Education*, *34*(10), 841–850. Retrieved from http://doi.org/10.1046/j.1365-2923.2000.00759.x

Gumport, P. J. (2001). Restructuring: Imperatives and opportunities for academic leaders. *Innovative Higher Education*, *25*(4), 239–251.

Hall, R. H. (1962). Intraorganizational structural variation: Application of the bureaucratic model. *Administrative Science Quarterly*, *7*(3), 295–308.

Jauch, L. R., Osborn, R. N., & Glueck, W. F. (1980). Short term financial success in large business organizations: The environment-strategy connection. *Strategic Management Journal*, *1*(1), 49–63.

Jefferys, M., & Elston, M. A. (1989). The medical school as a social organization. *Medical Education*, *23*(3), 242–251.

Kerlinger, F. N. (1986). *Foundations of behavioral research* (3rd ed.). Japan: CBS Publishing Limited.

Kim, L., & Lim, Y. (1988). Environment, generic strategies, and performance in a rapidly developing country: A taxonomic approach. *Academy of Management Journal*, *31*(4), 802–827.

Kim, W. C., & Mauborgne, R. (2005). *Blue ocean strategy: How to create uncontested market space and make the competition irrelevant*. Boston, MA: Harvard Business School Publishing.

Lawson, K. A., Chew, M., & Van Der Weyden, M. B. (2004). The new Australian medical schools: Daring to be different. *The Medical Journal of Australia*, *181*(11/12), 662–666.

Leslie, D. W. (1996). "Strategic governance": The wrong questions? *The Review of Higher Education*, *20*(1), 101–112.

Light, D. W. (1988). Toward a new sociology of medical education. *Journal of Health and Social Behavior*, *29*(4), 307–322.

Lohse, G., Biolsi, K., Walker, N., & Rueter, H. (1994). A classification of visual representations. *Communications of the ACM*, *37*(12), 36–49.

Lukas, B. A., Tan, J. J., & Hult, G. T. M. (2001). Strategic fit in transitional economies: The case of China's electronics industry. *Journal of Management*, *27*(4), 409–429.

Maassen, P. A. M., & Potman, H. P. (1990). Strategic decision making in higher education. An analysis of the new planning system in Dutch higher education. *Higher Education*, *20*, 393–410.

Mahat, M., Coates, H., Edwards, D., Goedegebuure, L. C. J., van der Brugge, E., & van Vught, F. A. (2014). Profiling diversity of Australian universities. In R. Krempkow, P. Pohlenz, & N. Huber (Eds.), *Diversity Management und Diversitat in der Wissenschaft*. Bieleford: UVW UniversitatsVerlagWebler.

Mahon, J. F., & Murray, E. A. (1980). Deregulation and strategic transformation. *Journal of Contemporary Business*, *9*(2), 123–138.
Mahon, J. F., & Murray, E. A. (1981). Strategic planning for regulated companies. *Strategic Management Journal*, *2*(3), 251–262.
March, J. G., & Olsen, J. P. (1976). *Ambiguity and choice in organizations*. Bergen: Universitetsforlaget.
Miller, D. (1988). Relating Porter's business strategies to environment and structure: Analysis and performance implications. *Academy of Management Journal*, *31*, 280–308.
Miller, D. (1991). Stale in the saddle: CEO tenure and the match between organization and environment. *Management Science*, *37*(1), 34–52.
Mintzberg, H. (1983). *Power in and around organizations*. Englewood Cliffs, NJ: Prentice-Hall.
Mohr, J. W., & Lee, H. K. (2000). From affirmative action to outreach: Discourse shifts at the University of California. *Poetics*, *28*(1), 47–71.
Morgan, G. (1993). *Imagination: The art of creative management*. Thousand Oaks, CA: Sage Publications.
Morphew, C. C., & Hartley, M. (2006). Mission statements: A thematic analysis of rhetoric across institutional type. *The Journal of Higher Education*, *77*(3), 456–471.
Murray, E. A., & Isenman, A. W. (1978, August). The concept of strategy formulation as a negotiation process. *Academy of Management Meeting*.
Musselin, C. (2007). Transformation of academic work: Facts and analysis. In M. Kogan & U. Teichler (Eds.), *Key challenges to the academic profession* (pp. 175–190). Kassel: UNESCO Forum on Higher Education, Research and Knowledge/International Centre for Higher Education Research Kassel.
Palepu, K. (1985). Diversification strategy, profit performance and the entropy measure. *Strategic Management Journal*, *6*(3), 239–255. Retrieved from http://doi.org/10.1002/smj.4250060305
Perkmann, M., Tartari, V., McKelvey, M., Autio, E., Brostrom, A., D'Este, P., & Fini, R. (2013). Academic engagement and commercialisation: A review of the literature on university-industry relations. *Research Policy*, *42*(2), 423–442.
Platts, K., & Tan, K. H. (2004). Strategy visualisation: Knowing, understanding, and formulating. *Management Decision*, *42*(5), 667–676.
Popielarz, P. A., & Neal, Z. P. (2007). The niche as a theoretical tool. *Annual Review of Sociology*, *33*(1), 65–84. Retrieved from http://doi.org/10.1146/annurev.soc.32.061604.123118
Post, J. E., & Mahon, J. F. (1980). Articulated turbulence: The effect of regulatory agencies on corporate responses to social change. *Academy of Management Review*, *5*(3), 399–407.
Pugh, D. S., Hickson, D. J., & Hinings, C. R. (1968). An empirical taxonomy of structures of work organizations. *Administrative Science Quarterly*, *13*(June), 65–105.
Rawlings, C. M., & Bourgeois, M. D. (2004). The complexity of institutional niches: Credentials and organizational differentiation in a field of US higher education. *Poetics*, *32*(6), 411–446.
Richards, H. (2001). *Information representation, unpublished working paper*. Cambridge.
Rumelt, R. P. (1974). *Strategy, structure and economic performance*. Cambridge, MA: Harvard University Press.
Rumelt, R. P. (1982). Diversification strategy and profitability. *Strategic Management Journal*, *3*, 359–369.
Schendel, D. E., & Patton, G. R. (1978). A simultaneous equation model of corporate strategy. *Management Science*, *24*(15), 1611–1621.
Smith, K. G., & Grimm, C. M. (1987). Environmental variation, strategic change and firm performance: A study of railroad deregulation. *Strategic Management Journal*, *8*(4), 363–376.
Tan, J., & Litschert, R. J. (1994). Environment-strategy relationship and its performance implications: An empirical study of Chinese electronics industry. *SSRN Electronic Journal*, *1*. Retrieved from http://doi.org/10.2139/ssrn.1552172
Tan, K. H., & Platts, K. (2003). Linking objectives to action plans: A decision support approach based on the connectance concept. *Decision Sciences Journal*, *34*(3), 569–593.
Thelin, J. R. (2004). Higher education and the public trough. In E. P. St. John & M. D. Parson (Eds.), *Public funding of higher education: Changing contexts and new rationales* (pp. 21–39). Baltimore, MD: The John Hopkins University Press.
Trumble, S. (2010). Outstanding in their field: Distinguishing medical schools. *Medical Education*, *44*(7), 640–642.

Tufte, E. (1990). *Envisioning information*. Cheshire, CT: Graphics Press.
van Vught, F. A. (2008). Mission diversity and reputation in higher education. *Higher Education Policy*, *21*(2), 151–174. Retrieved from http://doi.org/10.1057/hep.2008.5
van Vught, F. A., & Huisman, J. (2013a). Institutional profiles. *Tuning Journal for Higher Education*, *1*(1), 1–7.
van Vught, F. A., & Huisman, J. (2013b). Institutional profiles: Some strategic tools. *Tuning Journal for Higher Education*, *1*(1), 21–36.
van Vught, F. A., & Ziegele, F. (2012). *Multidimensional ranking. The design and development of U-Multirank*. Dordrecht: Springer.
van Vught, F. A., Kaiser, F., File, J. M., Gaethgens, C., Peter, R., & Westerheijden, D. F. (2010). *U-Map: The European classification of higher education institutions*. Enschede: CHEPS.
Varpio, L., Bidlake, E., Humphrey-Murto, S., Sutherland, S., & Hamstra, S. J. (2014). Key considerations for the success of medical education research and innovation units in Canada: Unit director perceptions. *Advances in Health Sciences Education: Theory and Practice*, *19*(3), 361–377. Retrieved from http://doi.org/10.1007/s10459-013-9479-z
Venkatraman, N., & Prescott, J. E. (1990). Environment-strategy coalignment: An empirical test of its performance implications. *Strategic Management Journal*, *11*(1), 1–23.

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APPENDIX A

Dimension	*Indicator label*	*Indicator detail*	*Data source*
Teaching and Learning	Academic staff	The proportion of academic staff in the medical school as a proportion of all academic staff in the institution.	Department of Education/ *uCube*
	Staff to student ratio	The ratio of staff to students.	Department of Education
	Retention rate	Retention rate of commencing bachelor domestic students.	Department of Education
	Quality of Teaching	The proportion of undergraduate domestic later students who responded in the top two response categories for this item in the Student Experience Survey (SES).	Social Research Centre
	Quality of educational experience	The proportion of undergraduate domestic later students who responded in the top two response categories for this item in the Student Experience Survey (SES).	Graduate Careers Australia
	Overall satisfaction	The proportion of domestic undergraduate students who completed their degree program in the previous year who were satisfied (‘Agree’ and ‘Strongly agree’) with the overall quality of their course in the Course Experience Questionnaire (CEQ).	Social Research Centre

(Continued)

Dimension	*Indicator label*	*Indicator detail*	*Data source*
Student profile	Student body	The proportion of students enrolled in medical school as a proportion of university's student body, as measured by the Effective Full-time Student Load (EFTSL).	Department of Education/ *uCube*
	Medical students	The number students who are enrolled in medical programs as a proportion of all students in the medical school (Headcount).	MDANZ/Department of Education
	Postgraduate students	The number of domestic and international postgraduate students as a proportion of all students in the medical school (EFTSL).	Department of Education
	Mature age students	The proportion of students enrolled in the medical school who are mature age (30 years or more) (EFTSL).	Department of Education
	Part-time students	The proportion of students enrolled in in the medical school who are part time (EFTSL).	Department of Education
	Low Socio Economic Status (SES) students	The proportion of students enrolled in the medical school who come from low socio-economic status (SES) (% of cohort).	Department of Education
	Regional students	The proportion of students enrolled in the medical school who come from regional/remote areas.	Department of Education

Dimension	*Indicator label*	*Indicator detail*	*Data source*
Research	Research publications per academic	The ratio of academic weighted research publications to academic staff.	SciVal/Department of Education
	Citations per paper	The average number of citations received per publication.	SciVal
	Research income per academic	The ratio of National Health and Medical Research Council (NHMRC) research income per academic staff	NHMRC/Department of Education
	Higher Degree Research (HDR) students	The proportion of students in the medical school who are in higher degree research (EFTSL)	Department of Education/ *uCube*
	Graduates in full-time study	The proportion of graduates in further full-time study as reported by the Australian Graduate Survey (AGS).	Graduate Careers Australia
Knowledge exchange	Co-publications with industry partners	The number of publications with both academic and corporate affiliations as a proportion of all publications.	SciVal
	Graduates in full-time work	The proportion of graduates in full-time employment as reported by the Australian Graduate Survey (AGS).	Graduate Careers Australia
International orientation	International students	The proportion of students enrolled in the medical school who are international (EFTSL).	Department of Education
	Staff with overseas qualifications	The proportion of academic staff that obtained their highest qualification overseas.	Department of Education
	International co-authorship	The proportion of total research publications that have at least one international co-author.	SciVal

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8. THE INTEGRATION OF QUALITY MANAGEMENT IN UNIVERSITIES

An Analysis Based on Quality Policy Statements

INTRODUCTION

Theoretically, a more integrative vision of quality management (QM) practices is being proposed (Manatos, Sarrico, & Rosa, 2015), and universities seem to be in the process of following a path towards a stronger integration of their QM practices (Rosa & Amaral, 2007; Sousa & Voss, 2002; Srikanthan & Dalrymple, 2002, 2007).

Our aim is to understand whether the QM policies of universities approach their different processes in an integrated way, i.e. whether there are articulated policies, goals, strategies for teaching and learning, for research and scholarship, for the third mission and for the support processes, or whether they are somewhat fragmented. We also aim to understand whether the QM policies integrate the different organisational levels, i.e. whether the programmes, the basic units and the institution as a whole are called to participate and are involved in the QM policies. Finally, we aim to understand whether universities integrate in their QM policies the different QM principles (as stated in ISO, 2012).

In addition, we aim to understand to what extent QM is integrated in the broader management and governance framework of universities. Particularly, the goal is to comprehend whether: (i) QM is part of the global strategy of the universities; (ii) those responsible for the QM structures are articulated with the top management and governance bodies of the universities; and (iii) QM is a tool for strategic management.

The empirical base of the study rests with three paradigmatic cases in Portugal. We believe that it is interesting to understand how the more advanced universities in terms of the development of internal QM systems behave regarding the integration of QM policies, considering their main processes and mission, their different organisational levels, the QM principles, as well as in terms of the integration of these policies in their overall management and governance systems.

LITERATURE REVIEW

The Integration of Quality Management in Higher Education

Universities are traditionally fragmented and loosely coupled organisations (Cohen, March, & Olsen, 1972; Deem, 1998; Orton & Weick, 1990; Weick, 1976). In

C. Sarrico et al. (Eds.), Global Challenges, National Initiatives, and Institutional Responses, 143–158.

fact, as Orton and Weick (1990: 207) emphasise, universities have a fragmented internal and external environment, motivated by the existence of "dispersed stimuli or incompatible expectations", and consequently, are loosely-coupled systems and can be seen as "organised anarchies" (Cohen et al., 1972; Deem, 1998; Frølich, Huisman, Slipersæter, Stensaker, & Bótas, 2013; Orton & Weick, 1990).

However, there are indications that universities are increasingly interested in integrating their main processes – research and scholarship, teaching and learning, third mission and support processes – and consequently their management practices (Duque, 2013; Manatos et al., 2015; Rodman, Biloslavo, & Bratož, 2013; Rosa, Saraiva, & Diz, 2001, 2003; Van Vught & Westerheijden, 2010). Moreover, the management context of universities seems to be more and more integrated, leading to the centralisation of power in a small number of decision-making and governance bodies (Melo, Sarrico, & Radnor, 2010).

The literature also seems to be concerned with the development of QM frameworks in a holistic way, combining different aspects of quality. This tendency for holistic approaches appears to be connected with the discussion and development of QM frameworks (Rosa et al., 2001, 2003; Srikanthan & Dalrymple, 2002, 2007), which have been imported and adapted from industry; and also with the implementation of national models, internal and external quality models, or accreditation systems (Doherty, 2008; Rosa, Cardoso, Dias, & Alberto, 2011).

We understand integration as the development of QM practices within organisations which are part of their global management systems, covering different processes, organisational levels and QM principles.

As processes, we considered not only the three main processes of universities (teaching and learning, research and scholarship and the third mission), but also support processes (Barnett, 1990). Teaching and learning, together with research and scholarship, are core activities in universities. The third mission reflects the engagement of universities in business-related activities, local and regional development, economic growth and societal development in general (Laredo, 2007). The support processes cover all sorts of services and processes, ranging from administrative, accommodation, estates, sports, cultural and other services (Yeo & Li, 2014).

The organisational levels were divided into programme, basic unit (department, faculty or other basic unit of the university), and institution (Brennan & Shah, 2000).

As QM principles, we considered customer focus, leadership, involvement of people, process approach, system approach, continuous improvement, factual approach to decision making and mutually beneficial supplier relationships (ISO, 2012). Customer focus means the concern of universities with customer identification, their needs and expectations. Leadership is related to the role of the management bodies of universities, with respect to the definition of the mission, the values and the goals of the universities, and the promotion of a quality culture. The involvement of people is translated into the efforts to include the people working in universities (academic and non-academic staff and students) in the quality management process.

The process approach has to do with the management of the different missions of universities (teaching and learning, research and scholarship, third mission and support processes) as processes, i.e., as a set of inter-related activities which turn inputs into outputs. The system approach is related to the management of the different processes, units and services of universities in an integrated way. Continuous improvement translates the efforts of universities to continually improve their quality. Factual approach to decision making, as the name suggests, means that decisions in universities are based in the analysis of data and information provided by different sources. Mutually beneficial supplier relationships are translated into the concern of universities to develop relationships with suppliers, or, at a broader sense, and as we understand it for the purposes of this study, with their external stakeholders, such as parents, secondary schools, future employers, local community and the society as a whole, similarly to what is now proposed in the new version of the ISO 9000 standards (ISO, 2015).

The Role of National Accreditation Agencies

The European policy for higher education and the national assessment and accreditation agencies have been crucial to firmly establish quality assurance policies and practices in European universities (Sarrico, Veiga, & Amaral, 2013; Veiga & Sarrico, 2014). The European higher education quality landscape has evolved quite rapidly, and by 2010 almost all European universities had implemented some form of national quality assurance procedures (Kohoutek & Westerheijden, 2014). This evolution has been boosted by European entities, which have been encouraging the quality debate in the European higher education area and attempting to create a common understanding of the principles and procedures associated with internal and external quality assurance (ENQA, 2009; Kohoutek & Westerheijden, 2014; Veiga & Sarrico, 2014). In this context, the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) , developed in response to the demands from the Berlin Communiqué (2003), were crucial to the promotion and the development of internal QM systems in universities (ENQA, 2009).

The national accreditation agencies have also played a role in this process, making universities more aware of internationalisation and of the European exigencies (Rosa & Sarrico, 2012). Some of these agencies, namely in Portugal, Spain, Finland, Norway and Austria, have already started to audit, certify and accredit the internal QM systems of universities. The original goal was to provide guidance for universities to develop their QM systems, but it also acts towards the reinforcement of integrative QM systems in institutions. This practice is not yet common to all the countries of the European higher education area, but it appears to be growing.

In Portugal, the Agency for Assessment and Accreditation of Higher Education (A3ES), in parallel with its assessment and accreditation activities of study programmes, promotes the implementation and certification of institutional internal QM systems. In 2011, the A3ES adopted a model for auditing internal systems of

QM with a view to their certification, which includes the following main dimensions: institutional quality policy: goals, functions, actors, documentation; effectiveness of procedures and structures in the main missions of university; teaching and learning; research and scholarship; collaboration with the community; human resources policies; support services; internationalisation; articulation between the QM system and the management bodies of the university; participation of external stakeholders; information system (collection, analysis and divulgation of information); public information; monitoring, assessment and continuous improvement; and QM system as whole (A3ES, 2013b). The aim was to provide guidelines to assist institutions in the design and development of their internal QM systems according to the profile and specific requirements of each institution (A3ES, 2013a). As a consequence, A3ES, by promoting the certification of internal QM systems, is favouring the implementation of QM policies (Rosa & Amaral, 2014).

Despite the decisive role of the European and the national developments, it is worth pointing out that the responsibility for developing QM systems and practices lies ultimately with the universities, as stated in the Berlin Communiqué (2003). The institutional level, i.e. the university, has a preponderant influence in the way the internal QM systems are being set up.

METHODOLOGY

The empirical evidence is based on a multiple case study strategy in three Portuguese universities (Yin, 2013). These universities were the first universities in Portugal with an internal QM system being certified by the A3ES (in 2013, for a period of 6 years). These cases can be defined as paradigmatic (Flyvbjerg, 2006) or extreme cases, corresponding to cases that are "considered to be prototypical or paradigmatic of some phenomena of interest (…) ideal types" (Gerring, 2007). These universities can be considered prototypical or paradigmatic, since by being the first ones to have their QM certified they are also, most probably, the ones with most developed QM policies (in comparison to other Portuguese universities). We thus assume that it is interesting to analyse whether these most developed QM systems are integrated QM systems, considering the above mentioned levels and dimensions.

In the sample, there are three institutions (A, B, and C), which are quite different in terms of size and location, which ensures quite a diversified sample, able to empirically base the research.

Since our goal is to understand the QM policy of the universities, our analysis is based on the content analysis of their internal documents. We analyse strategic documents, such as: strategic and activity plans, procedure manuals and accountability documents; documents more directed linked with the QM policy, such as: quality manuals and plans, and self-evaluation reports submitted to A3ES; as well as external reports from external review entities, such as: reports from the European University Association (EUA) and the reports from the auditing teams of A3ES. We believe that this joint analysis of strategic documents, quality related

documents and external quality reports can give us a good overview of how the universities are developing their QM policies and whether the QM policies are becoming part of their overall management.

The content analysis is based on the aforementioned dimensions where we look for integration: the strategy for quality management; processes, organisational, QM principles levels; and finally QM as part of the broader management and governance framework of the university (see Table 1). The content analysis was developed using the NVivo software for qualitative data analysis.

Table 1. Levels of analysis

Levels of analysis	*Dimensions*
Quality management	*Strategy for quality*
Processes level	Teaching and learning
	Research and scholarship
	Third mission
	Support processes
Organisational level	Programme
	Basic unit
	Institution
Quality management principles level	Customer focus
	Leadership
	Involvement of people
	Process approach
	System approach
	Continuous improvement
	Factual approach
	Mutually beneficial supplier relationships
QM as part of the management and governance framework	QM as a strategic area Articulation between those responsible for QM and top management bodies QM as a tool for strategic management

RESULTS

The strategy for Quality Management

The policies more strictly linked with the quality of the institutions are mainly described in the quality manuals and/or in quality plans and also in documents describing the programme of the universities concerning quality policies, and

reporting the activities of the quality offices of the universities. Regarding external documents, the institutional self-evaluation reports submitted to external review entities, such as the EUA or the A3ES have also relevant information about the QM policy. In addition, documents such as statutes, strategic plans, activity plans and manual of procedures are also important, in order to understand how QM is articulated with the strategy of the universities and how it is integrated in their wider management and governance framework.

In the three universities, the concern with QM started in the 1990s but it was after 2000 and mainly after 2010, that this concern was more deeply formalised into QM systems as they exist nowadays.

In University A, the strategy for quality is formally established in the Strategic Plan, the Activity Plan, the Quality Manual and the Framework for Evaluation and Accountability of Public Bodies which define actions, methodologies, goals, monitoring elements, timing, responsibilities and the competencies from the different bodies, services and agents.

In University B, the QM system is based on three main documents: Strategic Plan, Quality Manual and Quality Plan. Besides, a clear compromise of the university with quality and QM is present in its Statutes.

In University C, the actors in the QM system are defined in the Statutes of the university, but in practical terms, the specific competencies, responsibilities and functions of the system are defined in the Quality Manual.

Overall, QM seems to be defined as a strategic area by the universities. In University A, quality is one of the focus areas defined in its Strategic Plan. University B also assumes an institutional commitment to quality, as a key vector for its operation and development, as highlighted in the statutes themselves. In University C, QM is defined as one of its "strategic axes" and the "the implementation and monitoring of the quality assurance system is a mission" of the university since 2000.

Processes in Higher Education: The Focus on Teaching and Learning

Teaching and learning. Concerning the processes level, the policies behind the QM systems of the three universities are mostly focused on teaching and learning. This focus is acknowledged in the different documents. The QM system of University A has a particular "focus on the strategy and mechanisms for the evaluation and improvement of learning". The QM of the programmes is a central element of the QM system and its main goal is to monitor the functioning of each programme and to promote the continuous improvement of teaching and learning. In University B, the Quality Manual admits the "special attention that is being paid to teaching and learning", which is justified with the "complexity of the teaching and learning process". Also University C acknowledges the focus of the QM policy in teaching and learning.

The QM process for teaching and learning is similar in the three universities. Teaching and learning activities are assessed mainly through the results of student

satisfaction surveys about academics and courses; the reports developed by academics individually about theirs courses; the reports developed by programme directors about their programme; the reports developed by unit directors about their unit; and analysis by institutional bodies, such as pedagogic and scientific councils, with regard to the course, the programme, the department, the school and the institution.

Research and scholarship. Regarding research and scholarship, in University A, one of the goals defined in its Strategic Plan is "to improve the conditions for conducting research activities, based on modern research infrastructure, anchored in a growing policy of multi-disciplinary and cutting edge projects". The Strategic Plan also states that one of the main action lines regarding quality is "the development of assessment processes at research units' level". University A recognises that the assessment of research centres has been exclusively developed by an external entity, the Portuguese research funding council. However, it is now starting to internally develop the evaluation of researchers and research centres.

In University B, each research unit should write an annual report, with the indicators contemplated in the Quality Plan, as well as the indicators related to the level of research activity, of scientific production and of knowledge enhancement. The Scientific Council of each school discusses the reports of its research units, and then writes a summary report, which analyses: the quality of the research of the research units; the adequacy of the results with the goals established in the Quality Plan; the strong and weak points of the research of each unit; and draws a global plan with improvement suggestions for the research units. Then, the Scientific Commission of the Senate analyses the reports, as well as the assessment results of the scientific projects and indicates measures to improve the research activities.

In University C, the body responsible for research supports the research activities of the university and seeks to: "assure the quality of the work of the research units; assure the evaluation of the scientific production; articulate the scientific activity with the teaching and advanced training system, namely, the third cycles and the international masters". The university has also a body responsible for research and research projects, which supports research and development, national and international cooperation and provision of services of the university. Notwithstanding, according to the A3ES report, research and scholarship is not consistently integrated in the QM system and there is not an evident monitoring of the process, in order to implement improvement actions.

As we can see, in University C, research and scholarship is still not entirely part of the QM system, while in University A, this process is only now starting to be included in it.

Third mission. Concerning third mission, University A has created an office responsible for technology transfer, which regulates and monitors the activities based on the links between the university and society. The Strategic Plan defines "four main action lines" related to the third mission: "reinforce the links with industry,

improve the career services, enhance the valorisation of the intellectual property, and strengthen the entrepreneurial mind-set".

In University B, the relationship with the community is a concern contemplated in the Quality Plan, in the Quality Manual, and is part of the assessment reports from the various units in the university. The university interacts with the exterior through specific structures. The annual self-assessment reports from the basic units promote the analysis of the results concerning the inter-institutional collaboration and interaction with society. The basic units which actively participate in cooperation relationships with the community, as well as the cultural units, develop annual reports with the indicators and the goals contemplated in the Quality Plan, concerning the interaction with the community.

University C has developed a body responsible for the relationships with society in two areas: one responsible for mobility and international relations, which develop and support all the activities related to the development of international relations and cooperation; and another responsible for projects, which supports the activities of research and development, cooperation and service provision.

Regarding third mission, it seems evident the concern of universities with this process, but it is less evident, mainly in University C, its inclusion in the QM policy and the QM system as a whole.

Support processes. In University A, support processes are described in the Manual of Procedures. Moreover, the operational body for quality develops systematic internal audits of the different services, in order to monitor, control and promote their efficiency. In 2011, the university has developed a pilot experiment integrated in the QM system, which is based on customer satisfaction surveys of the different services of the university.

In University B, the Strategic Plan and the Action Plans of each service are built taking into account the Quality Plan of the university. Then, the annual self-assessment reports from the different support services analyse if the proposed goals were achieved, reflect on those results, and develop a SWOT analysis of the services with suggestions for improvement.

In University C, it is established that satisfaction surveys to users of different services of the university must be developed, namely satisfaction surveys to students regarding the conditions and services offered by the university, and to teachers regarding their working conditions and the functioning of the university. However, these goals are not yet part of the QM system.

It is also worth noting the emphasis on internationalisation, which is also a support process stressed by A3ES' standards. All the universities created specific structures responsible for the development and support of all the activities related to international relations and cooperation.

Similarly to what happens with third mission and even research and scholarship, the support processes do not seem to be entirely integrated in the overall QM

system, particularly in University C. However, QM policies seem to be boosting this integration.

Organisational Level: From the Course to the Institution

With regard to the different levels and units of the universities, the definition of the QM policy is mostly developed by top management and governance bodies of the institution, and consequently the lowest levels are rarely involved in the process. Instead they are only called to participate in the QM implementation process. Thus, concerning the quality planning, the universities follow a top-down logic.

Nevertheless, when we analyse how the QM systems of the universities assess the courses and the programmes, we observe that they follow a bottom-up strategy, since the assessment starts at the course level and ends at the institutional level. As we have seen above, the process is rather similar in the three universities, and all the levels intervene: i) first the course level, through the results of the student satisfaction surveys and the reports developed by academics about the courses; ii) then the programme level, through the reports developed by programme directors; iii) then the basic unit level, through the reports developed by unit directors about their unit; iv) and finally the institutional level, through the analysis done by institutional bodies, such as the pedagogic and scientific councils, with regard to the course, the programme, the basic units and the institution.

In this respect, the different organisational dimensions seem to be articulated, mainly concerning the teaching and learning process. Here, the different roles for the different organisational levels with regard to the assessment of courses and programmes are well defined in the different documents, mainly in the quality manuals.

Universities do not exclude the possibility of certain levels, units and services implementing their own systems or complementary systems for QM, provided that they are articulated with the quality plans, in order to avoid the unnecessary duplication of procedures.

Quality Management Principles: The Integration of Different Principles

The QM policies integrate the QM principles, some more clearly than others, though.

The three institutions acknowledge their focus on students. The main costumers are the students and the policy of the universities aims to identify their expectations and needs.

The top management bodies have a crucial role in the definition of the QM policy of the universities and in the promotion of a quality culture. Leaders in the three universities are the driving forces of the QM policies; at least formally. For example, in University C, and similarly in the other universities, those responsible for QM at the top management level, are "responsible for the definition and communication

of the strategic planning of the activities, for the presentation of the program for quality, the creation of structures and procedures for continuous improvement, for the definition of responsibilities for the promotion of quality, and for the integration of the quality processes in the strategic plan of the university", in order to assure the involvement of all in the academic community in the QM process.

The policy for QM promotes the involvement of people in the QM processes of the university. The need for the involvement of the different internal stakeholders is highlighted in different documents. The policy for QM in the three universities emphasises the participation of the most relevant internal stakeholders (teaching and non-teaching staff, and students) in their processes of strategic planning. Globally, they participate in government and advisory boards and also in different evaluation exercises, as the evaluation of the teaching and learning processes and of the services to support students, in the case of the students; or self-evaluation and pedagogic evaluation, in the case of the teaching staff.

The activities and related resources of the universities seem to be managed as processes. For example, University A clearly defines its different processes and the interaction between them. It defines the "macro processes (government, teaching, R&D, social responsibility, internationalisation and resources), the nuclear processes (teaching, research and technology transfer) and the support and management processes, which are directly connected with the management, and support the macro and the nuclear processes". Moreover, one of the focus area highlighted in the Strategic Plan is the one related with "processes and quality". In this context, University A, but also the others, systematically define the activities necessary to obtain a desired result; analyse and measure the capability of their key activities; identify the resources and mechanisms that will improve their activities; and evaluate the role of internal and external stakeholders.

Overall, the universities seem to manage their quality in an integrated way regarding the quality management principles, despite the specific policies and procedures of some of the basic units in particular aspects. However, since the different processes are integrated differently, we cannot state that the universities are managed as a system. As we have stated before, teaching and learning is the most developed process and the other processes, despite being considered important, are at this point less developed and less integrated in the QM system.

The QM policies of the three universities are clearly based on the continuous improvement principle. The QM policy in University A highlights that the QM system calls for cyclical revisions of the results concerning, not only teaching and learning but also the institution as a whole, in order to control the accomplishment of its main goals. University C defines the QM policy as "a continuous process of evaluation moments from the institution, and its different units, programmes and people, aiming at the identification of the areas which need intervention". Moreover, University C highlights the role of the operational and the strategic QM bodies, namely in monitoring "the level of development of the quality procedures in the different units and in the university as a whole; the effectiveness of the information

system and the surveys; the accomplishment of the deadlines; the reports produced by the units and the services".

The universities define that the different QM structures must be important information sources for decision making, supporting the decision making process of management bodies. The QM policy of University B, like the others, states that the systematic collection of perceptions of various actors not only through surveys, but also through practices of structured reflection enables the collection of quantitative and qualitative indicators essential for reflection and continuous improvement throughout the university. Also the different reports and the subsequent analysis, evaluation and discussion developed by the different units and services, have data which is used to inform decision making, and to adapt, correct and improve practices inside the universities.

The policy for QM emphasises the participation of the most relevant external stakeholders for the university in its processes of strategic planning. However, it is not clear that these relationships are monitored by the QM system.

Globally, all the QM principles seem to be included in the QM policy of the universities, with the exception of the principle of system approach and the principle of mutually beneficial supplier relationships.

Integration of Quality Management in the Global Management Context

In the three universities QM seems to be, to some extent, integrated in the broader management and governance framework of the university. QM is defined as part of the global strategy of the universities. There are still two parallel lines: one for general management, one for quality management. Articulation between the QM bodies and the top management bodies of the universities, mainly happens through the presence of top managers in the QM bodies. Integration is present in the fact that the QM policy emphasises that the results from the QM system should be used as tools for strategic management of the universities, to insure that the results of the assessment in the different processes and areas of the universities are important tools to inform the decision making process.

In University A, QM is part of the strategy of the university since it is defined in the Strategic Plan as one of its main areas, and the Activity Plan defines actions, methodologies, goals, monitoring elements and competencies for the different bodies and services, in order to promote the quality of the different areas and services of the university. Despite the existence of separate QM bodies, they are articulated with top management.

In University B, the Quality Manual states that the QM system is interconnected with the governance and coordinating bodies, since the relationship between them is essential to assure that the QM system has de ability to function satisfactorily and to facilitate the QM processes, while ensuring adequate support to strategic planning at various levels of responsibility. Moreover, the information produced by the QM system is a tool for strategic management, since through the reports of the different

units, those responsible at the institutional level can analyse whether the goals of the Quality Plan are being achieved and whether it is necessary to adapt the strategic and operational goals of the university.

In University C, the importance of quality and of its integration into the management processes is emphasised in the Activity Plan, which in turn is articulated with the QM system of the university. In addition, the management and governance structures are engaged in the definition of the QM policy and in assuring that all the internal stakeholders are committed to the goals for QM. In this context, and as observed above, the Rector is responsible for the presentation of the program for quality, the creation of structures and procedures for continuous improvement, the definition of responsibilities for the promotion of quality, and the integration of the quality processes in the strategic plan of the university.

CONCLUSIONS

Our research aimed to understand whether the QM policies of universities integrate their main processes, their organisational levels and the different QM principles, and ultimately whether they are part of the broader management and governance framework of the universities. To answer our research questions, we analysed different documents of three Portuguese universities. These universities are paradigmatic cases, since they were the first to have an internal QM system certified by A3ES.

The results show that, globally, the universities have an integrative policy for QM. Furthermore, QM seems to be part of the overall management and governance framework of the universities. Thus, our case studies, analysed from the perspective of their QM policies, seem to follow to a large extent the trend for integration of QM in higher education emphasised in the literature (Manatos et al., 2015; Rosa & Amaral, 2007; Srikanthan & Dalrymple, 2002, 2007).

There are not significant differences between the three universities. They naturally present singularities regarding their QM policies, but they are generally similar, concerning the levels analysed here. We cannot forget that these universities have applied for the certification of their QM systems, and thus had to respond to similar standards and dimensions. It is then not surprising that their QM policies integrate the same levels, since most of them relate to the standards and dimensions they must fulfil in order to have their QM systems certified by A3ES, and benefit from a light-touch review of their study programmes (Cardoso, Rosa, & Videira, 2015).

Notwithstanding, it is worth underlining the underdevelopment of the QM policies of University C, mainly regarding the processes level and the weak integration of research and scholarship, third mission and support processes in its QM system. This underdevelopment seems to be linked, according to the A3ES report, with the absence of the Pedagogic Council, which is a statutorily established body responsible for the vertical coordination of the system regarding teaching and learning. This

vulnerability in the Pedagogic Council seems to be an important obstacle to the effectiveness of the QM system.

Several efforts are being made to develop QM systems in compliance with national and European standards. In this respect, universities have created operational bodies responsible for the coordination of their QM systems, as well as strategic bodies more directly linked with strategic management. This is in line with previous studies based on the analysis of both self-assessment and external reports on the internal QM systems of universities in Portugal (Cardoso et al., 2015; Tavares, Sin, & Amaral, 2015). One of the most important strengths of internal QM systems is related to aspects such as the existence of a policy, structures, regulations and tools for QM, denoting a significant concern with structural elements and formal procedures (Tavares et al., 2015).

However, there are levels and particular dimensions still in partial or even insufficient stage of development. This is also not surprising since all the QM systems are relatively recent and were only certified by A3ES in 2012.

Regarding the processes level, the QM policies of universities have a particular emphasis on teaching and learning, putting the other processes in second place. In fact, the universities have created, albeit recently, structures to assess research and scholarship, third mission and support processes but it is not always evident that these different structures are integrated in the QM system. Notwithstanding, the audit model of A3ES which includes all the processes of higher education seems to be playing a major role in driving universities to gradually integrate research and scholarship, third mission and support processes in their QM systems.

With regard to the different organisational levels and units of the universities, the definition of the QM policy follows a top-down logic, being mostly assured by top management and governance bodies of the institutions. The procedures for the assessment and monitoring of the different processes follow in turn a bottom-up strategy, starting at the course level and ending in the institutional level. Moreover, there seems to be a good articulation between the different organisational levels mainly regarding the QM policy for teaching and learning.

According to the A3ES reports, the bottom-up approach enables the continuous analysis of the results and the decision making process, and consequently the improvement of the different levels of the organisational structure. The analysis of the results by different basic units (departments and schools) also enables them to identify the needs for improvement or reinforcement of the standards and integrate them in their activity plans. In addition, the bottom-up approach, where each organisational level rules and acts on the reports which are produced by the previous levels, may mitigate situations which only aim to be in conformity with established procedures, and foster a proper reflection on the processes under review.

Regarding the QM principles, the QM policies of universities seem to approach most of them. Nevertheless, some principles are less integrated. The principle of system approach, assuming an articulated and holistic approach to the different

processes of the universities, is compromised since the QM policy is mostly focused on teaching and learning and less on the other processes. Regarding the principle of mutually beneficial supplier relationships, the universities emphasise the importance of the relationships with external stakeholders but seem to fail to document the monitoring of those relationships and to integrate them in the QM system. The study which analyses the external reports about the internal QM systems of Portuguese universities also reaches the same conclusion, signalling the participation of external stakeholders as a weakness of those systems (Tavares et al., 2015).

Analysing our results in the light of the new QM principles (ISO, 2015), we could be tempted to state that the gap related to the principle of system approach disappears, since the new QM principles do not consider it. However, the new principle of process approach states that the activities of the organisations should be understood and managed as interrelated processes that function as a coherent system (ISO, 2015). Thus, in the light of the new QM principles, the gap regarding the idea of a holistic and integrated system remains.

Regarding the integration of quality management in the wider management and governance framework of the university, the very existence of separate bodies dedicated to quality management, albeit with people from other management bodies, including top management, is an indication of the lack of total integration. On the other hand the use of information originating in the quality management system for decision making is a very positive factor towards true integration.

The next stage of our research will analyse QM practices in universities, based on the data collected in interviews with some of their key actors. Thus, after understanding how universities are developing their QM policies, we must understand how these policies are being implemented and whether there are gaps between the QM policy and practice. The research presented here is part of a wider research project where we intend to study how QM practices are actually being implemented in universities, by interviewing academics, non-academics and students from different scientific areas, with different involvement levels in the internal QM systems and with different hierarchical positions in the organisational structure of the universities.

In future work, it would also be interesting to understand what is happening in other Portuguese universities, since this work presents the results from only three cases, albeit paradigmatic ones.

Finally one must stress that the experience of the studied three paradigmatic cases can inform the development of quality policies in those universities where QM might be less developed. In addition, for the studied universities, the identification of possible shortcomings in their QM systems may help them overcome them.

REFERENCES

A3ES. (2013a). *Activity plan for 2013*. Lisbon: A3ES.

A3ES. (2013b). *Auditing internal quality assurance systems. Guidelines for the auditing report*. Lisbon: A3ES.

Barnett, R. (1990). *The idea of higher education*. Buckingham: Society Research for Research into Higher Education.

Berlin Communiqué. (2003). *Realising the European higher education area*. Berlin: Communiqué of the Conference of Ministers responsible for Higher Education.

Brennan, J., & Shah, T. (2000). *Managing quality in higher education: An international perspective on institutional assessment and change*. Philadelphia, PA: Open University Press.

Cardoso, S., Rosa, M., & Videira, P. (2015). *On the road to regaining trust? The development of internal quality assurance systems in Portuguese higher education institutions*. CHER 28th Annual Conference, Lisbon.

Cohen, M., March, J., & Olsen, J. (1972). A garbage can model of organizational choice. *Administrative Science Quarterly, 17*(1), 1–25.

Deem, R. (1998). 'New managerialism' and higher education: The management of performances and cultures in universities in the United Kingdom. *International Studies in Sociology of Education, 8*(1), 47–70.

Doherty, G. D. (2008). On quality in education. *Quality Assurance in Education, 16*(3), 255–265.

Duque, L. (2013). A framework for analysing HE performance: Students' satisfaction, perceived learning outcomes, and dropout intentions. *Total Quality Management & Business Excellence, 25*(1–2), 1–21.

ENQA. (2009). *Standards and guidelines for quality assurance in the European higher education area* (3rd ed.). Helsinki: European Association for Quality Assurance in Higher Education.

Flyvbjerg, B. (2006). Five misunderstandings about case-study research. *Qualitative Inquiry, 12*(2), 219–245.

Frølich, N., Huisman, J., Slipersæter, S., Stensaker, B., & Bótas, P. C. (2013). A reinterpretation of institutional transformations in European higher education: Strategising pluralistic organisations in multiplex environments. *Higher Education, 65*, 79–93.

Gerring, J. (2007). *Case study research: Principles and practices*. Cambridge: Cambridge University Press.

ISO. (2012). *Quality management principles*. Genève: International Organization for Standardization.

ISO. (2015). *Quality management principles*. Genève: International Organization for Standardization.

Kohoutek, J., & Westerheijden, D. (2014). Opening up the black box. In H. Eggins (Ed.), *Drivers and barriers to achieving quality in higher education* (pp. 167–175). Rotterdam: Sense Publishers.

Laredo, P. (2007). Revisiting the third mission of universities: Toward a renewed categorization of university activities? *Higher Education Policy, 20*, 441–456.

Manatos, M., Sarrico, C., & Rosa, M. (2015). The integration of quality management in higher education institutions: A systematic literature review (forthcoming). *Total Quality Management & Business Excellence*, 1–17. doi:10.1080/14783363.2015.1050180

Melo, A., Sarrico, C. S., & Radnor, Z. (2010). The influence of performance management systems on key actors in universities. *Public Management Review, 12*(2), 233–254.

Orton, J. D., & Weick, K. E. (1990). Loosely coupled systems: A reconceptualization. *Academy of Management Review, 15*(2), 203–223.

Rodman, K., Biloslavo, R., & Bratož, S. (2013). Institutional quality of a higher education institution from the perspective of employers. *Minerva, 51*(1), 71–92.

Rosa, M., & Amaral, A. (2007). A self-assessment of higher education institutions from the perspectives of EFQM model. In D. F. Westerheijden (Ed.), *Quality assurance in higher education: Trends in regulation, translation and transformation*. Dordrecht: Springer.

Rosa, M., & Amaral, A. (2014). The Portuguese case: New public management reforms and the european standards and guidelines. In H. Eggins (Ed.), *Drivers and barriers to achieving quality in higher education* (pp. 153–166). Rotterdam: Sense Publishers.

Rosa, M., & Sarrico, C. S. (2012). Quality, evaluation and accreditation: From steering, through compliance, on to enhancement and innovation? In A. Amaral & G. Neave (Eds.), *Higher education in Portugal 1974–2009. A nation, a generation* (pp. 249–264). Dordrecht: Springer.

Rosa, M., Saraiva, P. M., & Diz, H. (2001). The development of an excellence model for Portuguese higher education institutions. *Total Quality Management, 12*(7), 1010–1017.

Rosa, M., Saraiva, P. M., & Diz, H. (2003). Excellence in Portuguese higher education institutions. *Total Quality Management & Business Excellence, 14*(2), 189–197.
Rosa, M., Cardoso, S., Dias, D., & Alberto, A. (2011). The EUA institutional evaluation programme: An account of institutional best practices. *Quality in Higher Education, 17*(3), 369–386.
Sarrico, C. S., Veiga, A., & Amaral, A. (2013). Quality, management and governance in European higher education institutions. *Journal of the Higher Education Area, 4*, 47–70.
Srikanthan, G., & Dalrymple, J. (2002). Developing a holistic model for quality in higher education. *Quality in Higher Education, 8*(3), 215–224.
Srikanthan, G., & Dalrymple, J. (2007). A conceptual overview of a holistic model for quality in higher education. *International Journal of Educational Management, 21*(3), 173–193.
Tavares, O., Sin, C., & Amaral, A. (2015). Internal quality assurance systems in Portugal: What their strengths and weaknesses reveal. *Assessment & Evaluation in Higher Education*. doi:10.1080/02602938.2015.1064515
Van Vught, F., & Westerheijden, D. F. (2010). Multidimensional ranking: A new transparency tool for higher education and research. *Higher Education Management and Policy, 22*(3), 1–26.
Veiga, A., & Sarrico, C. S. (2014). Changes in governance: Do they help overcome barriers to the implementation of the European standards and guidelines for quality assurance in higher education? In H. Eggins (Ed.), *Drivers and barriers to achieving quality in higher education* (pp. 67–81). Rotterdam: Sense Publishers.
Weick, K. E. (1976). Educational organizations as loosely coupled systems. *Administrative Science Quarterly, 21*(1), 1–19.
Yeo, R., & Li, J. (2014). Beyond SERVQUAL: The competitive forces in higher education in Singapore. *Total Quality Management & Business Excellence, 25*(2), 95–123.
Yin, R. K. (2013). *Case study research: Design and methods*. Thousand Oaks, CA: Sage Publications.

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ROSEMARY DEEM

9. RECENT RESEARCH EVALUATIONS IN THE UK AND PORTUGAL

Methodologies, Processes, Controversies and Consequences

INTRODUCTION AND BACKGROUND

The chapter compares the methods, cultural and social processes, responses, controversies, 'gaming' and consequences for universities and higher education system of two recent European publicly-funded national research evaluations, one in the UK and the other in Portugal. The UK evaluation is run periodically by the UK Higher Education Funding Council for England (in 2008 it was called the Research Assessment Exercise and in 2014 the Research Excellence Framework) which provides research funding to successful higher education institutions, using performance-based data including research outputs. The 2014 evaluation, like its predecessors, was paper-based, with little emphasis on future plans. The exercise is competitive and selective and evaluates on a discipline-by-discipline basis, though funding is awarded to institutions. The Portuguese Evaluation mainly refers to the 2013 Fundação para a Ciência e a Tecnologia (FCT) and European Science Foundation (ESF) Research & Development Centres Evaluation. Like RAE/REF, this was competitive, periodic and selective but unlike the UK evaluation, it was organised around research centres with no institutional focus. The Centres could be single-discipline, multi-disciplinary or interdisciplinary and vary considerably by size. The exercise provided money to successful Centres both on the basis of both past performance and future plans.

Both exercises make extensive use of peer review panels including face-to-face meetings. In the UK case, these panels mainly contain UK panellists, principally academics in discipline-based sub-panels but in 2014 there were also additional user-members to assess the impact case studies, plus a few international main-panel members. In Portugal since 1996, panel members have been largely international (Heitor & Horta, 2012). Both exercises strive to enhance national research competiveness, inform funding, provide benchmarking, promote and (more recently) reward research 'excellence', bring greater international visibility and improve research quality, characteristics that a recent study of higher education excellence initiatives in Europe and beyond showed are common to many research excellence initiatives (Pruvot & Estermann, 2014). The 2014 REF also aimed 'to change behaviour' (McNay, 2015), which may refer to public value for money in

C. Sarrico et al. (Eds.), Global Challenges, National Initiatives, and Institutional Responses, 159–186.

university research. In both evaluations, funding decisions are made after the panel deliberations are complete.

The comparison of these two evaluations is based partly on personal experience. I was a UK Research Assessment Exercise sub-panellist in 1996, 2001 and 2008 and chaired the Social Science panel of the 2013 FCT/ESF exercise. The Portuguese evaluation took over a year to complete and was the most controversial evaluation I have ever been involved in. However much UK academics might dislike RAE/REF, as an RAE panellist, I was never in the UK pursued by journalists asking me how I was working as an evaluator before the final outcomes were announced nor denounced as an incompetent and poorly-qualified evaluator by people who had never met me nor seen my CV. Equally, as a panel chair I was very unhappy with the unfair funding outcomes of the FCT/ESF exercise which is why I decided to write this chapter. This decision was strengthened when during the summer of 2015 I learned more about the problems of the exercise during interviews with Portuguese Centre directors. I thought a comparison with another national evaluation would be useful. It could be argued that the different scale and context of these two evaluations and their respective higher education systems (the UK has many more public universities than Portugal and its development of university research has a very different historical trajectory compared with Portugal (Heitor & Horta, 2012) creates difficulty in making comparisons. The UK REF 2014 involved 4 main panels, 36 sub panels and 1052 UK-based academic panel members plus user and international panel members (23 of each) and 1911 submissions by Units of Assessment. The FCT evaluation involved 7 panels, 650 experts from 46 countries, a smaller number of whom became panel members and 322 Centre applications. There are also some big differences in the health of the two economies, as though both countries were affected by the Eurozone financial crisis from 2009 onwards, Portugal, a much poorer country to start with, was far more badly affected, received 'bail-out' loans and had many cuts to public services, including the pay and pensions of academics and higher education funding. All of this makes the comparison challenging but the chapter overtly acknowledges how important context, academic cultures, politics and the state of national economies are in shaping evaluation exercises.

THEORETICAL FRAMEWORK

My interests in evaluation lie in the nature of the politics and policies which promote research evaluation and the pursuit of selectivity and 'excellence' in higher education systems, as well as the people that sponsor them and the cultural-social processes involved in conducting large system-wide evaluations. Public policies of all kinds almost always have both intended and unintended consequences (Margetts, Perri et al., 2010).

There is a now great deal of literature on all kinds of evaluation, from peer review of journal papers and research projects to whole country or cross-national evaluations. Research evaluation itself and peer review more generally, of course,

have long been deeply embedded in academic cultures and practices. Thus, Bourdieu (1988) examined in the 1960s how French academics used symbolic social capital in the form of networks to become gatekeepers for entry to academic fields (e.g appointments, publishing) or used cultural capital to develop their scientific status and prestige through doing research (Bourdieu, 1988). He also explored how the contestation of academic fields was affected by the kinds of symbolic capital different academics had access to, as well as their habitus and dispositions.

More recent literature falls into at least two distinct camps. One approach compares and critiques different evaluative approaches, such as whether metrics-based evaluation systems are preferable to peer-based evaluation. There are whole journals devoted to the science of the evaluation of research, such *Research Evaluation* and *Scientometrics*. However, there seems no agreement on whether metrics are better than peer-review (and of course metrics are partly based on peer-review anyway) and most recent national research evaluations use both.

Other studies of research evaluation are more sociological and focus on the intricacies and shortcomings of specific evaluation processes and the likely consequences of such exercises for universities, disciplines and the nature of academic work (de Jong, van Arensbergen et al., 2011; Leydesdorff & Bornmann, 2014; Upton, Vallance et al., 2014). My own approach is much closer to the sociological one but the methodology used for evaluation is necessarily an important element of comparing different evaluation processes and consequences.

There are a number of qualitative studies of academic audit processes and how academic communities deal with research evaluation in particular. One such study concentrates on the institutional environments that surround research evaluation processes in the UK and elsewhere and how academics deal with the challenges involved in having their work evaluated in the context of their academic unit (Lucas, 2006). Lucas begins her book by asking questions about how and why in the UK, the periodic national assessment of research has become such a dominant feature in the lives of academics and a major preoccupation for university managers and leaders.

Lucas gives detailed illustrations of the modern 'game' contestation of academic fields and territories first written about by Bourdieu (1988), drawing mainly on the UK Research Assessment Exercise in 2001 but also using international examples. Drawing on interview data, she probes how individual academics and their managers have responded to the 'research game'.

Others have concentrated on the features and peculiarities of the research auditing process itself and its effects on academic work (Strathern, 2000) and on activities such as monitoring the performance of academics by Human Resources departments (Waring, 2010). In addition, changes to the governance of research have also been investigated (Leisyte, de Boer et al., 2006, Leisyte, 2007; Leisyte, Enders et al., 2008), including analysing how different disciplines respond to a more managed and managerial environment for research. The consequences of a more 'evaluative state' have been explored more generally too (Neave, 2012), in relation to university institutional autonomy.

A crucial element in research evaluation by face-to-face panels, as contrasted with individuals working remotely, is what happens in those panel meetings. Lamont's research is very helpful here as her US-based ethnographic work concentrates on the cultures and behaviours of panels who conduct evaluation exercises in arts/humanities and social sciences. She shows how disciplinary traditions, identities, self-interest and panel dynamics permeate such exercises (Lamont, 2009; Lamont, 2012). Lamont notes also the extent to which definitions of research excellence vary even within disciplines but are widely different across them and how bound up this is with the academic identities of the evaluators themselves. For evaluation exercises involving either generalist or wide subject-remit panels, which is the approach adopted by the 2013 FCT/ESF exercise, the findings of Lamont's work are particularly significant.

> Panellists do not simply enact the rules of meritocracy … they engage in a genuinely social – that is interactional – micro political process of collective decision making. They draw emotional and cognitive boundaries between the work that they appreciate and the work they do not, and they do so within relationships of exchange and deliberation. The relationships they form during the negotiation process … influence the outcome, as do their pre-existing networks, the epistemological and cultural similarities and differences in the fields they hail from, and their own temperaments and idiosyncracies. (ibid, p. 246)

It is also important, as Lamont notes, to look at who gets onto evaluation panels. Some detailed work on UK RAE panel members' backgrounds and affiliation and how that correlates with evaluation outcomes was done in the mid-2000s (Sharp & Coleman, 2005). They found associations between the universities from which panellists were drawn and success in the exercise, though they indicate that this may be partly because the best institutions' researchers tend to be selected for panels.

The final element of the theoretical framework relates to unintended consequences. Following Krücken (2014), use is made of Merton's (1936) work on the unintended consequences of what he termed 'purposive social action'. As Krücken notes, Merton's work refers to social actors, not organisations (Merton, 1936). Krücken's approach reframes Merton's original approach to take account of organisational actions as the 'idea of a discursive field in which remarkable change processes take place' (Krücken, 2014) p 1440, so that it can be applied to organisational contexts. Merton originally suggested five causes of unintended consequences: error, ignorance, immediate interest, basic values and self-defeating prophecy. At least three of these seem relevant for our purposes: failing to model or not predicting possible unintended consequences (error, ignorance) and differences in values about research activity and how to evaluate it. Merton's final category of self-fulfilling prophecies may also be relevant since when a research excellence initiative is planned, those involved have a sense of what they hope will happen (e.g increased

selectivity) but if this prophecy is fulfilled, other unpredictable consequences may follow.

METHODS OF INVESTIGATION AND DATA SOURCES

The chapter is based on several sources. These include the author's experience of being an evaluator in the 1996, 2001 and 2008 UK RAE and in the 2013 FCT/ESF exercise. The chapter also draws on a range of documents in the public domain about the two evaluations and their reception by the wider academic community. Finally, because the FCT Evaluation itself (which started in 2014 for panellists and remote evaluators and ended in late May 2015 with the publication of the results of the Stage 2 appeals), did not permit interaction with Portuguese academics outside of the protocols of the exercise itself, in late May to early July 2015, I carried out a small number of interviews with Portuguese Research Centre directors or other people with significant responsibility for academic research in Portuguese universities, mainly in social science disciplines. They included a centre with a 'poor' grade and one who made a successful stage 1 appeal and centres with 'very good', 'excellent' or 'exceptional' grades. The interview questions focused on views about the 2013 evaluation, how and why it differed from the 2007 evaluation and the reception of the process and results by the academic community. I did not carry out similar interviews for the UK because I have long been part of the RAE/REF system and know only too well what different views there are about it. But not having such interview data means a strict comparison is therefore missing in respect of that element. I did, however, interview a REF main panel administrator who also had experience of previous RAEs; this was partly to get a different perspective on the exercise because the Main panels in REF 2014 had a more specific role to oversee consistency than in the 2008 RAE. This interview was conducted in January 2015, shortly after the results came out.

UK RAE/REF EVALUATIONS

There is a history of institutional but discipline-based research quality assessment using a system of peer review panels in the UK since 1986. For research-intensive universities, the funding derived from such assessment is core funding, which helps pay academic salaries and which is supplemented by research grant funding (the so-called dual-support system). There is neither the time nor space to discuss the history here but good accounts can be found elsewhere (Bence & Oppenheim, 2005; Lucas, 2006; Barker, 2007; Martin & Whitley, 2010). Since the first evaluation in 1986, there have been six further exercises, the most recent in 2014 signalling a change of name from Research Assessment Exercise to Research Excellence Framework and adding a completely new dimension, impact case studies, showing how selected recent research has contributed to the non-academic world. The exercises have become

more elaborate, as has the grading, moving away from a single grade on a 5 point scale (1992) or 7 point scale (1996) to a graded profile of 'unclassified' followed by 1* to 4* (first introduced in RAE 2008). The model that started to emerge in 1996 was that academics need only submit their 4 best outputs (in 1992 the outputs of all submitted members of staff in the period were included) and details about each unit of assessment were included in the submission (including how the research is organised, doctoral students, research grant income etc). In 2008 a separate category for esteem indicators was added, only to disappear in 2014. By 2008, all the panels were actually reading *all* the outputs, not just a selection. 2008 also saw an attempt to calibrate more carefully across discipline/subject sub-panels, with the introduction of 15 main panels with an overview function but 2014 took this further, reducing the number of main panels to just 4. A few disciplines are now combined in single sub-panels (for example Music, Drama, Dance and Performing Arts or Allied Health Professions, Dentistry, Nursing and Pharmacy) but most are single-discipline. Only academic staff are allowed to enter the exercise; post-doctoral fellows who have not held a research grant as Principal Investigator and visiting and retired academics are barred unless they have an actual employment contract (the latter two omitted for the first time in 2014). From 1996 onwards, the criteria used by sub-panels were published well in advance of the submission date. From 2008 onwards, every sub-panel had at least one international member but in 2014 these were attached to the four Main panels. Starting with RAE2008, detailed arrangements were put in place to take into account equality issues and special circumstances, including early career academics, maternity/adoption leave, illness and bereavement. In 2014 tariffs were introduced for circumstances such as early career or maternity/adoption leave reducing the number of outputs required (Equality and Diversity Advisory Panel, 2014).

Academic sub-panel members for RAE/REF have always been selected through learned society and other relevant organisations' nominations, with the chair of each sub-panel having a say in the final selection. In 2014, there were also non-academic user members of each panel (though user members sat on some sub-panels in previous exercises) specifically to deal with the new impact case studies. The latter were intended to document evidence of research in the unit of assessment as far back as 1993 that had led to non-academic impact in the period 2009–2013; each unit had to provide a number of case studies dependent on how many FTE staff were submitted. Prior to the exercise starting, panels met to discuss their criteria. A month or so after the submission date, RAE/REF sub-panels would meet on a number of occasions over the course of 8–10 months, each meeting usually involving an overnight stay but without any face-to-face contact with the units of assessment themselves. The results are sent out at the end of the exercise but the financial implications are not available for some months. There are no official means of appeal against the outcomes, though Judicial Review has been threatened in the past but legal appeals against academic judgement are not allowed in the UK, only appeals against procedural matters.

Table 1. RAE 2008 and REF 2014 compared

	2008	*2014*
Main and sub panels	67 sub panels, 15 main panels	36 sub panels, 4 main panels
Consultation first	Yes on criteria	Yes on form of exercise, criteria and impact
Use of metrics other than PhD completions & grant income	Some panels trialled citations	Some sub-panels used other metrics
Panel members	Largely UK-based sub- panels; one or two international panel members	Largely UK-based, with small number of international academics attached to main panels
Panel meetings F2F	Yes, several	Yes, several
Equality impact assessment and data	Yes	Yes and tariff for reduced outputs
Outputs looked at by panels	Yes	Yes
Site visits	No	No
Environment assessed	Yes	Yes
Non-academic impact case studies	No	Yes
Appeals or rebuttals allowed	No	No
Rules changed during exercise	No	No
Outcome	Expressed as graded profile for outputs, environment and esteem indicators	Expressed as graded profile for outputs, environment and impact case studies
Funding	Decided after exercise, but linked to subject banding and per capita amounts for same overall grade	Decided after exercise, but linked to subject banding and per capita amounts for same overall grade

FCT RESEARCH CENTRE EVALUATIONS

Periodic evaluations of R&D centres are an established mechanism for FCT and from 1996 panel members became international (Heitor & Horta, 2012). The 2013 FCT/ESF exercise was thus not a one-off. There were, however, some key differences between the 2007 Evaluation and the 2013 exercise, which may partially explain why the 2013 Evaluation became so controversial. In 2007, the exercise was entirely run by FCT. The Science Minister Mariano Gago was fully committed to the

furtherance of academic research. There was no severe government austerity regime as the exercise commenced before the Eurozone financial crisis. Public universities were still allowed to hire new permanent academic staff. There were 25 panels, allowing in-depth consideration of centres in different disciplines by evaluators who were subject specialists. There was no special bibliometrics survey. All evaluators were panel members (there were no remote-only evaluators). There were some panel members who, whilst international, were familiar with the national context of Portuguese higher education (for example from Spain and Brazil). Prior to the 2007 evaluation there were extensive consultations with the academic community and also trials of the paperwork and protocols. Unlike the 2013 exercise, in 2007 site visits to all Centres who had entered the evaluation were conducted by panellists *before* any scores or grades were awarded. There was no special importance attached to research 'excellence', it was just about evaluating the quality of the research in Centres. But there was one problematic issue in relation to the 2007 exercise, which concerned the exclusion of the Associated Laboratories, created by Mariano Gago from 2000 onwards and which were very large research institutes that were supposed to conduct the highest quality research in Portugal. These laboratories were not assessed alongside the other Research Centres in 2007. This was remedied in 2013 when the Associated laboratories *were* assessed on the same basis as every other Centre.

In 2013 some of the academic community were already worried about the possible scope of the evaluation and its consequences because of the country's financial problems but also because as one interview respondent said:

> We thought that many minutiae were raised and things like a speech about 'excellence'. It started when … there was a discourse since the change of the government and the change of the scientific policy that was suspicious for us because some of us thought that in name of the word 'excellence' what was said was that they were going to cut. So this is the kind of thing, the tricky thing, always it was 'excellence' this, 'excellence' that and what we knew is it was an 'excellent' form of cutting funds … we were not expecting good things.

But another interviewee said that at first there were also some positive signs:

> Professor Miguel Seabra took over [as FCT President] the first thing he did in January 2012 was to cancel the (2011) Evaluation that was being prepared …And then everything was changed … the whole of the FCT, the working system was changed, the Evaluation procedures were changed and therefore a new Evaluation process started. I mean we wanted the Evaluation to continue normally, I mean there's no problem, we are evaluated all the time so we were just expecting an Evaluation that we knew that had panels … I'll tell you the history, '96, '99, 2003, 2007 and this was just another regular Evaluation. We would have a panel, we would have to submit our reports. And we will need

> to adjust according to what the criteria were, we didn't really know that at the moment.

There were though, other signs of a significant change. Unlike previous exercises which were conducted in-country, this one was contracted out to the European Science Foundation (ESF) a body that used to distribute European research grants until the establishment of the European Research Council. Furthermore, the contract signed between FCT and ESF contained mention of the intention that only 50% of Centres should proceed to stage 2 (the panels only learnt this half-way through the evaluation). There are clearly different ways of interpreting this; ESF itself says it was simply an indication of their likely workload (European Science Foundation, 2015) but some of my respondents regarded it as an implicit instruction:

> there's a law in Portugal which says that all the administrative questions must be public. And there's a specific commission … for the access to administrative documents. So the government never published the initial contract [with ESF], you can apply to this commission. The commission obliged the government to publish the contract but the contract was published without the part where they say 'There are quotas'. Then we complained again and all of the process was this until after Christmas [2013]. We only knew all the parts of the contract and all of the objectives of the evaluation after we did it [sent the application].

In 2013 there were just seven panels, not twenty-five. Originally this was only to be five but because of high application numbers, Exact Science and Engineering were separated, as were Social Sciences and Humanities (European Science Foundation, 2015). Also, one of the panels was a multi-disciplinary one, though it seemed to be more for Centres that felt they did not fit into any one panel, rather than for Centres which had a clear commitment to working across disciplines. Panel members were entirely drawn from the international academic community, selected by the European Science Foundation and using an on-line platform for much of the initial assessment and the final stage 2 assessment (European Science Foundation, 2015). Some panels, including the social science one, had only a handful of members with experience of Portuguese academe, the last FCT assessment or a full understanding of the consequences of the significant changes that had taken place after the Eurozone financial crisis and financial restructuring in Portugal, including cuts to academic pay and pensions and a ban on hiring permanent academic staff in public universities. Although the panels met twice face-to-face, each time for two days, six months apart, much of the assessment and dealing with two lots of appeals was done by email and also initially included two evaluators for each application who were not panel members. Stage 1 initial evaluations were thus conducted without the panel having met (so very different to the UK RAE/REF system) but finalised at the first face-to-face meeting and turned into a consensus statement for each Centre. Before stage I results were finalised in this way, units were allowed

to write a rebuttal of the comments received. After the initial stage, some centres were given grades ('good' or below) that excluded them from the next stage and hence given their scores and grades but permitted to appeal. Those who proceeded to stage 2 saw their comments but did not know their grade.

Stage 1 Appeals, which were surrounded by considerable controversy in the Portuguese media (see particularly Publico.pt which had much coverage of it) were over the summer of 2014. There were a lot of appeals and a good deal of controversy. Some of the appeals were rather aggressive in tone, though given the country's dire financial situation and the already considerable cuts to the funding of Portuguese higher education, this tone was not surprising. There were also many emails to panel members from very persistent journalists asking questions about the evaluation process over the summer of 2014. But because panellists were not in Portugal during this time except for a few early Centre visits by some panels (many were done in the early Autumn) it was difficult for us to know exactly what was going on.

Those centres proceeding to Stage 2 each received a three-hour visit from panel members either during July or September and October 2014. The final panel meeting was held in Lisbon in late November 2014 and the results published on 22nd December. After stage 2 concluded, appeals were allowed not just by those who did not obtain funding but also from those dissatisfied with their grade or financial outcomes. There were two kinds of appeals, academic (for panels) and technical (for FCT). The panels took some time to receive the appeals (late February 2015) and though their part was concluded in early April, the results of the appeals did not emerge until late May 2105.

Table 2. FCT 2007 and 2013 evaluations compared

	2007	*2013*
Main organizer	FCT	FCT and ESF
Panels	International but with some Portuguese speakers. All evaluators were panel members. 23 panels.	International with emphasis on declaring conflicts of interest. Also 2 remote evaluators for each centre. 7 panels.
Country's economic situation	Stable	Post Eurozone crisis, big cuts to public spending, new government
Pre-consultation and piloting of evaluation	Long period of both	Was some but much shorter than in 2007
Emphasis	Improving research	Research excellence
Detailed briefing on the local context	Yes	Only on the significance of the Portuguese language

	2007	*2013*
Quota for % of centres likely to be successful	None	50% suggested by FCT
Face-to-face panels meetings	Yes	Yes, two (May and November 2014)
Site Visits	Done before initial evaluation decisions made	Only for Centres who passed to Stage 2
Changes in rules after the exercise commenced	None	Bibliometrics study changed mid-exercise. Core funding promised but then removed. Extra criterion E added half way through (non-academic impact of scientific, technical and cultural output) during visits. 'Smart specialization' added towards end.
Associated laboratories	Not included	Included
Appeals possible	Yes	Yes
Outcome	Single grade and overall score	Single grade and overall score
Funding	Decided at end by FCT. For the programme element, funding was on a per capita basis	Decided at end by FCT, wide variation in per capita amount for same grade and score

Table 3. FCT 2013 and REF 2014 compared

	FCT 2013	*REF 2014*
Rules don't change once exercise starts?	Some did	No changes after submissions sent
International panel members	Yes	Sub-panels no; small number of international members of main panels
Metrics used	Yes, special Scopus survey	PhD completions & grant income all sub-panels; other metrics up to sub-panels
Based at least partially on past performance	Yes	Yes
Based also on future performance	Yes	Only to a very small extent
Site visits	Yes for those passing to stage 2	No

(Continued)

Table 3. (Continued)

	FCT 2013	*REF 2014*
Conflicts of interest of panel members taken seriously	Yes	Yes
Outputs read/studied	No	Yes
Equality issues of applicants taken into account	No	Yes; detailed procedure and tariffs for ECRs, maternity leave etc
Applied/basic research ratio taken into account	Yes	No
Criteria used to judge units of assessment	5 criteria: A. Productivity and contribution to the national scientific and technological system B. Scientific and technological merit of the research team C. Scientific merit and innovative nature of the strategic programme D. Feasibility of the work plan and reasonability of the requested budget E. Impact of the scientific, technical and cultural output (added at stage 2)	Criteria for A: impact case studies: 'reach and significance' of impacts on the economy, society and/or culture; B: outputs: 'originality, significance and rigour', C: environment: 'vitality and sustainability', plus graded profile from unclassified to 4*, with 4* world leading, 3* internationally excellent, 2* internationally recognised, 1* nationally recognised, unclassified
Laboratory intensity considered	Yes	Not an explicit instruction
How much writing by panels was involved in final outcome?	Detailed reports with lengthy comments on all five criteria at every stage	Very limited and any working notes destroyed after 21 days due to Data Protection Act concerns
Non-academic impact taken into account	Yes through special criterion E	Yes through case studies of research done 1993–2013 with impact in 2008–2013
Funding takes into account FTE staff entered	No account taken of this at all	Yes
Funding sharp drop between grades	Funding dropped sharply after Exceptional and Excellent; 'very goods' got low funding, 'goods' none	Funding for 4* in profile much higher than for 3*; lower profiles no funding

CULTURAL, SOCIAL AND ECONOMIC DIFFERENCES IN EVALUATION CONTEXT

The responses to the 2013 FCT/ESF evaluation and 2014 REF were very different. This to a large extent reflected cultural, economic and political differences between the two countries and the state of their universities and science and technology systems but in Portugal also reflected problems with the way the Evaluation was run, much of the detail of which was unknown to the panels at the time of the exercise. I learnt about many of the problems through the post-Evaluation interviews I did with Centre Directors. The UK is western European, densely-populated and highly-developed, where across all four countries, higher education is well established. The HE system is large, lost its binary divide in 1992, is mostly publicly-funded with a few not-for-profits but with a growing number of for-profit institutions, is deeply steeped in managerialism (Deem, Hillyard et al., 2007) and more recently, features a high degree of marketization through the introduction of fees for Home/EU students (fees for non-EU students have existed since the 1980s) which has also affected how universities are led (Deem, 2011). Even the newer social sciences have a long history and although there have been some recent austerity measures in the UK, the HE system is still relatively well-resourced. Participation rates for first degrees are around 35–40% and there are large numbers of doctoral students, many from outside the EU, with the vast majority not then entering academe as their main employment. Most UK academics outside of Wales publish in English and have access to almost all the highly cited academic journals in the world through copyright libraries such as the British Library. The UK operates something known as the dual-funding system; universities get research funding through grants from UK public research councils as well as from other private or charitable sources, plus institutional research funding via RAE/REF (known as QR funding). The expected continuance of this system in relation to the research councils was recently confirmed (Nurse, 2015). There is a 40-year tradition of national evaluations of research by peer review in the UK, starting in 1986 and this has been much copied by other countries. Both countries are members of the EU at the time of writing and signatories to the Bologna agreement.

Portugal is a peripheral Southern European country in which the higher education system is a mix of public and private institutions, with tuition fees in both sectors, though the private sector has experienced problems of growth (Teixeira & Amaral, 2007) and the whole system has only relatively recently moved from elite to mass higher education (Neave & Amaral, 2012). It has wholeheartedly embraced the Bologna process since 2007 and increasingly sought European research funding and international research collaborations (Horta, 2010; Heitor & Horta, 2012). The state and FCT are very intertwined, though a recent report recommended more separation (Kratky, Bernstein et al., 2015) and Portugal does not have the UK Haldane principle which separates academic decisions on research funding from political ones on amounts and mechanisms. Portuguese universities now see research as an important

source of global prestige and a means of engaging stakeholders from students to business and industry, which is reflected in their websites (Santiago, Carvalho et al., 2008). There is a tradition of systematic research evaluation over a longish period, with international panellists since 1996 (Heitor & Horta, 2012). Despite the politics of the 1974 Carnation revolution, Portuguese higher education has experienced a considerable degree of neo-liberalism in recent years as well as changes to the academic, student and administrative states (Neave & Amaral, 2012), including the 2007 Higher Education Guideline Law which has led to some significant changes in institutional governance and a move away from collegialism (Bruckman & Carvalho, 2014). Degree programmes are regularly assessed by the Quality Agency A3ES. Research degree programmes have grown slowly compared with the UK but speeded up more recently and by the 2000s, FCT was funding Portuguese students to study PhDs abroad and funding international students to study in Portugal (Horta & Hasanenfendic, 2015). But PhD graduates in Portugal are now struggling to find academic jobs beyond temporary postdoctoral roles and there is relatively little tradition of going into other sectors. There are a number of historic public universities such as Coimbra (by far the oldest), Porto and Lisbon whilst others such as Minho and Lisbon Nova are more recent. The system is still a binary one, with a sizeable polytechnic sector. For some disciplines, particularly some of the social sciences, their history is relatively short as prior to the 1974 revolution their existence was not permitted. So the steepness of the growth trajectory is considerable but the severe austerity measures taken after the Eurozone financial crisis in the late 2000s have considerably dampened any future growth for the public universities. Another feature which is particularly relevant to research evaluation in Portugal is the issue of publication in Portuguese, which is also a world language. This has particular significance for those working in arts/humanities and social sciences since, as one of my interviewees said:

> It would be silly to ask someone in Chemistry to write in Portuguese of course it would be silly but it's not silly, it's important for Portugal to have Social Science in Portuguese … We are talking about the fact that we have a language that's spoken by 200 million inhabitants

Another interviewee said with feeling:

> Several evaluators in several areas made xenophobic remarks about Portugal.

There is no excuse for this and indeed ESF did try to eliminate problematic evaluations in stage 1 (European Science Foundation, 2015). But in an international panel evaluation, even in arts/humanities and social sciences, where panellists are more used to publishing in English either because they are native speakers of English or because their own language is not widely spoken, the practice of publishing in Portuguese can be a major bone of contention. ESF did provide a very good briefing for remote evaluators and panellists on the importance of the Portuguese language (European Science Foundation, 2015) but I certainly found this to be an contentious

issue in my panel and had to constantly remind people that Portuguese is a world language. Finally, in Portugal, the law affects how both universities are run and how evaluations are conducted and gives the right to appeal even against academic judgment, something that is not currently legal in the UK.

THE PANEL PROCESS: RAE/REF AND THE 2013 FCT/ESF EVALUATION

To the extent that both evaluations used peer panels of academics to make the decisions on the final grade or profile of each unit entered in each exercise, then there were some similarities between the two. But there are also major differences. RAE and REF sub-panels are usually confined to one or two disciplines, whereas in the 2013 FCT/ESF evaluation all panels covered multiple disciplines (unlike in 2007 when there were many more panels). Lamont (2009, 2012) has researched US arts/humanities and social sciences researchers *in situ* whilst evaluating grant proposals and other research bids, which gives a fascinating insight into the complexities of evaluation when a number of people meeting face-to-face have to agree on which projects or centres or PhD candidates are the best. This is particularly complicated when several disciplines are involved.

Comparing the FCT/ESF evaluation with RAE/REF, another very different element is that whereas apart from on the visits (which usually only involved 3–4 panel members out of 17) the FCT/ESF panels were only together as a whole panel for two periods of around 48 hours, in RAE/REF the panels met more regularly over the several months that they were doing the evaluation so they could get to know each other quite well, which tends to help when things get difficult or there are disagreements. As Lamont notes, the relationships that panellists form during an evaluation are critical to the success of the activity itself. On reflection, the FCT panels did not have the kind of opportunity that RAE/REF panellists have for more extended socialising. Hence some of the panel's sense of being a group had to be achieved virtually through emails and occasional phone or Skype calls. As a panel chair, the first FCT meeting in Amsterdam was particularly challenging as although I had seen everyone's preliminary evaluations, I didn't know the panel members and there was little chance to talk to them socially. There were, as inevitably in panels covering a number of different disciplines, some big differences in views about the relevance of bibliometrics, theory versus empirical studies and the value of publishing in Portuguese and the usual mix of people, some of whom appeared more confident and outspoken than others. Lamont's (2012) description of how in some evaluation contexts different disciplinary cultures are in significant tension were certainly in evidence, with economics and management/business studies placing greater emphasis on bibliometrics and lone scholar research (rather than collaborative research) than others. Lamont also talks a lot about what she calls 'pragmatic fairness' and how different academics seek to legitimate their evaluation approaches; this too was in evidence. Maintaining a balanced discussion whilst weighing up how different disciplines viewed academic strength was tricky but

helped by humour. Also panel processes, as a respondent with cross-institutional responsibility for research said, are never going to be perfect:

> I think that in evaluations people make mistakes all the time because it's just human and also the panels, I've been part of many panels before … and you're pressed for time and you don't have the time to do everything and you're tired also. So I'm well aware of that. I haven't got them present in my head at the moment because the evaluation is some time ago now but I am aware of cases in which I believe there were mistakes on the part of the evaluation

At least rebuttals and appeals allow for mistakes or omissions to be addressed; in RAE/REF this mechanism does not exist and can lead to years of bitterness and resentment on behalf of units of assessment. After the FCT/ESF panels first met in Amsterdam in May 2014 and afterwards prepared final stage 1 centre reports, only a few of us at a time then met together on each set of visits over the summer and autumn. We also had to deal with the appeals during August and I received many anguished emails about those. The aggression of the appeals was a shock to some, as was being pursued by journalists when CRUP (Council of Portuguese Rectors) and others tried to get the evaluation stopped (we learned of the latter through ESF, not FCT). It was six months before the whole panel met face-to-face again in Lisbon in November 2014. The visits, which were only for those passing into stage 2, allowed 3–4 panellists to meet more informally but had gruelling schedules and a lot of travel by people-carrier in between, up and down the Portuguese motorways and in October, when our panel did most of its visits, these journeys were sometimes at night, making working on the journey difficult. Each formal visit was strictly three hours long, including a SWOT analysis, separate meetings with the centre management, PhDs and postdocs and mid level staff, a tour of facilities where relevant and sometimes a lunch at the end (using extra time) but there were only limited opportunities for panellists to talk about what they thought. Reports on visits were written up on our return home. Three hours is fine for social sciences visits but probably not for laboratory-based subjects; I understood that the 2007 visits may have been longer. Visits are popular with Portuguese academics and one interviewee whose centre had failed to proceed to Stage 2 contrasted the 2007 evaluation when all centres were visited with 2013 when only those reaching Stage 2 got a visit:

> I actually believe that the decided factor to our success in the previous exercise was actually the visit from the panel. My personal opinion is that the absence of a visit from the panel took a very, very big toll. Because that's exactly when you can convey the importance of strategic and contextual work. My impression is that this exercise relied on a strategic vision as it was written down, complemented by a series of metrics. It's very, very different to read this on paper. Or to actually go and meet and see it with your own eyes the reality that we're trying to describe and that we've been working on.

On the other hand, another respondent felt that some panel members, although evidently having done their paper-based preparation, were unaware of the Portuguese context and hence rather thrown by what they learned on visits:

> Yeah I mean if I can comment on that it was clear to me from talking to many other people who received different panels is that virtually let's say 80 or 90% of the panel members it was like they were landing in Mars. They had no idea what was going on … at the time they arrived. And they landed onto a presentation and they were suggesting like … 'Why don't you hire? Why don't you buy more of these people?' and we said 'Well we can't hire anybody' and then all these things were being suggested that people should do and we said 'We can't do it because this is not possible'. And it was clear that the panels had very little understanding of what Portugal was about

Once the final stage 2 reports were done in December and the results published on 22nd December, the panel thought its work was over but the funding formulae application (not published until January) and wide discrepancies between the *per capita* allocation for centres with the same score and grades led to a flurry of appeals which took several weeks to deal with. The final appeal results did not emerge until 25th May, though all except the multi disciplinary panel sent in their appeal decisions by early April. There was a further shock on 6th April when the FCT president resigned due to ill health, and rumours that the exercise might be annulled, though a replacement President appeared after only a few days (in the UK such a re-appointment process might last months, with a public advertisement and extensive candidate-search).

By contrast, the RAE panels of which I was a member were mostly based not on a group of subjects but a single subject. There was more time to get to know and understand colleagues' approaches to evaluation and reflect on them in between panel meetings. As there were no site visits, it was a case of reading submissions and outputs in between meetings, not frantically rewriting consensus reports and emailing other rapporteurs. We had no appeals to deal with. There was less email traffic in between meetings and though RAE/REF have not been without controversy, no-one has ever actually tried to stop the process mid-stream. However, similar discussions about how deliberations should proceed, what constituted high quality work, which grant income counted most and how to deal with diversity, as documented by Lamont, also occurred. Finally, RAE/REF panels, like FCT/ESF, also involve a lot of hard work but not to the same extent as the FCT evaluation and the rules are well-known in advance and do not change once the exercise is in process. So though also challenging, the UK process was and remains more predictable than the 2013 FCT/ESF evaluation.

RESPONSES TO EVALUATION OUTCOMES

In this section I compare the reactions of the academic communities in the UK and Portugal to the outcomes of each evaluation and also discuss the extent to which

units of assessment/Centres and institutions are engaged in what Lucas (2006) calls the 'research game'. The outcomes of research evaluations are always going to be controversial both in relation to funding and the actual academic judgments but in both the RAE/REF and the FCT/ESF evaluation, funding decisions are not made by the panels themselves. In the case of RAE/REF there is quite a long gap between the panels finishing work and the results being sent to institutions and then another period of some months before funding outcomes are available. For the 2013–14 FCT/ESF exercise, there was a very short interval between the panels finalising their results and the funding decisions being made available but then Centres preparing appeals in January and early February 2015 had to wait until late May 2015 to get the outcomes, surviving in the meantime with no FCT centre funding.

Since RAE/REF started in 1986, there have been many criticisms of both methodology and outcomes. These have included the focus on certain kinds of research (leaving out highly applied research), the difficulty in dealing with interdisciplinary research because the panels focus on one or two disciplines, the fact that panel members tend to be drawn mainly from the more successful institutions (Sharp & Coleman, 2005) and criticisms of panellists' specialisms and ability to assess others work (Sayer, 2014; Sayer, 2014b). There are also complaints about the extent to which selectivity exercises start to drive what academics do and what their managers make them do, issues about fairness on equality grounds, the exclusion of some staff, the effects on the status of teaching and the rising costs of running the exercise. The estimated cost of REF2014 was around £250 million, including £55 million for preparing impact statements, £19 million for panellists' time and £14 million for the four UK HE funding councils (Farla & Simmonds, 2015). There are also comments about the increasing concentration of research in elite institutions, the extent to which the panels are almost all UK-based nationals and the extent of 'game playing' (Lucas, 2006). But the fact that the exercise is still continuing suggests that academics to a large extent accept such selectivity exercises. There are of course critical voices in the media:

> The REF is the latest in a long line of punishments we in the university sector have inflicted on ourselves … Most researchers must designate four items published between 2008 and 2013. Straightforward enough. Well, no. Some genius worked out a way of racking up the tension. Publications up to the end of December can be submitted, but we press the button in November. There remains a chance that a publication scheduled for December 2013 will not appear until January 2014. Disaster! … the new game in town is impact: the effect of our work outside academia. Is its reach and significance outstanding? If so, then you have 4* impact. Is it recognised, but modest? Just a single star for you, I'm afraid. (Jonathan Wolff, The Guardian, 28th October 2013)

> the REF has become a monster, a Minotaur that must be appeased by bloody sacrifices. Nor is there a Theseus riding to the rescue. … Institutions love and fear the REF because they stand to lose not only income – a lot in the case

> of research-intensive universities – but also reputation and status. Individuals love and fear the REF because … their personal identity is bound up in their status within their disciplines as respected researchers. Some universities have hired high-performing researchers on short-term contracts … Some have hired ghost writers to draft the "impact" assessments … And other institutions have abruptly switched academic staff onto teaching-only contracts to make them invisible in REF terms. … These days, universities' main objective is to achieve better REF grades, not to produce excellent science and scholarship. (Peter Scott, former Vice Chancellor Kingston University, 4th November 2014, *the Guardian*)

Since RAE2008, the results for institutions have been in the form of graded profiles for units of assessment and so the complexity of who has actually done best has become harder to discern. The 2014 results included a Grade Point Average and also the percentages of 3* and 4* across each separate profile (impact, outputs, environment) as well as a final % grade profile but a calculation was also made about this time about 'research power', which involves taking into account the percentage of eligible staff entered, alongside their profile. Thus UoAs that had been very selective in whom they entered did not do as well as those who had entered more eligible staff. The new impact case studies have had much attention paid to them (Watermeyer, 2012) and the results showing that the two STEM panels did better on impact than either Social Sciences or Arts/Humanities were greeted with some scepticism. Finally every time there is an exercise of this kind, at the end someone suggests just using metrics. In 2009 a pilot looked at this but rejected it at least partially on the grounds that it would involve too much work for institutions. There has also been a review this time but it again rejected using just metrics on their own (Wilsdon, 2015). One of the uses of RAE/REF is to place the results in league tables, so the units of assessment live with the outcomes for a long time. Surprisingly little has been made of the overwhelmingly UK panel membership, yet this means that people who will themselves benefit sit on the panels and though conflicts of interest have to be declared, the fact that panels are drawn predominantly from UK academe is a problem, as is the fact that the evaluation is based on the paper submission and looking at the outputs, with no site visits. 'Gaming' is endemic to RAE/REF and institutions spend much time in between exercises working out what strategies will get them the best results next time. But 'gaming' is not just an activity confined to institutions; individual academics, particularly those who are mobile between universities also engage in 'gaming': what to publish where, how to get bought out of teaching, whom to collaborate with, where to move next and get a higher salary etc.

Responses to the FCT evaluation cover some of the same ground as those about RAE/REF, including questioning the expertise of panel members and the academic judgements made (Firmino, 2014; Heitor, Fiolhais et al., 2015) but also have some completely different elements, including the 50% quota in the ESF/FCT contract,

the lack of site visits to units graded good or below, the huge variations in funding between units getting the same grade and score (FCT did not set any maximum amount that could be applied for even within subject groups) and the changes FCT made mid-evaluation, which included adding new bibliometric data after the evaluation started and dropping the core element of the funding and only offering the strategic element. RAE/REF controversies in the UK occasionally reach the non-specialist media but in Portugal this was the case all the time. The main difference in the responses in the UK and Portugal is also because units could appeal at the end of each stage, including questioning academic judgement. Furthermore there were attempts to stop the exercise altogether in mid-process, which has never happened in the UK and the matter was debated in Parliament in Lisbon. There were also attacks on the credibility of panel members. Thus the Rector of Lisbon university, the country's largest public university with around 70,000 students, said of the evaluation:

> [He] considered the evaluation process of research units "one enormous error of public policy," which is "skewed from the start" … with "disastrous consequences." … António Cruz Serra said that the evaluation was delivered by foreign entities that are completely unaware of science in Portugal, and the …evaluators have no "scientific capacity to assess the units within its respective field," are of a quality "highly questionable" and "can not win in Portugal, in our best schools, an assistant professor competition'" [translated]. (Agência Lusa 25th July, 2014)

But ESF's post-evaluation analysis of the H indexes of the members of the 4 STEM panels indicated that those of the panel members were in most cases comparable to or better than those of Centre Directors (Kratky, Bernstein et al. 2015). My own panel was entirely made up of distinguished social scientists from a range of European countries, all with much evaluation experience. There was, however, more criticism of the evaluation to come, including an article in *Nature* alleging that

> Already reeling from budget cuts of 50% for universities and research centres, *Portugal may now have to close half of its research units because of a flawed evaluation process supported by the European Science Foundation* (my italics). (Moro Martin, 2014)

ESF did challenge this article on the basis that it was completely un-evidenced and *Nature* subsequently published ESF's response (Worms & Swift, 2014).

As the exercise continued into the autumn, with site visits and then a final meeting of the panels in Lisbon at the end of November, controversy died down, only for FCT and the exercise to be met with more criticism over the huge funding variations *per capita* when the results were published on 22nd December 2014. These variations were huge in some cases, found in all panels and in respect of the same grade and score. In the social sciences, this effect was exacerbated by a lack of any centres graded exceptional, which was partly due to a lack of calibration across

panels about how this grade was being used and a straightforward definition of what exceptional meant. When the results were first published, they were not accompanied by any explanation of the funding rules. After a fuss made by the Council of Rectors (CRUP), the rules for funding were published by FCT in January 2015. The 'rules' had a number of not- easily-explicable 'exceptions'. The sharp drop-off between excellent and very good grades which was present in the FCT funding formula is somewhat similar to the drop in the 2014 REF between 4* (world-leading) and 3* (internationally-excellent) profiles and the complete absence of funding for 2* work (only internationally-recognised). But the difference is that in RAE/REF, units getting the same grade profile in the same subject with the same number of FTE staff receive the same amount of money while in the FCT exercise this was far from the case.

'Gaming' was less obvious in the FCT evaluation than in RAE/REF but there was allegedly some evidence of this at lunches after morning Centre site visits, with Centre members using it as an extra chance to put forward their case, though none of the Centres I visited used the lunches like this. Allowing lunches with some but not all Centres (there was no dinner following late-afternoon site visits) did make some panellists feel uncomfortable though (European Science Foundation, 2015). But in addition, though this has to be speculation, some of the 'gaming' in Portugal perhaps took place in those Centres which asked for ludicrous amounts of money (the range in our panel *per capita* per year for 'very good' and 'excellent' outcomes ranged from 1000 euros to 12000 euros) when they submitted their applications, despite the parlous state of the country's finances at the time and therefore contrasted with other Centres who just asked for a modest amount (Araujo, Leite et al., 2015). The former certainly won the contestation in every sense even though in no sense did they deserve to do so. Yet rather surprisingly despite all the problems and controversy, a 2015 independent evaluation of FCT itself praised its work on the 2013 evaluation (Ferreira & Firmino, 2015; Kratky, Bernstein et al., 2015). However an alternative account of not only the FCT/ESF evaluation itself but also the whole reign of the FCT presidential team between 2011 and 2015 was published last year suggesting many recent flawed FCT evaluation processes from PhD studentships to project grants over that period (Heitor, Fiolhais et al., 2015).

UNINTENDED CONSEQUENCES

In this final section there is an attempt to compare the unintended consequences of both exercises on academic life and institutions, using Krücken's (2014) adaptation of Merton's 1936 work. Merton suggested five causes of unintended consequences: error, ignorance, immediate interest, basic values and self-defeating prophecy. Of course it is difficult to second-guess unintended consequences as organisational activities. But both RAE/REF and FCT/ESF appear to have a number of unintended consequences. In RAE/REF a major effects of the intensifying grip of research assessment has been to focus many institutions solely on improving their

research rather than their teaching. Thus the UK is now threatened with a Teaching Excellence Framework initiative (Department for Business Innovation and Skills, 2015) to correct the balance in favour of teaching. This is perhaps a good example of an unintended consequence. There are other dimensions too; some academics may focus too much on teaching and hence don't get the support they need to do good research; a huge amount is spent just on doing the exercise; research is no longer imaginative and creative, it consists of what academics think or are told they must do for the purposes of RAE/REF. This may be the result of an error of judgment or it may be a consequence of immediate interest getting in the way of looking more broadly at the purposes of universities. Perhaps though, in addition, UK research assessment has worked almost too well and its success has become a kind of self-fulfilling prophecy which causes other less controllable things to happen in its wake.

In relation to the FCT evaluation, things are a bit more complicated. Of course it is difficult to carry on as normal in relation to research funding if your country has high debt levels and there is an austerity regime in place. A recent review of FCT suggested it should become more independent of government (Ferreira & Firmino, 2015), though that would not solve its funding problems. But there *are* errors that were made here. Having less money and possibly fewer staff (one of my respondents speculated that a lot of staff had been let go from FCT in 2013–14 for financial reasons), could have been part of the problem with the 2014 evaluation; certainly the staff who were involved worked very hard for long hours. However, if there is less money, then all the more reason to have allowed Centres in subject groupings to bid only for a limited amount and to have a *per capita* allowance relative to grade, discipline and score, as well as an open mind about who and what is to be funded. Quite apart from the effect of the evaluation process on those who have had their research careers prematurely ended in Portugal (and that clearly *was* intended), the other long-term and perhaps less intended consequence is that some panel members, as a result of finding themselves in probably the most controversial evaluation they have ever engaged in, may no longer have any great regard for either FCT or Portuguese researchers. The latter is more critical than the former. These unintended consequences perhaps were literally caused by errors and by focusing too much on the immediate interest of developing what the Portuguese Prime Minister observed at a European conference on the Future of Science as the

> need to recognize that the previous evaluation [2007] did not meet the requirements of impartiality and objectivity

This seemed to be largely based on the 2013–4 panels being chosen for having no knowledge of Portuguese academic work, the involvement of ESF and evaluating the Associate Laboratories along with everyone else (a special category of Research Centres who had previously been evaluated separately). But as one of my respondents noted, the ESF dimension, whilst fine, added another layer of complexity to an already tricky process:

> The problem is you have the Head of the FCT and you have the staff. And the rules that the staff voiced were different from the opinions from the Head of the FCT. So imagine he was attending a conference or a press conference, someone asked him something …and he would improvise sometimes. But as he was the head of the FCT they had the rules to comply in some way with the statement of the Head of the FCT. So this was a really long and hard process of evaluation. Then we had the European Science Foundation Team. Okay fine, nothing to complain about, about that as a principle. But then the linkage between FCT and European Science Foundation evaluation panels was less than perfect in some senses … So we had to deal with the FCT, ESF and to deal with the panels.

Also there was a clear value clash, with FCT believing that this new more rigorous (as they saw it) process really was the way to 'reset' science in Portugal, as one interviewee described it and perhaps to model in Portugal developments in EU funding practices. There was no conception that excellence doesn't grow on trees but has to be nurtured, from 'very goods', as another Portuguese respondent noted:

> the thing about excellence is in the scientific community you have to have not only 'excellent' people, we have to have 'very good' people [too] because you have to have a kind of critical mass of people and that critical mass that way was basic to scientific progress and you have to have teams and in those teams sometimes an excellent or outstanding researcher appears but the normal thing about science is that you have to have a critical mass so that excellence can appear.

But the main point in this section is that most of the unintended consequences in the FCT/ESF evaluation occurred through errors, ignorance of possible consequences, different interpretations of things, focusing on immediate interests and FCT not sharing most researchers' values (nor valuing social sciences and humanities). Some of the unintended consequences of the 2014 FCT/ESF evaluation will live on for a long time and effectively debar many Portuguese academics from being engaged in research at all. FCT's view was that over time the funded Centres would mostly 'absorb' the unfunded centres but given the debacle over the funding distribution, it is hard to imagine how that could possibly work.

SOME CONCLUSIONS AND LESSONS LEARNED

This chapter has explored, in some detail, two different forms of national research excellence evaluations, one in the UK and one in Portugal. Both have been the subject of considerable controversy. Though very different exercises in detail, in scope and in process, it is argued that the comparison can make the variations and problems of each more visible and evident. Having set out a theoretical framework which concentrated on the idea of system-wide research evaluation as a 'game',

following Bourdieu (Lucas, 2006), the intricacies of the processes at evaluation panel meetings (Lamont, 2012) and the notion of unintended consequences (Merton, 1936), as adapted for organisational use by Krücken (2014), the chapter then explained some of the key details of the two evaluations, in each case comparing the most recent evaluation and the one before. The cultural, economic and social context of the evaluations was explained. Next, some of the processes and types of discussions that evaluation panels have were considered, pointing out the differences between panels that meet regularly face-to-face compared to infrequently and the greater challenges faced by panels which include a range of cognate disciplines as compared to mono-disciplinary panels. After that, some of the responses to the two most recent evaluations in the UK and Portugal were considered and discussed, making the point that a system which allows appeals (FCT/ESF) means that responses start during the evaluation, not just afterwards, which is a big contrast to the UK where responses tend to start with the publication of the final results. Whilst having appeals is in some ways a good idea which can allow panels to correct any errors, a prolonged appeal process may have the effect of pitting evaluators against those they are evaluating. This section also included some discussion of the kinds of 'gaming' that each exercise allows; an evaluation such as RAE/REF, aimed at institutions has more scope for gaming (selective entry, modelling outcomes, straegies for outputs) than FCT/ESF, which focuses on research centres only. However, even in Portugal there is evidence of some 'gaming' around the size of budgets requested and also perhaps on occasion at site-visit lunches. Finally, the chapter looked at unintended consequences of both evaluations and speculated on how these might have come about. These include consequences for evaluators as well as for academic units being evaluated and may have significant implications for institutions, academic careers, the health of academic research and the status of teaching.

There are lessons to be learned from both evaluations:

1. All evaluations should engage in adequate pre-evaluation consultation with the academic community, paying particular attention to disciplinary differences;
2. When choosing evaluators, their own academic record, disciplinary-fit, experience of other evaluations and some understanding of the specific context are all important elements;
3. It is not appropriate for national evaluations to mainly make use of in-country evaluators but equally some national presence can be helpful;
4. Evaluators who are doing an evaluation in a country whose higher education system they are not familiar with should receive a detailed briefing on this before commencing work;
5. Once an evaluation has started, it's best not to change the rules or procedures;
6. When there is limited money, if the evaluation system involves preparing a budget, disciplinary-appropriate maximum limits should be set for applicants. Using quotas of succcesful applications to ration money is not a good idea;

7. Some element of remote working is necessary in all evaluations but sufficient face-to face panel meetings and where possible site visits, are also very important elements. Where site visits are organised, all those submitting should be given the opportunity to have one; the time allowed for visits may need to be adjusted on the basis of disciplinary needs;
8. It is very important in all research evaluations to have an effective means of declaring and dealing ethically with evaluator conflicts of interest vis-a-vis evaluated units;
9. If a bibliometrics exercise is organised, its parameters should be clearly set out and all submitting units should be consulted. Use of all metrics should form only a part of evidence gathered and utilised;
10. Assessing selected outputs is important and care needs to be taken to deal with how work in a variety of languages can be fairly assessed;
11. Equality issues should be taken into account when assessing past performance; these include illness, bereavement, maternity/adoption leave, disability and early career status;
12. Both past performance and future strategic plans should play a significant role in research evaluation.

In conclusion, research evaluation is a key part of contemporary academic life and is not likely to disappear; therefore we all have a responsibility to make evaluation systems as good as possible and to learn from past mistakes. System-level evaluations are inevitably political and challenging to run. The decisions about money are normally separated from the decisions on academic quality but this makes it hard for evaluators to know if they are making good decisions. If mistakes are made, which is almost inevitable, it is better for everyone to acknowledge them. But equally academics will always criticise judgments that do not go their way. Ironically, almost all successful academics will have been at different times, on both sides of the evaluation fence. Furthermore, whilst evaluations are usually ostensibly aimed at improving things, unintended consequences will and do occur; it is how they are dealt with that matters most. Both countries discussed here still have much to learn about the politics of research evaluation. So too has the rest of the world.

I'd like to end this comparison by observing that if I had known of all the problems of the FCT/ESF evaluation in advance, I wouldn't have agreed to be involved but I learned about many of the problems only when I did the interviews in summer 2015, when the evaluation was officially over. However, as a result of writing this chapter, since June 2015 I have come to appreciate as an academic, not as an evaluator, the strength, creativity, resilience and commitment of Portuguese social scientists.

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REFERNECES

Agência Lusa. (2014, July 25). *Processo de avaliação da ciência é "enormíssimo erro de política pública" Reitor Lisboa*. Retrieved August 11, 2015, from http://portocanal.sapo.pt/noticia/32971/

Araujo, H., et al. (2015). *Três factos "notáveis" sobre a atribuição de financiamento pela FCT*. Retrieved August 12, 2015, from http://www.publico.pt/ciencia/noticia/tres-factos-notaveis-sobre-a-atribuicao-de-financiamento-pela-fct-1699838

Barker, K. (2007). The UK research assessment exercise: The evolution of a national research evaluation system. *Research Evaluation, 16*(1), 3–12.

Bence, V., & Oppenheim, C. (2005). The evolution of the UK's research assessment exercise: publications, performance and perceptions. *Journal of Educational Administration and History, 37*(2), 137–155.

Bourdieu, P. (1988). *Homo academicus*. Cambridge: Polity Press.

Bruckman, S., & Carvalho, T. (2014). The reform process of Portuguese higher education institutions: From collegial to managerial governance. *Tertiary Education and Management, 20*(3), 193–206.

de Jong, S. P. L., van Arensbergen, P., Daemen. F., van der Meulen, B., & van den Besselaar, P. (2011). Evaluation of research in context: an approach and two cases. *Research Evaluation, 20*(1), 61–72.

Deem, R. (2011). Leadership, leadership development and markets in UK publicly funded higher education organisations – Global, national or European? In P. Teixeira & D. Dill (Eds.), Public vices, private virtues? Assessing the effects of marketization in higher education (pp. 159–176). Rotterdam: Sense Publishers.

Deem, R., Hillyard, S., & Reed, M. (2007). *Knowledge, higher education and the new managerialism: The changing management of UK universities*. Oxford: Oxford University Press.

Department for Business Innovation and Skills. (2015). *Fulfilling our potential; Teaching excellence, social mobility and student choice* (The Higher Education Green Paper). London: Her Majesty's Stationery Office.

Equality and Diversity Advisory Panel. (2014). *Equality and diversity in the 2014 research excellence framework*. Bristol: Higher Education Funding Council for England.

European Science Foundation. (2015). *ESF report on the Foundation for Science and Technology (FCT) evaluation of R&D Units 2013–2014*. Strasbourg: European Science Foundation.

European Science Foundation. (2015). *Report on the Foundation for Science and Technology (FCT) evaluation of R&D Units 2013–2014*. Strasbourg: European Science Foundation.

Farla, K., & Simmonds, P. (2015). *REF accountability review: Costs, benefits and burden.* Brighton: Technopolis.

Ferreira, N., & Firmino, T. (2015, July 30). *FCT foi avaliada e Nuno Crato diz que resultados apoiam as suas política*. Retrieved August 12 2015, from http://www.publico.pt/ciencia/noticia/a-fct-tambem-foi-avaliada-e-o-resultado-apoia-as-suas-politicas-1703572

Ferreira, N., & Firmino, T. (2015). *Uma nova FCT?*. Retrieved August, 2015, from http://www.publico.pt/ciencia/noticia/uma-fundacao-mais-autonoma-1703577

Firmino, T. (2014). O ano visto por Carlos Fiolhais: Uma pseudo-avaliação. *Publico.pt*. Retrieved ano nova from http://www.publico.pt/ciencia/noticia/o-ano-visto-por-carlos-fiolhais-o-abate-da-ciencia-numa-pseudoavaliacao-1680555

Heitor, M., et al. (2015). *Livro negro da avaliação científica em Portugal* [The Black Book of Scientific Evaluation in Portugal]. Retrieved March 2016, from http://www.lnavaliacao.pt/pdf/prefacio-LN-english-v08set.pdf; http://www.lnavaliacao.pt/pdf/Livro-negro-aval-v24ags2015.pdf

Heitor, M., & Horta, H. (2012). Science and technology in Portugal: From late awakening to the challenge of knowledge-integrated communities. In G. Neave & A. Amaral (Eds.), *Higher education in Portugal 1974–2009: A nation, a generation* (pp. 179–226). Heidelberg, London, & New York, NY: Springer.

Horta, H. (2010). The role of the state in the internationalization of universities in catching-up countries: An analysis of the Portuguese higher education system. *Higher Education Policy, 23*, 63–81.

Horta, H., & Hasanenfendic, S. (2015). Young doctorates in a fast-changing higher education system: The case of Portugal. In M. Yudkevich, P. G. Altbach, & L. E. Rumbley (Eds.), *Young faculty in the twenty-first century: International perspectives* (pp. 201–226). Albany, NY: State University of New York Press.

Kratky, C., et al. (2015). *Evaluation of the Portuguese foundation for science and technology*. Lisbon, Ministerio da Educacao e Ciencia.

Krücken, G. (2014). Higher education reforms and unintended consequences: A research agenda. *Studies in Higher Education, 39*(8), 1439–1450.

Lamont, M. (2009). *How professors think: Inside the curious world of academic judgment.* Harvard, MA: Harvard University Press.

Lamont, M. (2012). Toward a comparative sociology of valuation and evaluation. *Annual Review of Sociology, 38*(21), 1–21.

Leisyte, L. (2007). *University governance and academic research* (Doctoral thesis). University of Twente, Twente, Netherlands.

Leisyte, L., de Boer, H., & Enders, J. (2006). England: The prototype of the 'Evaluative State'. In B. Kehm & U. Lanzendorf (Eds.), *Reforming University Governance: changing conditions for research in four European countries* (pp. 21–58). Bonn, Lemmens.

Leisyte, L., Enders, J., & de Boer, H. (2008). The freedom to set research agendas—Illusion and reality of the research units in the Dutch Universities. *Higher Education Policy, 21*(3), 377–391.

Leydesdorff, L., & Bornmann, L. (2014). Scientometrics in a changing research landscape. *Science and Society, 15*, 1228–1232.

Lucas, L. (2006). *The research game in academic life*. Maidenhead: Open University Press & the Society for Research into Higher Education.

Margetts, H., 6, P., Hood, C. (Eds.). (2010). *Paradoxes of modernization. Unintended consequences of public policy reform.* Oxford, Oxford University Press.

Martin, B., & Whitley, R. (2010). The UK research assessment exercise. In R. Whitley, J. Glaeser, & L. Engwall (Eds.), *Reconfiguring knowledge production* (pp. 51–80).. Oxford: Oxford University Press.

McNay, I. (2015). Learning from the UK Research Excellence Framework: Ends and means in research quality assessment, and the reliability of results in Education. *Higher Education Review, 47*(3), 24–47.

Merton, R. K. (1936). The unanticipated consequences of purposive social action. *American Sociological Review, 1*(6), 894–904.

Moro Martin, A. (2014, October 8). A call to those who care about Europe's science. *Nature*.

Neave, G. (2012). *The evaluative state, institutional autonomy and re-engineering higher education in Western Europe: The prince and his pleasure*. Basingstoke: Palgrave Macmillan.

Neave, G., & Amaral, A. (Eds.). (2012). *Higher education in Portugal 1974–2009: A nation, a generation*. Dordrecht, Springer.

Nurse, P. (2015). *Ensuring a successful UK research endeavour: A review of the UK research councils* (the Nurse Report). London: Department of Business, Innovation and Skills.

Pruvot, E. B., & Estermann, T. (2014). *DEFINE thematic report: Funding for excellence.* Brussels: European University Association.

Santiago, R., Carvalho, T., & Relva, R. (2008). Research and the universities' image. *European Journal of Education, 43*(4), 495–511.

Sayer, D. (2014). *Rank hypocrisies: The insult of the REF*. London: Sage.

Sayer, D. (2014b). Five reasons why the REF is not fit for purpose. Retrieved August 2015, from http://www.theguardian.com/higher-education-network/2014/dec/15/research-excellence-framework-five-reasons-not-fit-for-purpose

Sharp, S., & Coleman, S. (2005). Ratings in the research assessment exercise 2001 – the patterns of university status. *Higher Education Quarterly, 59*(2), 153–171.
Strathern, M. (2000). *Audit cultures : Anthropological studies in accountability, ethics and the academy*. London: Routledge.
Teixeira, P., & Amaral, A. (2007). Waiting for the tide to change? Strategies for survival of Portuguese Private HEIs. *Higher Education Quarterly, 61*(2), 208–222.
Upton, S., Vallance, P., & Goddard, J. (2014). From outcomes to process: Evidence for a new approach to research impact assessment. *Research Evaluation, 24*(2), 352–365.
Waring, M. (2010). *Moments of vision: HRM and the individualisation of academic workers* (unpublished PhD thesis). School of Management, University of Wales Institute Cardiff now Cardiff Metropolitan University, Cardiff.
Watermeyer, R. (2012). Issues in the articulation of 'impact': The responses of UK academics to 'impact' as a new measure of research assessment. *Studies in Higher Education, 39*(2), 359–377.
Wilsdon, J. (2015). *The metric tide: Report of the independent review of the role of metrics in research assessment and management*. Bristol: Higher Education Funding Council for England.
Worms, J.-C., & Swift, J. (2014). European science foundation: Stop the cuts, not the evaluations. *Nature*, *514*(7523), 434. doi:10.1038/514434e

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10. THE IMPACT OF UNIVERSITY ACADEMIC CULTURE AND LEADERSHIP ON THE SYMPTOMS OF "GLOBAL RANKING FEVER"

The Case of One Russian University in a Particular Institutional Context[1]

Plunge we in Time's tumultuous dance,
In the rush and roll of Circumstance.
Then may delight and distress,
And worry and success,
Alternately follow, as best they can:
Restless activity proves the man!

– Goethe, *Faust*

In this chapter we discuss how institutional culture of the academic system affects university's response to global rankings pressure. Rankings as strong public measures determine the process of organizational change at the university level. At the same time, the nature and degree of change depends on whether university is driven by a market-based or state-based logic of accountability. It has been shown that rankings get their power in a competitive environment when they represent students' choice, reputation scores, and donation rates. External market pressure enforces universities to deal with rankings at the organizational level. Very few attempts were made to investigate university's response to rankings in a state-dominated academic system. How does a university with a 'blunted feeling of competition' organize changes in order to enter the world-class league? To address this issue we conducted a case study of one Russian university which has recently entered the race for global academic excellence. We emphasize the significant role of academic culture and leadership as driving forces for a radical internal change on the one side and for coping with the symptoms of "global ranking fever" on the other.

INTRODUCTION

Rankings' ability to influence and even to change global higher education landscape makes them influential tools. More and more countries and individual universities are involved today in 'ranking games,' spending impressive amount of resources

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on special programs for academic excellence and applying ranking measures and positions as major indicators of advancement and object of national pride (Yudkevich et al., 2015). The movement for becoming 'world-class' enforces institutional changes to strengthen leading national universities and to put them on the foreground of global academic field. Since rankings have been presented as exceptional public measures for national academic competitiveness, one could argue that individual universities or even higher education systems are fevered by the aspiration of becoming ranked. Although less than 7% of all universities are present in major international rankings, many more higher education institutions in the world are involved today in the activities aimed at 'joining the club'. At the same time, 'ranking fever' in different countries may be driven and coordinated through a market-based (as in US and UK) or state-based (as in China or Russia) logic of accountability. Moreover, considering the implementation of global ranking measures as the process of institutional adoption from one kind of academic system to another questions the process of translation from an abstract idea of 'ranked university' into a management and academic practice.

Recent studies on the impact of rankings have shown that universities from different academic systems transform themselves under the pressure of 'ranking games' (Hazelkorn, 2011). They enforce universities as corporate actors to provide high performance rates—highly cited scientific publications, international students and faculty, high reputational scores from students and alumni. Although universities have traditionally been oriented towards teaching and research, the idea of being part of a global academic field means structural, institutional and even cultural shifts for hundreds of them all over the world. With that we can observe different reactions of universities whose strategies and decision making process were imposed by the fact of being ranked. Reaction differs not only between universities of high and low ranks (Hazelkorn, 2007) but between universities embedded in different academic systems. Following Clarks' triangle (Clark, 1983) we can still divide academic systems into those governed by market, state authority or academic oligarchy. It means, for example, that environmental pressure which determines the university behavior could be ordered by a competitive or bureaucratic logic. It has been discussed through various studies that rankings get their power in a competitive environment when they represent students' choice, reputation scores, and donation rates and so on. External market pressure enforces universities to deal with rankings at the organizational level (Locke, 2011). In spite of the fact that numeric rankings are presented as market devices which facilitate a competitive environment and value the logic of efficiency in academic work and governance, university is also embedded in an institutional field that forms the relevant logic of accountability. It means that rankings as calculative devices function differently under the market- or state-dominated institutional culture. What is the university response to rankings in a state-dominated academic system?[2] How does a university with a 'blunted feeling of competition' organize and manage changes in order to respond to a rankings pressure?

To answer these questions we conducted a case study of one Russian university which has recently entered the race for global academic excellence. While many policy-makers as well as academics in the Anglo-Saxon world take the competitive model and its institutional consequences for granted, we explain how an alternative model with no competition between universities themselves but rather direct relationship between universities and the state, may affect university decisions and effectiveness in the global ranking game.

The course on internationalization and enhancing academic performance taken by the Russian government in the last five years was accompanied by such initiatives or special programs as 'National Research Universities' and '5-100'. These programs were aimed at stimulating leading universities to improve their academic achievements in terms of high-quality research and make them more visible on the global academic scene. In exchange for additional funding and resources, participating universities were obliged to take measures from global academic rankings as key performance indicators. They were asked to elaborate new long-term strategies (till 2020) of internal and external excellence to organize the process of getting into the worl top-100 according to at least one of the recognized global rankings. For most of the universities that became agents of these programs, embarking on the road to academic internationalization meant a deep and fast internal reorganization that went alongside mergers they were experiencing. Moreover, to force an entrance on the global academic scene, Russian universities should embark on a new track to match new standards of academic and administrative work. Academics have to publish their papers and teach their courses in English, enter new academic networks through international conferences, journals, reviewers, workshops and so on. Administrators have to (re)organize universities according to the new patterns of work, structures, goal setting and performance assessment. Over the first three years of the '5-100' program, several universities improved their positions in global academic rankings entering the top-500 of QS World University Ranking. Russian universities have shown good results and entered the top-100 of QS and Times HE 'subject,' 'young universities' and the so-called 'BRICS and Emerging Economies' rankings.[3] At the same time, along with some progress in global rankings Russian universities have also demonstrated an increasing number of publications in the so-called 'predatory journals,' which has grown several times in three years (Sterligov, Savina, 2016). Such contradictory results of rankings implementation strategies raise several questions about university response to global ranking pressures. Since universities are obliged to put ranking measures at the heart of their developmental strategies and demonstrate 'immediate victories,' university organizational response should be discussed not only in terms of effectiveness and excellence but also in terms of academic ethics and culture.

Simultaneously, to explain the reaction of universities to global rankings, the role of leadership should be disclosed too. The degree of internalization and institutionalization of performance metrics into university organization depends on

the interpretation provided by academic administrators to university dynamics in rankings measures and to the process of ongoing organizational change.

ORGANIZATIONAL RESPONSE OF UNIVERSITIES TO RANKINGS PRESSURE

Since global rankings have become a powerful instrument for institutional change in higher education systems more studies that reveal their influence at the organizational level of universities appear (Martins, 2005; Sauder & Espeland, 2009; Locke, 2011; Colyvas, 2012). Rankings have been already discussed in terms of student choice and selection (Monks & Ehrenberg, 1999; Meredith, 2004; Bowman & Bastedo, 2009), resource dependence and financial strategies (Bastedo & Bowman, 2011), institutional strategies and leadership (Hazelkorn, 2008; Hazelkorn, 2011), organizational identity and reputation (Espeland & Sauder, 2007; Elsbach & Kramer, 1996; Sauder & Fine, 2008; Bastedo & Bowman, 2010), power and disciplinary effects (Sauder & Espeland, 2009; Pusser & Marginson, 2013). Research on the impact of rankings conducted through various methods—from quantitative surveys of university administration to individual cases of universities—highlights the importance of knowing about how these public measures shape and perform the organizational reality of higher education.

Rankings change academic organization based on the relationship between external environment and internal organizational order. Reputational rankings are presented as powerful devices that enforce organizational changes inside universities to respond to external demands from those who use performance metrics as a decision-making tool. Internalization and institutionalization of public measures inside universities occurs through changes in organizational structure and identity, as their image should correspond to that imposed by rankings. The linear logic of governance (as if goals are measured outcomes which should be achieved within a certain period of time and with a given amount of resources) differs from the in-linear logic of shared academic governance, which was expressed by many organizational theorists as a specific ‘paradigm of academic organization’ (Birnbaum, 1991; Colyvas, 2012). Presented as an example of key performance metrics which put end on the place of goals, rankings question the simple idea (or the ‘old paradigm’) of academic organization as a loosely coupled system.

Institutional vision of university organization shows that effective changes could be replaced by ceremonial ones as long as they are perceived in the logic of bureaucratic pressure (Meyer & Rowan, 1977; Czarniawska & Genell, 2002). The idea of ‘loose coupling’ (Weick, 1976) in education contained the image of parallel or reciprocal relations between academic and administrative worlds that function to protect the core academic activity and respond to external pressures. The notion of organizations as ‘coupled systems,’ or ‘coupling structures.’ offers a fruitful image of how this relationship between identity and structure is mediating inside different types of organizations and—mainly—universities. K. Weick defined ‘loose coupling’ as a situation in which elements are responsive but retain evidence of separateness

and identity (Weick, 1976: 3). Later, in Orton and Weick's paper on loosely coupled reconceptualization authors brought a wider perspective on this concept discussing its dialectical interpretation. As long as the degree of coupling depends on the 'responsiveness' of elements on the one side and their 'distinctiveness' on the other, we can observe and classify different types of organizations or their temporal regimes according to the relationship between structure and identity. 'If there is neither responsiveness nor distinctiveness, the system is not really a system, and it can be defined as a noncoupled system. If there is responsiveness without distinctiveness, the system is tightly coupled. If there is distinctiveness without responsiveness, the system is decoupled. If there is both distinctiveness and responsiveness, the system is loosely coupled' (Orton & Weick 1990: 205).

Rankings question the idea of loose coupling as they work as disciplinary devices and bring the notion of tight coupling to university, which means the 'reciprocity gap'. As long as markets value reputational signals and competitive choice as important conditions of academic regulation, they force universities to tight coupling between administrative goals and academic outcomes. Institutional vision of university organization as a loose coupling system puts legitimacy as a key organizational variable that could explain the logic of change in its formal structure and identity. Rankings question the 'old paradigm' of academic organization, which relates goals and technological ambiguity, organizational anarchy, non-linear governance to substantial or natural elements of universities as organizations. Practical usage of rankings as key performance measures assumes that goals are measured outcomes which should be achieved within a certain period of time and with a given amount of resources (Colyvas, 2012).

We emphasize the significant role of academic culture and university leadership as driving forces for radical internal change on the one side and for coping with the symptoms of 'global ranking fever' on the other. Taking part in the global academic race means tremendous institutional and cultural shift for those universities that are embedded in local patterns of academic work and organization. Whether university change means formal or substantial transformations depends on the degree of buffering between structures and their activities. For example, Sauder and Espeland studying US law schools have noted that, 'decoupling is not determined solely by the external enforcement of institutional pressures or the capacity of organizational actors to buffer or hide some activities. Members' tendency to internalize these pressures, to become self-disciplining, is also salient. Internalization is fostered by the anxiety that rankings produce, by their allure for the administrators who try to manipulate them, and by the resistance they provoke' (Sauder & Espeland, 2009: 63). Simultaneously, internalization of rankings occurs through various interpretations by university administrators and academicians who make sense of changes.

Further in the chapter we demonstrate how radical change in one Russian university which assumed a cultural shift in the notions of academic work and university governance questioned the role of university administrators in the moral discussion about the impact of rankings.

CASE STUDY: DATA AND METHODS

It has already been emphasized that despite being a country with a strong system of education and science, Russia has very low representation in academic rankings. Awareness of this fact prompted the Russian government to initiate a special program in order to stimulate universities to get into the top-100 of global rankings. Fifteen universities highly ranked at the national level (very low or even not ranked at the global level) were selected on a competitive basis and joined the program. While these universities are in most cases still quite far from reaching the program's goal, they all now use performance measures associated with global rankings as decision-making tools.

At the institutional level, Russian system of higher education is still characterized by the teaching-research separation between university sector and institutions of the Academy of Sciences, the so-called inbreeding modes of academic and administrative staff, dominance of the Russian language in publications and academic courses, and statist economy of the academic sector in terms of funding and quality assurance (Pavlyutkin & Yudkevich, 2016). This means that institutional conditions for 'ranked universities' are different and the consequences of rankings' influence will be different for universities embedded in a competitive or state-monopolized environment. Besides that, university age and the stage of involvement in the ranking game are also important in a reaction to the excellence race. Most leading universities in Russia joined the global rankings game less than five years ago. Some of them are comparatively young.

Ours is the case of one leading Russian university, National Research University – Higher School of Economics (HSE). This case allows us to demonstrate several perspectives reflecting the impact of global rankings on universities.

HSE is now already the largest center for the study of social sciences and economics in Russia and is actively improving its positions in humanities and hard sciences. The university was established in 1992 as a new specialized higher education institution (initially focused on economics only). Now, HSE has four campuses, located in Moscow (established in 1992), Saint-Petersburg (1998), Nizhniy Novgorod (1996) and Perm (1998). HSE runs bachelor's, specialist's, master's, and advanced postgraduate programs, and at the beginning of 2014/2015, HSE had about 25,000 students (the largest campus being in Moscow, with more than 16,000 students) (for more information and history of HSE see Pavlyutkin and Yudkevich (2016), Froumin (2011)). HSE has diversified sources of funding (including tuition fees and consulting money earned at the market) substantial part of its budget comes from the State in the form of per-student head funding for teaching students at educational programs of all levels and support for HSE basic research. While HSE is an established national leader as a teaching institution, research center and think-tank, it still is not very visible internationally and is undertaking its first attempt to improve visibility at the global academic market for academics, employers and prospective students.

Until 2014, HSE had approximately 30 faculties and schools. However, the university is now in the process of a major structural reform aiming to combine faculties and schools in disciplinary clusters (so-called 'mega-faculties'). Eleven mega-faculties were recently created at the Moscow campus; they are supposed to have more autonomy in financial issues and decision-making than the smaller faculties they replaced, but they are also expected to be more accountable. Deans of these new structures are supposed to be more powerful but also more responsible for the performance of their schools.

HSE involvement in the '5-100' program encouraged critical discussions among different groups on what is valued in a university. Global rankings were assigned various meanings and marked different things—from being important measures of university progress and reputation to a damaging instrument. Being involved in new national program of global competitiveness, HSE central administration committed to achieving high positions in global rankings. Taking this new frame into account, changes in organizational rules and implementation of new institutional solutions regarding academic contract and university governance were initiated. Besides, HSE leaders took the role of sense-givers for the middle-level management and academic staff, translating these innovations and embedding them in a continuous organizational history of HSE.

This chapter builds upon a series of in-depth focused interviews with faculty and administrators at the top and departmental level of HSE. 17 interviews took place in 2014 with academics and administration at several departments: Economics, Psychology, Philosophy, Sociology, Media and Communications, Political Sciences. In spite of its young age, HSE consists of departments of different age. Three of them were founded more than 15 years ago at an earlier stage of university development and the others—less than 10 years when HSE had already become large and reputable. In 2015 all these departments were merged with others, and four mega-faculties (out of 10) were founded: Faculty of Economic Sciences, Faculty of Social Sciences, Faculty of Humanities, and Faculty of Communications, Media and Design. The administrators we interviewed were either responsible for academic development at their faculties (deans, deputy deans) or coordinated these activities for the university in whole.

Interviews were identically guided and consisted of three major parts: professional trajectory and personal career at HSE; working conditions, workload and major changes academic and administrative work; attitudes to changes in the university and to the initiative aimed at entering global academic rankings. Interview discussions were focused on understanding major prospects of university development and current changes in academic workload and working conditions. Besides, the respondents were asked questions that characterized the change in the nature of the relationships between academics and administrators. In particular, we asked them about how the ongoing organizational changes affected collective decision-making inside their departments and communication with central administration.

The interviews were semi-structured and lasted between 60 and 100 minutes. The respondents could digress for their own reasons.

Interview data were also complemented by university statistics and results of special university surveys that were relevant for the discussion of rankings and university changes.[4]

One of the hypotheses that emerged in HSE case is that university change provided by institutional pressure of global ranking depends on the type of administrators who organize coupling between academic and administrative worlds. Academic administrators are at the forefront of organizational changes. They are in between academic and administrative worlds. At HSE, we can distinguish two types of administrators. First, there are professional administrators who neither teach nor do research but are just responsible for administrative processes. Some of them might have an academic background but in general, they are not the part of the 'academic tribe'. Second, there are administrators who have an academic background and who still combine administrative and academic responsibilities. The latter may include project managers, deans and deputy deans, and even vice-rectors. For some of them administrative part of the job is the primary one, for others—secondary, but in any case, it takes a considerable amount of their time and efforts. At the same time, a university administrator who stands at the forefront of changes has an impact on whether the university is tightly or loosely coupled in response to global rankings pressure. It means that to explain the logic and consequences of change we need to understand their identity, values, vision and interests (Kezar, 2012).

RADICAL ORGANIZATIONAL CHANGE AT HSE: RULES, STRUCTURES, IDENTITIES

HSE case can be determined as a specific type of university at the crossroads. Since its foundation, the university was oriented towards international standards of education and research through various forms of activities and cooperation with various partners (LSE, Paris-I Sorbonne and Erasmus University as first key ones). At the same time, it was functioning in a specific type of institutional culture that is to a certain extent indifferent to or even repels the values of competition and selection, faculty turnover, external hiring, Anglo-Saxon standards and routines of professionalism and performance in academic and administrative work. Such a contradiction was not recognized as a problem until the day HSE was obliged to become a 'ranked university'. It means that to make progress in the rankings, HSE should match the image imposed by them.

One strategy to achieve that was to intensify the outputs important for ranking calculations within the same 'production function' with no substantial changes in the governance model. Such a strategy assumes, among other things, shifting resources toward 'market purchases' of required outputs (e.g., publications via short-term contracts with people from other organizations who add a second affiliation to their work in exchange for generous remuneration) and also diminishing them within the

disciplines that produce relatively less important results (e.g., humanities or social sciences).

However, another strategy has been chosen by HSE administration: to become a highly-ranked world-class university, HSE started a frame-bending change.

At the organizational level, HSE leaders started by implementing a new governance model. The new status of faculty deans appointed by the rector was accompanied by the introduction of key performance measures directly and indirectly reflecting the global ranking measures (number of faculty publications in Scopus and Web of Science, citation indexes, number of international students and faculty, external research funding, etc.). Success or failure in KPI achievements in a given year is then related to the volume of financial resources for strategic and academic activitiesfaculties will receive from the university's central budget the following year. 'The worst don't get anything' maxima was promoted by the strategic planning office and governing board in order to stimulate faculty management teams to become more active in the realization of HSE road map on global competitiveness. It is hard to objectify the intended and unintended consequences of these changes at the early stage of transformation, although we have witnessed a negative reaction of academicians to the introduced measures. Nevertheless, the new approach questions the idea of an academic organization as a loosely coupled system where academicians could organizationally protect their distinctiveness in the whole system and offer an alternative understanding of university goals, for example not definitely measured but communicated goals.

One of the radical shifts in the established social order was the transformation of the existing notion of university academic work. The meaning of this transformation could be explained in the following statement: *from the university as a team of associates to the university as a corporation of high performance employees*. Change occurs through several mechanisms: a) professional socialization and retraining of teaching and administrative staff (courses in general and academic English, data analysis, academic writing); b) implementation of new professional standards and principles of academic contract including a reward system based on research productivity; c) start of an open recruitment policy with lower long-term employment warranties and increasing turnover rates. These elements should work as mechanisms for increasing performance rates.

The 'publish or perish' principle was implemented into the academic contract and distribution of internal research grants even before HSE began to care about rankings. The first step was to introduce a new salary system (merit pay) which stimulates academic performance (mainly publications) in exchange for extra 50–200% of average teacher's salary (it is important to mention that the average level of teacher's salary at HSE is still one of the highest among Russian universities and can be called good in comparison with other European universities). Besides, the internal grants competition for research funds first took quantity into account but now, at the next step, quality of publications has become one of key performance indicators too. Between 2005 and 2010 academic rewards or bonuses didn't include international

publications as a distinct criterion. As this mechanism of performance-based payment was institutionalized in the academic environment, the need to increase productivity was realized annually through lowering the value of each publication in the system of rewards and creating the hierarchy between different types of publications according to their relevance for global rankings measures. For example publications in Russian 'cost' less than in English; working papers, book chapters or teaching materials less than journal articles, articles in lower-impact journal less than in high-impact one. Of course such a system brought negative comments from those who valued other patterns of academic work, e.g., preferred books too articles (like sociologists), French or German to English (like philosophers), national journals to international ones (like faculty at law department). As a reaction, in many cases this system was modified according to disciplinary and faculty needs, although increasing demand for publications was untouchable (e.g., the system takes into account that in the field of computer science presentations at some major conferences may mean far more than journal publications). It was an effective demand. Moreover, there is a need for constant changes in performance criteria (*faster, higher, stronger*!) in order to enhance efficiency and effectiveness.

The implementation of this system and its regular modification since 2005 have contributed to higher publication rates not only by newcomers (mainly from the international job market), who were expected to perform according to new university standards, but also from old-timers and especially young academicians who started their career after graduating from HSE master and PhD programs. At the same time, our respondents mentioned some negative consequences of such progress in terms of higher workload, endless administrative changes, and increased requirements to observed quantity and quality of outputs. Many faculty members mention that they are 'tired of constant change of the rules of the game' and feel stressed because of uncertainty caused by these changes.

In the case of HSE, rankings strengthen institutional or administrative cohesion, as a 'university as a whole' should be mobilized in order to succeed in reaching clear and objectified goals. At the same time they question the university's symbolic integrity. This process has two consequences. First, university internal governance under rankings creates symbolic boarders between departments/employees that are most compatible within these settings and those on the periphery. For example, mathematicians, philosophers, journalists, lawyers in different universities around the world will have their own visions and positions in rankings considered as important metrics of performance. But in an administrative setting they are similarly ranked under universal organizational rules. Second, rankings constitute a symbolic border between different administrators and academic staff. Administrators find more sense in ranking games as they give clear signals, operational, fruitful for the theory of university management. Being tools for administrators, they create distance from teachers, who do not want to be observed and controlled. Academicians organize their activities according to their own notions about work, reputation and professionalism. It seems that it is the administrators who, by establishing common

rules and standards, contribute to maintaining an organization's institutional integrity. However, it has the opposite effect, as in response to changes faculty members seek to express and localize their disciplinary specificity.

INSTITUTIONAL CHANGE AND THE ROLE OF LEADERSHIP

As long as strong performance measures are embedded in university governance, the following problematic question may arise: will global rankings translated for a university embedded in a specific institutional culture provide the transition from loose to tight coupling, as we observed in the competitive US system (Sauder & Espeland, 2009), or should we expect other reactions in a system with strong state domination?

Institutional changes were characterized as dramatic at the oldest faculties as they consist from people engaged in the historical formation of the young university. In the interviews HSE was presented as a university that was founded and developed by a team of associates who shared common values of academic work in economics and social sciences. Those who were devoted to HSE development at the early stages and were described as associates were emotionally upset.

> When I came in the early 1990s, HSE was a team of associates. Everyone knew each other: administration, teachers, workers of different services, accounting. They shared the same values regarding the changes in the post-soviet economy and education. There was no division between administrators and academicians. Indeed the university consisted of people who knew each other and had good relations. Nowadays this university is completely different. (Male, former dean, professor, 22 years at HSE)

In the 2000s, the university chose a poaching strategy of recruitment and invited leading academicians from various universities based in Moscow, Saint Petersburg, Novosibirsk, Kazan, as well as some other major universities and research centers. Besides that, HSE hires its own graduates for academic and administrative positions. Till the end of 2010 these professionals could be determined as the academic core of the university and its faculties. The introduction of the new strategy and road map changed the idea of academic core and brought a new classification based on academic productivity. Some academicians, who had been classified as core members a decade earlier, went to the periphery because of the 'publish or perish' principle.

The ambitious goal of getting into global rankings should be reached through a system of administrative rules and acts that can lead to unpleasant consequences for teaching staff not only in terms of resources but dismissals too. The situation is recognized as a new trend in university development. Faculty administrators work under pressure because they are both colleagues and administrators at the same time. They are expected to take a buffer role between central administration and teaching staff, collecting and translating information about occurring changes and accumulating reaction from both sides. Such an organizational 'double movement'

coupled by faculty administrators creates specific dilemmas related to university governance.

Two specific facts about HSE governance help smoothen this possible antagonism. The first is that the university is still governed by administrators who value their academic identity but not professional managers. It means that they don't just express their values through talks but also demonstrate high academic performance, as they publish papers in good peer-reviewed journals. They themselves know from personal experience what it takes to become an international scholar. This fact gives them 'moral arguments' in hot and complicated discussions while implementing radical organizational transformations as long as they demonstrate high academic productivity expected from the rest of employees as well. They are still recognized as colleagues. As one of the vice-rectors commented:

> This is like schizophrenia when you are a colleague and administrator at the same time but it is important as you can understand how academicians work and do their job. My belief is that key positions in university governance should be occupied by scholars but not pure managers. (Male, Vice Rector, professor, 16 years at HSE)

CONCLUSION

Leading Russian universities that have good chances of improving their positions in global rankings got financial support from the government to do that. The bureaucratic logic of accountability presumes permanent control over quick victories and formal indicators (such as the number of publications, citations, international students and faculty, etc.). There are no external incentives for university administration to make substantial efforts to implement profound changes and not substitute them for formal adjustment to government requirement and improvement of formal indicators without any control of research and teaching quality (e.g., via publications in predatory journals or by enrolling weak international students).

For many universities in Russia this serious top-down task of getting into the top-100 of global rankings means radical and deep change not only in existing institutional structures but in the classifications of academic employees and notions of academic work and performance.

We have already mentioned that HSE cannot be considered a typical Russian university because of the young age, academic profile, dynamics of growth and, of course, its positioning in the field of national higher education. Although the university has become a national leader and sought to become a phenomenon of the new age by excluding traditional, conservative Soviet-period patterns of teaching and research in economics, social sciences and humanities, the first year of experience with global rankings shows that it was nevertheless embedded in a specific institutional culture, which is not suitable to the patterns imposed by global ranking games. We have shown that rankings virtually impose such patterns of

objectified goals and organizational solutions that start the process of reflecting on organizational and academic identity. This is a reflection on whether HSE is still devoted to its initial mission or whether global rankings could strengthen or weaken its realization. How such an abstract thing as university mission is related to such an abstract thing as global rankings? How do academic employees and university administrators evaluate this or that thing in their special activities or daily routine? What price in terms of resources, dismissals, relations should a university pay for making progress in global rankings? All these questions were expressed by our respondents during the discussions around current changes, university transition and global rankings. They also pointed out to the existence of friction between such virtual groups as administrators and academicians, newcomers and old-timers, insiders ('inbred faculty') and outsiders.

As we have shown in our case study, those administrators who value academic identity call themselves 'schizophrenics' as they should push and pull what they value. One of the moral solutions to this 'schizophrenia' is to show that you yourself can fulfill the requirements imposed on the rest. This gives you moral arguments in the discussion on enforcement and shows that you are still in the same boat. This feeling of the academic world provides administrators with a moral right to radical change as long as they can maintain balance between the two parties. This idea does not correspond to the notion of professional management in higher education and the need for the division of academic and administrative labor ('everybody should mind their own business'). The more administrators without academic experience a 'ranked university' hires, the more the distance between academic and administrative worlds inside the university will grow and the more the university will become a corporate actor without any 'quasi' definitions. As long as academic and administrative worlds are getting more and more alienated ('rankings are games of administrators'), there is a question about what type of administrators could govern these ties and work not only for academic productivity but for university integration.

NOTES

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[2] For the case of China see for example Dunrong (2016).

[3] http://5top100.com/news/23247/

[4] For basic statistics on HSE see http://www.hse.ru/en/figures

REFERENCES

Bastedo, M. N., & Bowman, A. N. (2009). Getting on the front page: Organizational reputation, status signals, and the impact of U.S. news and world report on student decisions. *Research in Higher Education, 50,* 415–436.

Bastedo, M. N., & Bowman, A. N. (2010). The U.S. news & world report college rankings: Modeling institutional effects on organizational reputation. *American Journal of Education, 116,* 163–183.

Bastedo, M. N., & Bowman, N. A. (2011). College rankings as an interorganizational dependency: Establishing the foundation for strategic and institutional accounts. *Research in Higher Education, 52,* 3–23.

Birnbaum, R. (1991). *How colleges work: The cybernetics of academic organization and leadership*. San Francisco, CA: Jossey-Bass.

Clark, B. R. (1983). *The higher education system. Academic organization in cross-national perspective*. Berkeley, CA: University of California Press.

Clark, S. M., Gioia, D. A., Ketchen, D., & Thomas, J. B. (2010). Transitional identity as a facilitator of organizational identity change during a merger. *Administrative Science Quarterly, 55,* 397–438.

Colyvas, J. A. (2012). Performance metrics as formal structures and through the lens of social mechanisms: When do they work and how do they influence? *American Journal of Education, 118,* 167–197.

Czarniawska, B., & Genell, K. (2002). Gone shopping? Universities on their way to the market. *Scandinavian Journal of Management, 18,*455–474.

Dunrong, B. (2016). Global rankings and world-class university aspirations in China. In M. Yudkevich, P. Altbach, & R. Rumbley (Eds.), *The global academics rankings game. Changing institutional policy, practice and academic life*. London: Routledge. (Forthcoming)

Espeland, W. N., & Sauder, M. (2007). Rankings & reactivity: How public measures recreate social worlds. *American Journal of Sociology*, *113*, 1–40.

Friedland, R., & Alford, R. R. (1991). Bringing society back in: Symbols, practices, and institutional contradictions. In W. W. Powell & P. J. DiMaggio (Eds.), *The new institutionalism in organizational analysis* (pp. 232–266). Chicago, IL: University of Chicago Press.

Froumin, I. (2011). Establishing a new research university: The higher school of economics, the Russian federation. In P. G. Altbach & J. Salmi (Eds.), *The road to academic excellence: The making of world-class research universities* (pp. 293–321). Washington, DC: The World Bank.

Gioia, D. A., Thomas, J. B., Clark, S. M., & Chittipeddi, K. (1994). Symbolism and strategic change in academia: Dynamics of sensemaking and influence. *Organization Science, 5,* 363–383.

Hazelkorn E. (2007). The impact of league tables and ranking systems on higher education decision making. *Higher Education Management and Policy*, *19*, 81–105.

Hazelkorn E. (2008). Learning to live with league tables and ranking: The experience of institutional leaders. *Higher Education Policy, 21,* 193–215.

Hazelkorn, E. (2011). *Rankings and the reshaping of higher education: The battle for world-class excellence*. Basingstoke: Palgrave Macmillan.

Hazelkorn, E., Loukkola, T., & Zhang T. (2014). *Rankings in institutional strategies and processes: Impact or illusion?* Brussels: European University Association. Retrieved from http://www.eua.be/Libraries/Publications_homepage_list/EUA_RISP_Publication.sflb.ashx

Locke, W. (2011). The institutionalization of rankings: Managing status anxiety in an increasingly marketized environment. In J. C. Shin, R. K. Toutkpushian, & U. Teichler (Eds.), *Ranking, reputation and the quality of higher education* (pp. 201–228). Dordrecht: Springer.

Martins, L. L. (2005). A model of the effects of reputational rankings on organizational change. *Organizational Science*, *16*, 701–720.

Meyer, J. W., & Rowan B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology, 83,* 340–363.

Pavlyutkin, I., & Yudkevich, M. (2016). The ranking game on the Russian battlefield: The case of the higher school of economics. In M. Yudkevich, P. Altbach, & R. Rumbley (Eds.), *The global academics rankings game. Changing institutional policy, practice and academic life*. London: Routledge. (Forthcoming)

Pusser, B., & Marginson, S. (2013). University rankings in critical perspective. *The Journal of Higher Education, 84,* 544–568.

Salmi, J. (2009). *The challenge of establishing world-class universities*. Washington, DC: The World Bank.

Sauder, M. (2008). Interlopers and field change: The entry of U. S. News into the field of legal education. *Administrative Science Quarterly, 53,* 209–234.

Sauder, M., & Espeland, W. N. (2009). The discipline of rankings: Tight coupling and organizational change. *American Sociological Review, 74*, 63–82.

Sterligov I., & Savina T. (2016). Riding with the metric tide: 'Predatory' journals in scopus. *Higher Education in Russia and Beyond*, *1*(7), 9–12. Retrieved from https://herb.hse.ru/en/

Thornton, P., & Ocasio, W. (1999). Institutional logics and the historical contingency of power in organizations: Executive succession in the higher education publishing industry, 1958–1990. *American Journal of Sociology, 105*, 801–843.

Weick, K. (1976). Educational organizations as loosely coupled systems. *Administrative Science Quarterly, 21*, 1–19.

Weick, K. E. (1995). *Sensemaking in organizations*. London: Sage Publications.

Yudkevich, M., Altbach, P., & Rumbley, L. (2015, December). Global university rankings: The "Olympic Games" of higher education? *Prospects*, *45*(4), 411–419.

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PART III

HOW ARE HIGHER EDUCATION PROFESSIONALS AND STUDENTS RESPONDING TO THE TRANSFORMATIONS?

LUCIO MORETTINI, EMILIA PRIMERI, EMANUELA REALE
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11. CAREER TRAJECTORIES OF PHD GRADUATES IN THE SOCIAL SCIENCES AND HUMANITIES

Drivers for Career Moves

INTRODUCTION

The achievement of a doctoral degree has long been considered as a way of preparing for an academic career. However over the past two decades universities have undergone significant transformations, such as the move towards new missions other than teaching and research (Enders & De Weert, 2009), the increasing globalization of the academic sphere, the application of new managerial schemes (Hazelkorn et al., 2010), as well as other changes arising from policy reforms, all of which have combined to reduce employment opportunities in the higher education sector. In fact the published data highlight the shortages of opportunities and the increasing imbalance between the demand and supply sides of the academic labour market (OECD, 2010).

For these reasons, PhD graduates have gradually arrived at a turning point: either the holders of doctorates face high level of unemployment (OECD, 2010) or they accept that they are part of a broader workforce, seeking employment in various sectors (Roach & Sauerman, 2010). In fact there is an emerging need to decouple doctoral training from the academic career path, and to consider it more as a potential passport towards multiple careers (Enders, 2002; Huisman et al., 2002).

However even as doctorates move into the broader market, little is known about the employment choices they will encounter or the changes they will make as they proceed in their careers. Most of the published studies regarding the issue focus on the labour market perspective, meaning on the supply side of the academic positions offered to PhD graduates. There has been some examination of alternative occupations, particularly the role of junior scientist in the private industrial sector, and in this case the direct relationship of the final stages of doctoral education to the individual's employment opportunities and career paths (Mangematin, 2000).

DOCTORAL TRAINING CHANGES: PATHWAY TOWARDS MULTIPLE CAREERS

The recent economic and social changes have prompted PhD graduates to broaden their employment horizons and search for jobs in sectors other than research and

C. Sarrico et al. (Eds.), Global Challenges, National Initiatives, and Institutional Responses, 205–236.

education. The achievement of a doctoral degree, so far, is no longer seen simply as an introduction to an academic career, and the changing situation is leading to careers that are less linear and predictable.

This study examines the career trajectories of PhD graduates in the social sciences and humanities (SSH), exploring the career steps and attempting to highlight the factors likely to impact on the graduate's decisions about various aspects of employment. The current chapter analyses the careers of more than 1000 PhD graduates in 13 European countries, with the objective of identifying which elements influence the decision to change or remain in the same sector of employment, at the moment of passage between two different jobs. The broader aim is to identify those elements that are useful for describing the longer term patterns of mobility in the careers of graduates. The data examined in the chapter derive from the European Community POCARIM study.

The observations are mostly in a longitudinal dimension, as the graduates proceed in the higher education sector or move back and forth to other sectors, both in national and international contexts. A vertical dimension can also be understood, as the graduates advance in career position (Enders, 2002). The aim is to reveal the different career trajectories of SSH PhD graduates, and the factors impacting on their step by step changes in employment. The research questions are: What are the career trajectories of social sciences and humanities PhD graduates? Is it possible to identify patterns of steps in the career trajectories? What factors are likely to impact on the career steps? Is there a pattern of relationships between the first career experiences (employment decisions, periods of unemployment) and the long-run development of the career?

We expect that for SSH PhD graduates, multiple career trajectories are likely to emerge, since they can experience employment outside the academic sphere and may often move between several different sectors. We will examine potential factors impacting on the individual's career steps and their mobility in the labour market, such as the initial characteristics of the career, the age at obtaining the doctoral degree, the individual's gender, family composition, and their mobility during doctoral studies. Finally, we will search for differences in career trajectories and steps, including non-academic employment, relative to the characteristics of the education received within the SSH field itself (Henkel, 2000; Bordieu, 1986, 1999).

The intention of the current work is not to examine the impact of the students' experiences during their doctoral education on their career and employment opportunities. Rather, our intention is to focus on the different career steps and decisions beyond the education stage, illustrating different factors that are likely to impact on the moves and progress of SSH PhD graduates within the labour market.

The next section of the chapter introduces the theoretical framework for the study, serving as the grounding for the analysis. The subsequent sections present the dataset and describe the methodology used in the analysis. The final sections consist of a discussion of the estimation results and a summary of the resulting conclusions.

WHAT CHOICES FOR DOCTORAL DEGREE HOLDERS?

Beyond the gross distinctions of private sector and academic employment, the scientific literature indicates a range of various non-academic choices for individuals with university training in the social sciences and humanities (Inzelt et al., 2014). However there is almost no exploration of the way different factors would be likely to affect the employment choices and career trajectories of SSH PhD graduates. The intention of the current study is to examine and illustrate the different career paths of the SSH graduates, focusing on aspects of step by step mobility, thus bringing out the factors that could impact on their choices and changes in employment.

Auriol et al.'s (2013) study on PhD graduates' careers indicates that compared to social scientists, natural scientists and engineers are more likely to be engaged in research, and thus in the academic sphere, whereas there is a stronger trend for the employment of social scientists in non-research occupations. These authors also point out that those employed outside of the education and research sector show more job to job mobility, meaning more frequent transitions. For the PhD graduate, the aspect of mobility might represent an unintended outcome related to the failure to retain a stable position. The frequency of such failures could reflect the general crisis in the labour market, or patterns of instability relating to specific sectors and employment destinations. For those employed in the business sector, change and mobility reflect the need to secure better contracts and improve their career positions. On the other hand, those employed in the academic sphere seem more likely to accept continuity in their current status, even at the expense of other possibilities of career development.

The literature suggests that in both academic and non-academic contexts, most job changes take place in the initial stages of the individual's career, as the individual strives to attain a better position. Varying patterns of mobility are also often related to marked variations in the labour market opportunities among different countries. Concerning academic positions, among other factors, the "competitiveness" of the national higher education systems seems to impact the most (Janger et al., 2013).

Focusing on scientists and engineers, Dietz et al. (2000) describe what they call "knowledge value" of PhD graduates, meaning a particular set of skills, know-how and relationships, including human, social and scientific capital, which impacts on the individual's professional path, motivations and constraints. The issue of knowledge value makes the career trajectories of the doctorates more challenging and nuanced than those seen in other models of education and employment.

Enders (2002, 2004) observes that PhD graduates' career trajectories are becoming more and more diversified in terms of the sectors and the characteristics of the employers. Although not fully explored, the literature indicates a range of choices for individuals with SSH education, beyond the gross distinction of the academic and non-academic areas. Although the achievement of a doctoral degree matters, the individual's labour market outcomes can be affected by other factors, such as the discipline of studies, gender and the choices made in the early

career stages. Enders (2002) argues that it is in particular the early career steps and initial employment choices that affect the future trajectories of PhD graduates (Enders, 2002), including the sectors of employment. Steijn et al. (2006) again argue that the outset of the occupational career is very likely to influence future career paths. These authors consider that a number of variables can serve as either "opportunities" or "traps" for the long-run shaping of career trajectories. Among these are the period of time for the graduate's transition to work, periods of unemployment, the sector of early employment, the type of contract, and the income and status of the position. As an example of such opportunities and traps, the literature suggests that academic careers are generally linear, without breaks, meaning with no or very limited periods of unemployment, and that unemployment in the early stages of employment history is indeed likely to affect later career developments (Steijn et al., 2006).

Finally, the characteristics of the scientific discipline also matter. Bourdieu (1986, 1999) argues that the different stages of careers in the sciences are strongly related to the characteristics of the particular field, and that each individual's career is defined by "its position in the structure of the system of possible careers". Thus the existence of a single "typical" career pattern is questioned. Instead, different classes of career trajectories are likely to be observed, involving variables such as modes of entering, staying in or leaving research careers. The differences between and across scientific fields are thus likely to influence the shape of occupations and careers, both for those employed in the academic and non-academic spheres.

In the current study we examine the career trajectories of PhD graduates, observing their step-by-step moves, for the purpose of investigating which factors could impact their different employment decisions.

Given the above evidence from the literature, the study begins from the hypothesis that PhD graduates' career moves are affected by highly diversified factors, among these: the choices that they made in their early career stages; periods of unemployment; job characteristics such as the type of contract or location; the individual's geographic mobility; their age of graduation; other individual aspects such as gender and family composition.

The particular aim of the study is to test the following hypotheses: (a) the initial steps of the SSH PhD graduates in the employment market shape different long-term career trajectories and results (e.g. entrance in the labour market in non-academic positions; early moves from one employment sector to another; long periods of unemployment after graduation); (b) differences in career trajectories and in moves between one type of job and another are influenced by country factors, and are likely to be highly diversified across nations.

The approach to the study is grounded in rational choice theory (Scott, 2000), which permits us to explain the rationale of the PhD graduates' choices and the way they base their decisions on cost-benefit calculations.

METHODS AND DATA

The data for the study are drawn from the POCARIM study ("Mapping the population, careers, mobilities and impacts of advanced degree graduates in the social sciences and humanities"), conducted under the European Commission 7th Framework Programme. The study included an online survey of 2652 individuals who had received a doctoral degree in the SSH disciplines between 2000 and 2012, in one of thirteen European countries (France, Germany, Hungary, Italy, Latvia, Norway, Poland, Portugal, Slovakia, Spain, Switzerland, Turkey, United Kingdom). The core aims of the study were to collect information about the SSH doctoral populations and their production in the POCARIM countries, to identify their mobilities across disciplines, sectors and national borders, and to understand the types of impacts generated. The online survey posed questions on these themes, entering into the details of the first steps in the graduates' careers, whether they had chosen the academic environment or a different labour sector, the motivations for these choices, and their subsequent career trajectories.

The overlap of these topics with the aims of our own research makes the POCARIM dataset an excellent source for the analysis of the PhD graduates' career paths. The dataset presents a large number of variables that describe the personal circumstances concerning each individual in the sample. However, for the current study, we are particularly interested in the information concerning the individual's employment status and the decisions between the time of receiving their degree and the date of responding to the online questionnaire.

As a first step, we select a subsample of the POCARIM survey population consisting of all those PhD graduates with at least one change in job status over the period examined. Although the sample size drops substantially, from 2652 to 1068 individuals, this condition is necessary given our intention of analysing the factors that affect the transition from one job sector to another.

Almost half of the subsample consists of graduates who reported they had had more than two jobs since graduation. Table 1 presents the distribution of the sample per number of jobs since graduation, as reported on the survey date. We observe that the individuals have held up to six jobs during this early stage of their career. We define a variable of area of employment (Job area) for each career step of each individual in the sample, based on a grouping of the categories of the employing organization identified in the POCARIM database. We thus have three job areas:

- Higher education (corresponding to POCARIM "Higher education or research organisations");
- Services (including POCARIM "Primary or secondary education institutions, Government or administration organizations, Non-governmental organizations");
- Business/commerce ("Business/commercial entity").

We also cross this information with the sector indicated by the survey respondents (public or private), thus obtaining a discrete variable with six values, describing the job area.

A potential limit of the POCARIM database is that it is does not always permit the identification of whether a Higher education job was effectively in education and research, or rather as part of the university administrative staff. This information can only be deduced for the individual's "current job", for which the data indicate the percentage division of the working hours into research, teaching, administration and other activities. For "current job", the share of workers with at least 50% of working hours devoted to research and teaching is 95.8% in public HEIs, and 91.2% in private HEIs. While it is not possible to specify this data for the preceding jobs in the individual's series, this information on the current position does suggest that the percentage of graduates working in administrative positions would be too small to influence the analysis.

We identify the value of the Job area variable for each career step reported by every PhD graduate. For the last career step there is a potential seventh value, indicating the eventuality that the individual is unemployed at the moment of the survey. The details of the timing of any other periods of unemployment would be very useful for our analysis, however the structure of the POCARIM data renders this information difficult to deduce. Still, as we will see below, we are able to usefully address the question of unemployment in terms of the total period experienced.

Table 1. Number of jobs in career

Number of jobs	*Number of PhD graduates*
2	586
3	356
4	94
5	19
6	13

For the aims of our study we place particular emphasis on the variable of the area of employment (Job state), as a crucial indicator of the steps in the individual's career. For this work, the focus is on the determinants of the passage from one area of employment to the next, and thus for this the analysis requires more than the identification of job area. To explore which are the determinants of the career trajectories, we begin by defining two further variables for each step, describing the type of contract involved and the geographical mobility required of the graduate.

Both variables are discrete. The variable concerning contract type identifies whether each job is fixed-term or permanent (indefinite), and whether it is full time or part time. The variable has five values: one for each combination of the two characteristics (part time fixed-term; part time permanent; full time fixed-term; full

time permanent), and a fifth value to represent the condition of unemployment. The contract variable permits the analysis of if and how the possibility of continuing in the same contract type or changing to a different one can influence the choice between different employment areas, during the passage from one step to the next. We establish this variable separate from that of the job area, because we want to distinguish any choices made by the graduates in favour of improved contract terms from those made only for motives of changing the area of employment.

The variable of location concerns the issue of geographic mobility in the choice of a job type. We propose an index based on the double comparison between the country where the new job is located, the country where the individual obtained their PhD, and the location of the individual for the "leaving" job. We obtain a discrete variable with five values: one for each combination of difference or agreement between the new country and the "education" and "leaving" countries, plus a fifth level for the case of being unemployed. The role of this variable is to check whether the location of the new job with respect to the starting point (i.e., the country where the individual studied and received their degree), or to the current job location, have any role in the individual's choices concerning the change to the new job.

The variables described above vary along the career, and for every step we identify the differing values of each one. Table 2 presents the definitions of the values for the variables "Job area, Contract type" and "Location".

Table 2. Definition of values for job area, contract type, and location

	Job area	*Contract type*	*Job location*
0	Unemployed	Unemployed	Unemployed
1	Higher education institution, public sector	Part time, fixed-term	Change from both the country of study and the previous country
2	Higher education institution, private sector	Part time, permanent	The same as the country of study but changes from the previous country
3	Services, public	Full time, fixed-term	Changes from the country of study but the same as the previous country
4	Services, private	Full time, permanent	The same as both the country of study and previous country
5	Business and commerce, public		
6	Business and commerce, private		

A second group of variables concerns the personal characteristics of the PhD graduates and certain aspects of their career history. The first variable of this group is gender, where we use women as benchmark. A second variable concerns family composition. The POCARIM survey did not gather information on the individual's

social or family background, but does provide data on the makeup of the family at the moment of the survey. From this, we create a discrete variable that reports if the family situation involves children, a stable partner, or both or neither of these cases.

Also included are some variables concerning the individual's education and work experience. A first is the disciplinary area of the PhD, for which the sample is differentiated in three categories: Social sciences, Humanities and Interdisciplinary, using the first one as benchmark for the other two. We also use the age at the moment of receiving the doctoral degree, to check on differences related to the age of the graduate as they entered the labour market. Further, we create a dummy variable that is equal to 1 for individuals where the difference between the year of receiving the master's degree and the year of attaining the PhD degree is equal to or higher than 5 (the variable "Distance MA – PhD"). This dummy variable is a proxy, intended to reflect the condition that the individuals who experienced such lengths of time had probably already joined the labour market prior to the end of their PhD studies.

We also employ two continuous variables: total unemployment and length of career. As noted above, we cannot detect when any intervals of unemployment take place during the course of a career. However, the POCARIM survey does provide data on the total months of unemployment experienced by the individual up to the date of graduation, which does permit us to estimate of the overall effect of unemployment on the PhD's choices. Finally, graduates that have entered the labour market in different moments probably experience a different number of job opportunities. In order to verify this possibility we add a variable related to the length of the career, calculated as difference between the year of receiving the PhD degree and the year of responding to the survey.

Finally, to isolate specific country effects we create a dummy for each one, as well as including the variables of the unemployment rate for PhD graduates (by country of the first job in the transition pair) and of the country R&D expenditures and the H-index (of the country of first job in the pair).

Table 3 summarizes the variables.

STATISTICAL MODEL

Given the aims of our study and the available data, the approach of multi-state modelling is a particularly appropriate methodology. The technique models the changes in the PhD graduates' job areas (states) together with a set of covariates. The sample consists of N individuals, each of whom is observed at T points in time (t=1,…,T). The data set is "unbalanced", having a different number of observations for each individual. In the multi-state model:

- time is discrete $t\ (t_1, t_2, t_n)$;
- there are S discrete states$(S_i, S_j, \ldots, S_z)$;
- in each period t we observe each individual (PhD graduate);
- we have individual attributes (time dependent and time-independent covariates).

Table 3. Data description

Variable		*Obs.*	*Mean*	*Std. Dev.*	*Min*	*Max*	*Variable type*
1st job	Job state	1068	2.161	1.716	1	6	discrete
	Contract type	1068	2.758	1.045	1	4	discrete
	Job location	1068	3.590	1.031	1	4	discrete
2nd job	Job state	1068	2.070	1.731	0	6	discrete
	Contract type	1068	2.621	1.195	0	4	discrete
	Job location	1068	3.300	1.239	0	4	discrete
3rd job	Job state	482	1.907	1.628	0	6	discrete
	Contract type	482	2.714	1.127	0	4	discrete
	Job location	482	3.214	1.258	0	4	discrete
4th job	Job state	126	1.873	1.743	0	6	discrete
	Contract type	126	2.571	1.261	0	4	discrete
	Job location	126	3.214	1.354	0	4	discrete
5th job	Job state	32	1.813	1.575	0	6	discrete
	Contract type	32	2.375	1.212	0	4	discrete
	Job location	32	3.313	1.281	0	4	discrete
6th job	Job state	13	1.308	0.751	1	3	discrete
	Contract type	13	3	0.707	1	4	discrete
	Job location	13	3.84	0.555	1	4	discrete
Gender		1068	0.486	0.500	0	1	dummy
Total unemployment		1068	4.102	8.175	0	80	continuous
Age		1068	34.053	6.846	25	70	continuous
Length of career		1068	5.996	3.068	1	13	continuous
Distance MA – PhD		1068	0.463	0.499	0	1	dummy
Family composition		1068	2.731	1.239	1	4	discrete
Disciplinary area of PhD		1068	1.526	0.571	1	3	discrete

Since the time series is discrete, we estimate the transition probabilities by the sample proportions. Where S_t is the state of the process at time t, and P is the transition matrix, then:

$$p^{ij}(t) = \Pr\left(S(t) = j \mid S(t-1) = i\right); \forall i, j \in Z \text{ and } t > 0 \quad (1)$$

In the same way, we can form an overall transition matrix (presented in Table 4) that fully describes the dynamics of the multiple state model, as follows:

$$\mathrm{P}\ (\mathrm{t}) = \left\| \mathrm{p}^{\mathrm{ij}}(t) \right\| = \begin{pmatrix} p^{ij}(t) & \cdots & p^{1j}(t) \\ \vdots & \ddots & \vdots \\ p^{ij}(t) & \cdots & p^{ij}(t) \end{pmatrix} \tag{2}$$

The basic quantities of interest are the transition intensities, which is a non-parametric model (in this case we ignore the influence of covariates). Here, $i \rightarrow j$ denotes a transition from job state i to job state j; $S(t)$ is the state occupied at time t and $q_{ij}(t)$ is the corresponding transition intensity. The transition intensity expresses the instantaneous risk of a transition from state i to state j at time t. The transition intensities are fundamental characteristics of any multi-state Markov model, which fully describe the underlying dynamic process. The estimate of transition intensities can be used to derive the transition probabilities conditional on the previous job state. It is defined as:

$$q_{ij}(t) = \lim_{\delta x \to \mathbf{0}} P(S(t+\delta t) = j \mid S(t) = i) / \delta t \tag{3}$$

Within this formula there is an implicit assumption that the multi-state model is Markovian, since this is a Markov chain, which implies that the probability of going to a future state $S(t+1)$ depends only on the present state $S(t)$ and not on the history. Next we have a q matrix with size $R \times R$ where the diagonal is:

$$q_{rr} = -\sum q_{ij} \tag{4}$$

After estimating the q matrix (estimations results are reported in Table 5), the next step is to add the covariates to the model to understand the effect of each attribute on the transition from one employment area (state) to another. We have applied panel data likelihood methods for discrete time hazard models, given that we have repeated observations for each PhD graduate (more than one row in the dataset for each individual analysed). In this situation, linear form characteristics would not provide a good fit. The model calculated is a classical multinomial logit, applied separately for each state. Here, we maximize the panel-data likelihoods with numerical derivatives and Hessian matrix calculations. The Hessian matrix is the square matrix of second-order partial derivatives of a function, serving to indicate the local curvature of a function of many variables. In the first step the estimators were too slow to converge. To speed up the convergence we added the analytical second derivatives.

The likelihood function for observing the sequence of states S is:

$$\mathrm{L_j} = \prod_{t=t_0}^{t_1-1} P(s_t \rightarrow s_t + 1 \,|\, x_t, \gamma = j, \beta_{s_t, s_{t+1}}) \tag{5}$$

where $\mathrm{L_j}$ is the likelihood of an individual (in this case a PhD graduate) being of type j and x_t are individual attributes. This model allows estimation of the covariate effects on each transition of state. The unconditional likelihood for the individual becomes:

$$\mathrm{L} = \sum_{j \in \Gamma} q_j L_j \tag{6}$$

To resolve the maximisation of the difficult likelihood functions, we calculate the analytic gradient and Hessian function for multinomial probit:

$$\log(L) = y \log(\Phi(X'\beta)) + (1 - y)(\Phi(-X'\beta)) \tag{7}$$

$$g_j = \frac{\partial \log(L_j)}{\partial (X'\beta)} = y\varphi(X'\beta)/\Phi(X'\beta) - (1 - y)(\varphi(X'\beta)/\Phi(-X'\beta)) \tag{8}$$

$$\begin{aligned} H_j &= \frac{\partial^2 \log(L_j)}{\partial (X'\beta)^2} = \frac{\varphi(X'\beta)(X'\beta)(\Phi(X'\beta)) - (\varphi(X'\beta))(\varphi(X'\beta))}{\left[\Phi(X'\beta)\right]^2} \\ &= -g_j(g_j + X'\beta) \end{aligned} \tag{9}$$

ESTIMATION RESULTS

Tables 4 and 5 present the matrices of transitions between the job states (as percentages, Table 4; as estimations of intensity, Table 5) while Tables 6a and 6b presents the results from the multi-state modelling (Tables 6a and 6b). Table 4 reports the distribution of the "target" job states (employment areas) departing from each starting job state, while the coefficients reported in Tables 6a and 6b represent the trend of incidence for each explanatory variable on the change in employment. The tables present only the statistically significant results, so as to focus on the main indications revealed by the estimates. For this, not all the changes between pairs of job states are reported.

A first interesting result is that examining the estimations in Tables 6a and 6b, there is almost no combination where state 1, or Public-sector higher education, is detected as the arrival point of a transition. The only exceptions are the passage from Private-sector business and commerce (state 6) and from Private-sector services (state 4), where the only variable that presents statistically significant coefficients is the one for change from both the country of study and that of the previous job.

The first column of Table 4 assists in suggesting an inference from this result. Here, we see that public-sector higher education is the arrival job status with the highest percentage of transition, apart from the elements on the main diagonal of the table. This means that the PhD graduates involved in our analysis have a high propensity to move to Public-sector higher education, a propensity that is almost strong as to remain in the same job state. The fact that there are no elements in Tables 6a and 6b that explain this passage allows us to say that PhD graduates see Higher education in the public sector is seen as their "natural destination": they tend to choose public universities and research organizations, and such choices are not conditioned by any personal characteristics or contract conditions.

However, Public-sector higher education is not the only destination observed in the sample, and the variables included in the estimations do have an effect on other combinations of changes in the area of employment. Focusing on the variable of gender, we observe that the coefficient is negative for all passages that involve a transition from Higher education, whether public or private sector, to any "non-education" job state. On the other hand, we observe that the coefficient is positive when the arrival point is Private-sector higher education. Therefore, compared to women, men have greater reluctance to leave Higher education and a high propensity towards this field of employment. These results suggest that there is a concentration of men towards the higher education sector, through processes of lower abandonment and higher adhesion.

In the data description section we defined the variable "Family composition" as a discrete variable with four different levels, indicating combinations of the presence or absence of a partner or children. Focusing on the presence of children, we observe that those PhDs indicated as level 3 (having children but no partner) or level 4 (children and a partner) present positive coefficients for passages from Higher education jobs (especially private sector) to all the other areas of employment. On the other hand, the inverse passage from Services (private sector) to Higher education (private) presents a negative coefficient. More in general, job areas such as Services and Business/commerce (private) seem to be more attractive for PhDs with children than they are to other graduates, presenting a higher concentration of positive coefficient in combinations where these jobs represent the arrival state. These results suggest that the PhD graduates with children tend to be less interested in an academic career, which presents a greater degree of uncertainty, and more interested in employment areas that seem to have greater stability and regularity, such as in public services or business and commerce.

Next, we examine a group of variables that describe the effects of different personal conditions at the moment of the PhD graduate's entry to the labour market. For instance, the age of graduation has a direct impact on the choice of the job area, with varying connotations. The first aspect we notice is that there is a positive trend related to the age of graduation, for the shift from Higher education jobs (public and private sectors) to jobs in Services (private). On the other hand, we observe that the coefficient of transition from private sector to public sector education, if present, is

negative. Further, the positive coefficient for shifts from Services (both public and private sectors) to the other private sectors reinforces the idea that a high age of graduating with the PhD is an incentive to move to the private sector.

Apart from age at graduation, the variable of Distance MA – PhD (passage of at least five years of time between degrees) is another aspect that describes the personal characteristics of the individual at the moment of entering the labour market. As noted, the variable is a proxy indicating those PhD graduates that had probably begun work before completing their studies. The findings from the modelling suggest that the proxy hypothesis is correct. In fact all the coefficients associated with the variable are negative, whatever the starting point for the change in job area. This leads us to think that for the graduates represented by this variable, their PhD degree becomes a tool to reinforce their career in the same area of employment, but not to direct it. The sole exceptions to this pattern are given by choices for transitions from Higher education (public) and Business/commerce (private) to Public business and commerce.

The disciplinary area of the individual's degree is another important element in their passage from the pursuit of education to the labour market, with effects that continue through the remainder of their career. For this, the sample is divided into three categories: holders of social sciences, humanities and "interdisciplinary" degrees, using social sciences as the benchmark. Thus, comparing Humanities and Social sciences, we notice that the former graduates are more present in Private higher education. This result is underlined by the positive coefficient for the transition to Private-sector higher education, and by the negative coefficients for the passage from this area of employment to all others. In other words, Humanities graduates tend to move more often towards Private higher education and to leave this job area with less frequency. The results suggest that these individuals have less probability of obtaining employment outside the academic sectors, compared to Social sciences graduates.

Finally, we analyse the effect of two variables concerning the overall period of the PhD graduate's career. The first one is the length of career as a PhD graduate. The coefficients related to this variable seem to suggest that the longer is the career, the stronger is the trend to move outside the Higher education areas and towards the private sector (i.e. Services and Business/commerce). This result suggests that PhDs that have not been able to stabilise a career in the Higher education area, whether private or public sector, tend to move to other jobs with less restrictions on entrance, which would be those in the private sector. However, the results also suggest a related interpretation: private sector employers seem interested in hiring PhD graduates, and this interest is directly proportional to the graduates' experience (approximated by the length of their careers).

The second element concerning the graduate's overall career arc is the total of unemployment suffered by the individual. The coefficients show a negative correlation between unemployment and the private sector, without further differences for the various job areas. A first interpretation of this result is that the private sector

in effect offers flexibility for entrance, thus reducing the observed unemployment period for the PhD graduates who choose this career direction. However, there is also a second and complementary interpretation: if unemployment is negatively correlated to the private sector, this means that graduates moving towards the public sector tend to accumulate longer periods of unemployment. And in the public sector, the large part of graduates are employed in Higher education, suggesting that those who want to work in Public higher education are willing to pay for this ambition with longer periods of unemployment. The negative coefficients associated with transitions out of Public higher education seem to reinforce this hypothesis.

Moreover, unemployment is one of the statuses that the graduates included in our sample can reach as the "current" step of their career, but we find no statistically significant coefficients for combinations that involve this event. This lack of observations seems to suggest that in general unemployment is not strictly related to the objective, observable characteristics of the PhD graduate, and that we cannot forecast any future state of unemployment, at least on the basis of the elements investigated in our analysis.

As to the other variables that can vary throughout the individual's career, concerning Contract type and geographic mobility (Location), we find less consistencies in the estimation results. About Location, there seems to be no

Table 4. Probability of transition between job states (areas)

From/to	*Public higher education*	*Private higher education*	*Public sector services*	*Private sector services*	*Public business/ commerce*	*Private business/ commerce*	*Un-employed*
Public higher education	79.82%	5.76%	4.10%	2.09%	0.30%	4.40%	3.53%
Private higher education	30.02%	53.12%	4.94%	2.10%	0.12%	7.17%	2.53%
Services public sector	28.75%	5.69%	51.38%	3.19%	0.33%	5.16%	5.50%
Services private sector	20.37%	6.93%	8.13%	50.68%	1.10%	4.73%	8.06%
Public business and commerce	24.15%	6.82%	6.27%	3.05%	42.91%	15.40%	1.40%
Private business and commerce	27.87%	7.17%	5.20%	1.84%	0.65%	52.82%	4.46%

common thread of correlation between the different values for the variable and the combinations of changes in job state. In essence, we cannot find a direct and clear effect from changing or continuing in the same country (as the location of the individual's current job), on the choice of the next employment area in their career trajectory. On the other hand, concerning contract type, we find that permanent and full time contracts have a positive effect on all combinations of transition, without relevant differences by area or public/private sector of the jobs.

Finally, we consider a set of country-related variables, namely the rate of unemployment for PhD graduates in the country of the first job of the "transition pair", as well as the expenditure on R&D and the H-index for that country, as proxies of the conditions that the individual faces. To these variables we add a set of dummies, one for each country, in order to isolate specific country effects. A first interesting observation is a lack of correlations: country unemployment rates and R&D expenditures do not have statistically significant effects on transitions in employment area. On the other hand, the H-index presents a negative coefficient for transitions leaving Public higher education, indicating that PhD holders tend to remain in university settings in those countries where research has a strong impact.

Table 5. Intensity matrix (q matrix)

From /to	*Public higher education*	*Private higher education*	*Public sector services*	*Private sector services*	*Public business/ commerce*	*Private business/ commerce*	*Un-employed*
Public higher education	–0.267650	0.082192	0.056902	0.029505	0.004215	0.060063	0.034773
Private higher education	0.426471	–0.666667	0.073529	0.029412	0.000000	0.117647	0.019608
Services public sector	0.413462	0.081731	–0.692308	0.052885	0.004808	0.076923	0.062500
Services private sector	0.252747	0.109890	0.142857	–0.692308	0.021978	0.065934	0.098901
Public business and commerce	0.300000	0.100000	0.100000	0.050000	–0.850000	0.300000	0.000000
Private business and commerce	0.389558	0.112450	0.080321	0.024096	0.012048	–0.666667	0.048193

Table 6a. Estimates

Explanatory Variables								
From	*To*	*Gender*	*Total unemployment*	*Length of career*	*Age at graduation*	*Distance MA – PhD[1]*	*Family composition*	
1	*2*							
1	*3*	–0.116** (0.057)	–0.006** (0.003)					
1	*4*	–0.206*** (0.070)		0.023* (0.013)	0.015* (0.008)		(2)	–0.233** (0.099)
1	*5*	–0.717*** (0.116)	–0.062*** (0.010)			0.675*** (0.141)	(4)	–1.814*** (0.185)
1	*6*		–0.016*** (0.002)	0.031*** (0.007)			(2)	0.135*** (0.051)
2	*3*	–0.146* (0.079)					(2)	0.316*** (0.094)
							(4)	0.379*** (0.095)
2	*4*	–0.423*** (0.087)			0.028*** (0.009)			
2	6		–0.006*** (0.002)	0.034*** (0.007)		–0.076* (0.041)	(2)	0.364*** (0.061)
							(3)	0.337*** (0.112)
							(4)	0.417*** (0 .058)

Explanatory Variables								
From	*To*	*Gender*	*Total unemployment*	*Length of career*	*Age at graduation*	*Distance MA – PhD*[1]	*Family composition*	
3	*2*				–0.042* (0.024)	–0.576*** (0.137)	(2)	0.402*** (0.143)
3	*4*	–0.320*** (0.073)	0.037*** (0.003)	0.075*** (0.012)	0.078*** (0.013)		(2)	–0.318*** (0.109)
							(4)	0.301* (0.167)
3	*6*			0.035** (0.016)	–0.026*** (0.009)	–0.435*** (0.133)	(3)	0.396* (0.215)
4	*1*							
4	*2*	2.634*** (0.762)	–0.066*** (0.013)	–0.289*** (0.107)	0.302** (0.137)	–0.848* (0.449)	(4)	–1.633*** (0.388)
4	*3*			0.473*** (0.132)	–0.329*** (0.079)		(2)	2.752*** (0.531)
							(4)	2.805*** (0.722)
4	*6*		–.038*** (0.014)	–2.319*** (0.484)	2.025*** (0.429)	–1.279*** (0.182)		
5	*2*		0.028*** (0.010)					
6	*1*							
6	*2*							
6	*3*	–0.112** (0.053)						

(Continued)

Table 6a. (Continued)

Explanatory Variables								
From	*To*	*Gender*	*Total unemployment*	*Length of career*	*Age at graduation*	*Distance MA – PhD[1]*	*Family composition*	
6	*4*	–0.116* (0.066)	0.016*** (0.005)	0.023** (0.011)	0.015** (0.007)		(4)	0.167** (0.085)
6	*5*	–0.535*** (0.089)	0.096*** (0.010)		0.137*** (0.013)	0.905*** (0.073)	(3)	1.807*** (0.185)
							(4)	2.161*** (0.234)
1	*1*							
2	*2*	–0.183** (0.081)						
3	*3*		–0.018** (0.007)		–0.065** (0.027)		(2)	0.329** (0.147)
							(4)	0.532*** (0.176)
4	*4*	–1.151*** (0.091)	–0.124*** (0.015)	–0.124*** (0.018)				
6	*6*		–0.012*** (0.002)	0.025*** (0.007)	0.011*** (0.003)	0.096** (0.039)	(2)	0.125*** (0.049)
							(4)	0.157*** (0.049)

[++]*Country indexes: 1 = Belgium, 2 = Brazil, 3 = Canada, 4 = Switzerland, 5 = Germany, 6 = Denmark, 7 = Spain, 8 = France, 9 = Greece, 10 = Hungary, 11 = Ireland, 12 = Italy, 13 = Latvia, 14 = Netherland, 15 Norway, 16 = other, 17 = Poland, 18 = Portugal, 19 = Romania, 20 = Slovakia, 21 = Turkey, 22 = United Kingdom, 23 = United States*

1 Length of time from Master to PhD conclusion

Table 6b. Estimates

Explanatory Variables										
From	*To*	*Area of PhD*		*Location*		*Contract type*		*Country dummies*[++]		*H-index*
1	*2*			(4)	–0.403*** (0.152)	(4)	0.186* (0.100)	(7)	–0.539* (0.286)	–0.001* (0.001)
								(8)	–0.564** (0.266)	
								(10)	–0.792* (0.410)	
								(17)	–0.732** (0.369)	
1	*3*	(2)	–0.139*** (0.053)	(4)	0.244* (0.128)	(2)	0.581*** (0.202)			
1	*4*					(3)	0.207** (0.088)	(1)	–1.360*** (0.352)	–0.0005* (0.0003)
								(5)	–0.425** (0.205)	
								(7)	–0.421** (0.180)	
								(9)	–0.753*** (0.291)	
								(11)	–1.211*** (0.386)	
								(17)	–0.690** (0.270)	
								(18)	–1.353*** (0.337)	

(Continued)

Table 6b. (Continued)

Explanatory Variables										
From	*To*	*Area of PhD*		*Location*		*Contract type*		*Country dummies*[++]		*H-index*
1	*5*	(2)	1.087*** (0.204)	(2)	–2.220*** (0.187)	(2)	–2.825*** (0.254)	(3)	–2.646*** (0.439)	
						(3)	–1.802*** (0.128)	(6)	–0.669*** (0.215)	
						(4)	–1.836*** (0.174)	(8)	0.931*** (0.171)	
								(10)	2.222*** (0.241)	
								(15)	2.818*** (0.236)	
								(17)	2.006*** (0.297)	
								(20)	1.629 (0.325)	
								(22)	–0.808*** (0.185)	
1	*6*			(4)	–0.153*** (0.056)	(2)	–0.415*** (0.080)	(11)	–1.305*** (0.282)	

Explanatory Variables										
From	*To*	*Area of PhD*		*Location*		*Contract type*		*Country dummies*[++]		*H-index*
2	*3*	(2)	–0.374*** (0.078)	(2)	–0.495*** (0.176)	(3)	–0.264*** (0.084)	(13)	1.031** (0.435)	
				(4)	–0.503*** (0.130)	(4)	0.267*** (0.104)	(22)	–0.734*** (0.255)	
2	*4*					(2)	–0.599** (0.274)	(5)	–1.263*** (0.279)	
						(4)	0.531*** (0.193)	(12)	–0.288** (0.130)	
								(13)	–0.546** (0.243)	
								(17)	–0.800*** (0.268)	
								(20)	–1.493*** (0.288)	
								(22)	–0.961*** (0.254)	
2	*6*	(2)	–0.112** (0.045)	(2)	–0.314** (0.134)	(3)	–0.128** (0.091)	(7)	–0.314** (0.145)	
		(3)	0.138* (0.075)					(22)	–0.246* (0.136)	

(Continued)

Table 6b. (Continued)

Explanatory Variables										
From	*To*	*Area of PhD*		*Location*		*Contract type*		*Country dummies*$^{++}$		*H-index*
3	*2*	(2)	0.474*** (0.126)	(2)	1.112*** (0.395)	(2)	2.504*** (0.630)	(3)	0.852** (0.364)	
		(3)	0.429** (0.200)			(4)	0.926*** (0.261)	(7)	–1.467** (0.740)	
3	*4*	(2)	0.365** (0.153)	(2)	–0.521** (0.210)	(3)	–0.548*** (0.124)	(7)	–3.557*** (0.278)	
				(3)	–1.036*** (0.286)			(8)	–1.019*** (0.195)	
				(4)	–0.670*** (0.161)			(12)	–0.766*** (0.172)	
								(17)	–2.25*** (0.338)	
								(20)	–1.764*** (0.514)	
								(21)	–2.263*** (0.335)	
								(22)	–2.113*** (0.340)	

Explanatory Variables										
From	*To*	*Area of PhD*		*Location*		*Contract type*		*Country dummies*[++]		*H-index*
3	6	(2)	–0.472* (0.112)	(2)	–0.509** (0.207)	(2)	–0.550** (0.244)	(1)	2.038*** (0.478)	
				(3)	–0.964*** (0.260)	(3)	–0.261** (0.114)	(5)	1.420*** (0.360)	
						(4)	–0.603*** (0.124)	(7)	0.756** (0.326)	
								(17)	0.771** (0.338)	
4	1			(4)	–0.528* (0.296)					
4	2	(2)	1.316** (0.523)							
4	3	(3)	2.467*** (0.745)							
4	6							(12)	–2.883*** (0.656)	
5	2									

(Continued)

Table 6b. (Continued)

Explanatory Variables								
To	*Area of PhD*	*Location*		*Contract type*		*Country dummies*[++]		*H-index*
1		(1)	0.919*** (0.109)			(9)	–1.528** (0.759)	
		(2)	0.870*** (0.113)					
		(3)	0.936*** (0.126)					
		(4)	0.949*** (0.096)					
2		(1)	0.753*** (0.234)	(1)	0.301*** (0.107)			
		(2)	0.904*** (0.236)	(3)	0.212*** (0.075)			
		(3)	0.873*** (0.239)					
		(4)	0.829*** (0.211)					

Explanatory Variables									
From	*To*	*Area of PhD*		*Location*		*Contract type*		*Country dummies*[++]	*H-index*
6	*3*			(1)	1.138*** (0.155)	(1)	–0.255** (0.102)	(1)	
				(2)	0.909*** (0.173)			(4)	0.448* (0.259)
				(3)	0.540*** (0.208)	(3)	–0.354*** (0.060)	(5)	0.436* (0.244)
				(4)	0.835*** (0.126)			(8)	0.685*** (0.253)
								(12)	0.785*** (0.280)
								(21)	0.864* (0.396)
								(23)	0.890** (0.398)
6	*4*	(2)	0.160** (0.067	(3)	0.591*** (0.168)	(1)	0.429*** (0.127)	(1)	–1.945*** (0.336)
		(3)	0.414*** (0.149)	(4)	0.540*** (0.1447)	(2)	0.635*** (0.144)	(11)	–0.900*** (0.332
								(12)	–0.530*** (0.153)
								(17)	–0.69* (0.269)
								(18)	–0.921** (0.413)
								(20)	–0.734*** (0.196)

(Continued)

Table 6b. (Continued)

Explanatory Variables										
From	*To*	*Area of PhD*		*Location*		*Contract type*		*Country dummies*[++]		*H-index*
6	5	(2)	–1.258*** (0.137)	(2)	–3.274*** (0.253)	(2)	2.729*** (0.150)	(3)	–1.140*** (0.245)	
						(3)	0.674*** (0.077)	(5)	2.819*** (0.317)	
								(6)	1.604*** (0.333)	
								(8)	0.473*** (0.141)	
								(10)	–0.252* (0.135)	
								(12)	–0.432* (0.239)	
								(13)	–0.708*** (0.220)	
								(15)	0.832*** (0.169)	
								(17)	2.191*** (0.240)	
								(20)	–0.940*** (0.228)	
								(22)	0.928*** (0.240)	
1	1							(9)	–1.454* (0.780)	

Explanatory Variables									
From	*To*	*Area of PhD*		*Location*	*Contract type*			*Country dummies*[++]	*H-index*
2	*2*	(2)	0.166** (0.079)	(2)	0.753*** (0.289)	(3)	0.141* (0.084)	(8) –0.844** (0.342)	
3	*3*					(3)	–0.226** (0.102)	(5) 1.180** (0.480)	
						(4)	0.893*** (0.328)	(7) 0.979** (0.387)	
								(15) 1.075*** (0.376)	
								(21) 2.526*** (0.608)	
								(23) 0.930** (0.394)	
4	*4*								

(Continued)

Explanatory Variables									
From	*To*	*Area of PhD*	*Location*	*Contract type*			*Country dummies*[++]		*H-index*
6	6		(1)	0.455***	(1)	0.141**	(1)	–0.3637**	
				(0 .101)		(0.065)		(0.171)	
			(3)	0.596***	(3)	–0.260***	(7)	0.325***	
				(0.098)		(0.047)		(0.114)	
			(4)	0.524***			(8)	–0.367**	
				(0.080)				(0.147)	
							(9)	–0.375**	
								(0.166)	
							(10)	–0.236**	
								(0.113)	
							(11)	–1.423***	
								(0.277)	
							(12)	–0.184*	
								(0.102)	
							(13)	–0.411***	
								(0.108)	
							(15)	–0.267**	
								(0.131)	
							(17)	–0.231**	
								(0.113)	
							(18)	–0.322*	
								(0.169)	
							(22)	–0.302***	
								(0.106)	

[++]*Country indexes: 1 = Belgium, 2 = Brazil, 3 = Canada, 4 = Switzerland, 5 = Germany, 6 = Denmark, 7 = Spain, 8 = France, 9 = Greece, 10 = Hungary, 11 = Ireland, 12 = Italy, 13 = Latvia, 14 = Netherland, 15 Norway, 16 = other, 17 = Poland, 18 = Portugal, 19 = Romania, 20 = Slovakia, 21 = Turkey, 22 = United Kingdom, 23 = United States*

Concerning the country dummies, we notice that the coefficients are generally negative for job transitions that start from universities, both public and private. This confirms that the preference for academic employment is transverse across the countries examined. A partial exception is given by the transition from Higher education (public sector) to Business/commerce (public), which shows positive coefficients for graduates employed in France, Hungary, Norway, Poland and Slovakia. A further interesting result is that the transition from private to public business and commerce also shows positive coefficients, for a similar set of countries: for graduates in France, Norway and Poland, but also Germany and the UK.

CONCLUSIONS

The current study has focused on the factors likely to affect the employment choices and the career trajectories of recent PhD graduates in the social sciences and humanities, by examining the step-by-step moves in their professional lives. Our questions concerned the career trajectories of the graduates, the different steps that can be traced, the factors likely to impact on them, and finally the relationships between the events and choices at the outset of the individual's career and those concerning areas of employment in the long run. As the factors impacting on employment decisions, especially in the initial stage of careers, we consider: the age at the end of the PhD, the duration of unemployment experienced, the type of contract (part/full-time, permanent/term), the aspect of job location (geographic mobility), and personal variables such as the individual's gender, their area of studies, age at graduation, and the composition of their family.

The data examined confirm the view that a PhD is no longer simply a passport towards an academic career, and that instead, doctoral graduates often move towards employment in fields other than higher education. However for the population of graduates under study, the area of public-sector higher education still represents the top employment choice, particularly for those with a degree in the humanities. In fact only a small part of the sample took jobs in areas other than education and research (public and private), regardless of the personal characteristics of the individuals concerned, such as gender and family status. Differently, the personal feature of age at graduation seems to be a relevant factor in driving employment choices towards the private sector, instead of academia. Related to this is that that those who are older at graduation have probably already begun some form of employment, and their degree seems to serve as a way to continue advancing their career in the same area, rather than for entry into some new area.

As far as patterns of mobility from one job area to another, the data confirm some of the insights of existing scientific literature, however with previously unreported specificities. First, PhD graduates employed in the academic sphere are likely to be less open to mobility than those employed in other areas. Second, any changes in job area are likely to take place at the beginning of career, but they do not seem to shape the long-term choices. Some differences arising from personal characteristics

emerge, especially concerning the composition of the individual's family. For instance, we observe that men are more likely than women to remain within the university context (whether public or private), and that on average, the graduates taking employment in higher education are mainly men without children. From this, we can argue that those employed in the higher education area, especially men, are reluctant to leave, except in the case that they have a partner and children. In this case, there is a preference for a career that appears more stable than an academic one, and we are more likely to observe moves towards other areas and sectors of employment with greater stability and higher incomes.

The analysis confirms that most of the changes between academic and non-academic positions take place in the initial steps of a career. This highlights that just after graduation, the main driver for changing between jobs inside or outside academia is generally the need to secure a better position in the labour market. This does not hold true in the long run, confirming that those employed in academia are willing to remain in this sector, even at the expense of longer periods of unemployment. Also, SSH graduates continue to show moves from non-academic to academic jobs, suggesting that there are less restrictions on the entry to an academic career than the literature has suggested.

Country specificities do not emerge as relevant variables in the career moves for our sample, except for employment opportunities in the HE sector. In this case, the countries investing more in research emerge as those better able to achieve the recruitment of PhDs. Higher investments in research would logically allow the countries to be more flexible in their offer, and graduates to have more stable career trajectories instead of fragmented ones. The analysis confirms that for individuals choosing academic job positions, the competitiveness of the national higher education system is a relevant factor.

To conclude, PhD graduates in the social sciences and humanities are still largely employed in academia, but fragmented work histories and non-academic career trajectories are also likely to be observed. Beyond the public education and research sector, individual characteristics play an important role in defining the graduates' careers. Factors such as the age at completing the doctorate, the individual's family composition, the time required for transition from graduation to work, and finally the subject area of the PhD (social sciences versus humanities) all emerge as having an impact on the frequency of career moves and on choices of employment in sectors other than academia.

Finally, the analysis suggests that PhD graduates in the social sciences and humanities often wish to remain in the public university environment, even though unemployment might be the cost of this choice. Moves towards employment in sectors other than academia seem to be driven mostly by uncertainty and constraints on employability, rather than preferential choices. In this respect, national policies for investment and recruitment in the higher education and research sectors might reduce the mismatch between the areas of PhD studies and the employment

possibilities open to the graduates, with positive long-run effects on the stability of employment.

NOTE

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REFERENCES

Ackers, L., & Coey, C. (2014). *POCARIM mapping the population, careers, mobilities and impacts of advanced degree graduates in the social sciences and humanities*. Final Report.

Auriol, L., Misu, M., & Freeman, R. A. (2013). *Careers of doctorate holders: Analysis of labour market and mobility indicators* (OECD Science Technology and Industry Working Papers, 2013/04). Paris: OECD Publishing.

Bourdieu, P. (1986). The forms of capital. In J. G. Richardson (Ed.), *Handbook of theory and research for the sociology of education* (pp. 241–258). New York, NY: Greenwood.

Bourdieu, P. (1999). The specificity of the scientific field and the social conditions of the progress of reason. *Sociology of Science, 14*(6), 19–47

Cover, T. (2006). *Elements of information theory* (2nd ed.). New York, NY: Wiley and Sons.

Cruz-Castro, L., & Sanz-Menéndez, L. (2005). The employment of PhDs in firms: Trajectories, mobility and innovation. *Research Evaluation, 14*(1), 57–69.

Dietz, J, Chompolov, I., Bozeman, B., Lane, E., & Park, J. (2000). Using the curriculum vita to study the career paths of scientists and engineers: An exploratory assessment. *Scientometrics, 49*(3), 419–442.

Enders, J. (2002). Serving many masters: The PhD on the labour market, the everlasting need of inequality, and the premature death of Humboldt. *Higher Education, 44*(3–4), 493–517.

Enders, J. (Ed.). (2004). Research training and careers in transition: A European perspective on the many faces of the PhD. *Studies in Continuing Education, 26*(3), 419–429.

Enders, J., & de Weert, E. (2009). *The changing face of academic life: Analytical and comparative perspectives*. Basingstoke, GB: Palgrave Macmillan.

Hazelkorn, E., & Moynihan, A. (2010). Transforming academic practice: Human resources challenges. In S. Kyvik & B. Lepori (Eds.), *The research mission of higher education institutes outside the university sector*. Dordrecht: Springer.

Henkel, M. (2000). *Academic identities*. London: Jessica Kingsley.

Henkel, M. (2007). Shifting boundaries and the academic profession. In M. Kogan & U. Teichler (Eds.), *Key challenges to the academic profession: UNESCO forum on higher education research and knowledge*. Kassel: International Centre for Higher Education Research Kassel (INCHER-Kassel).

Huisman, J., de Weert, E., & Bartelse, J. (2002). Academic careers from a European perspective: The declining desirability of the faculty position. *Journal of Higher Education, 73*(1), 141–160.

Inzelt, A., & Csonka, L. (2014). *The careers and impact of doctoral degrees in the social sciences and humanities* (Policy report 1). POCARIM project, Bergamo.

Janger, J., Strauss, A., & Campbell, D. (2013). *Academic careers: A cross-country perspective* (WWW for Europe Working Paper 37). Retrieved from http://hdl.handle.net/10419/125692

Mangematin, V. (2000). PhD job market: Professional trajectories and incentives during the PhD. *Research Policy, 29*, 741–756.

OECD. (2010). *Skills for innovation and research, OECD innovation strategy*. Paris: OECD.

Roach, M., & Sauermann, H. (2010). A taste for science? PhD scientists' academic orientation and self-selection into research careers in industry. *Research Policy*, 39.

Scott, J. (2000). Rational choice theory. In G. Browning, A. Halcli, & F. Webster (Eds.), *Understanding contemporary society: Theories of the present* (pp. 126–138). Thousand Oaks, CA: Sage Publications.

Steijn, B., Need, A., & Gesthuizen, M. (2006). Well begun, half done? Long-term effects of labour market entry in the Netherlands, 1950–2000. *Work, Employment and Society*, *20*, 453–472.

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12. HARMONISING THE INTERFACE BETWEEN ACADEMIC AND ADMINISTRATIVE MIND-SETS

Challenging but Feasible?

INTRODUCTION

In previous years, (Austrian) traditional universities were broadly regarded as institutions characterised by collegial authority, 'shared governance', a high level of academic freedom, a rector who was a *primus inter pares* instead of a 'boss' and a partial legal status (*Teilrechtsfähigkeit*) which allowed "[…] organisational units and/or individuals [to …] develop entrepreneurial activities in their own areas of responsibility" (Pechar, 2010, p. 21) without taking into account the university as whole.

In view of the rise of new public management in the 1980s/1990s and related concepts such as 'new managerialism' (Clarke & Newman, 1994) or 'academic capitalism' (Slaughter & Rhoades, 2004), Gumport (2000) states that, on a macro level, the former legitimating idea of higher education (henceforth HE) as a social institution is moving toward the idea of HE as an industry – a shift which influenced several legal reforms of the Austrian university system in the 1990s/2000s and consequently changed the national HE governance system 'rapidly' (Lanzendorf, 2006; Pechar, 2010). A major component of these reforms comprises the conversion of university organisations from state agencies to 'legal persons under public law' with increasingly powerful rectors and deans and, vice versa, a decrease of power of the collegial academic bodies. From such an angle, reformed universities are "the employers of all academic and non-academic staff. Academics are no longer civil servants, but are employed by private contract" (Pechar, 2010, p. 17). Success and failure are now ascribed to the university as an organisational whole and no longer to the performance of individual academics. Hence, the responsibility of results lies with the university and the HE leaders take actions to ensure organisational performance and success. These developments substantially changed the internal organisational configuration including the relationship and power structures between academia and administration (Nickel, 2012).

Exploration of higher education institutions (henceforth HEIs) with the lens of Luhmann's system theory reveals that universities have (almost) always been

C. Sarrico et al. (Eds.), Global Challenges, National Initiatives, and Institutional Responses, 237–265.

organisations which incorporate different functional logics of research, teaching and administration: both research and teaching, focus on the overall aim of the creation of knowledge while traditional university administration focus on compliance of norms and establishment of order. Especially in the field of research, universities can be seen as special interest organisations (*Interessensorganisationen)* (Schimank, 2004). This concept describes a merger of individuals who recognised that collaboration can support the accomplishment of their (individual) objectives. This type of organisation is featured by a rather small degree of formalisation, lose, flexible and self-organised cooperation and flat hierarchy. Some similarities apply to the field of teaching, as it is usually executed by the same individuals that undertake research. However, teaching activities are performed in a less directed way by individual interests; rather, they are more strongly based on the superior mission of education. Furthermore, teaching tends to be more formalised than research, conducted on behalf of an organisation and thus, appears to be more manageable by institutional authorities than research, while at the same time still being less steerable than administration. Traditional university administration is geared to the legal system with a pronounced focus on compliance of norms and establishment of order. It is hierarchically structured and administrative university staff tends to act on the basis of highly formalised processes and is bound by instructions. Thus, the functional logic of administrative units differs significantly from those of the academic organisational units of a university. Accordingly, this leads to discrepancies and a certain distance between academia and administration which has been leaving its mark (Nickel, 2012, Schimank, 2004).

Over a long period, HEIs was facing the challenge of uniting these different functional logics under one roof, by implementing a structural distance between research, teaching and administration characterised by a minimisation of the points of contact – a form of interaction which Weick (1998) described as 'loosely coupled' and which supports a certain organisational flexibility on the one hand, and a sustainable stability on the other hand (Nickel, 2012).

Recent reforms described above, however, have influenced and changed the collaboration requirements and configuration between the academic and the administrative spheres of HEIs and the role of internal HE administration. First, the development of universities to become autonomous, corporative actors is increasingly requiring enhanced institutional self- steering mechanisms and agency to improve communication to external stakeholders and increase competing power on a research and education market. In view of these circumstances, the 'loosely coupled' structure of university organisations turns out as unfavourable, due to its inherently slow decision-making mechanisms and uncoordinated action patterns. The necessity to meet these new requirements calls for a more collaborative, stringent and focused acting of HEIs. In this regard, the function of leading, managing and administrating entities within universities transformed significantly. Their activities are now focused on the implementation and provision of a supportive institutional framework for teaching and research as part of the core tasks of HEIs. Academia and

administration therefore face the requirement to reconfigure their formerly distanced relationship (Nickel, 2012).

Second, these changing orientation of university administration lead to an emergence of new professional roles and areas of activities for administrative staff. Literature points to increasingly blurred boundaries "within and across academic and management domains" (Whitchurch, 2008, p. 2) associated with a change in the functional and professional self-perception of both faculty and administrative staff within higher education institutions (Krücken & Wild, 2010). Meanwhile, an obviously new job description for staff at HEIs has been established – denoted as "third space professionals" (Whitchurch, 2008) or "para-academics" (Macfarlane, 2011). These notions were coined to describe the operational actions performed at an academic, administrative and supportive level. With respect to their hierarchical integration and role taking, Rhoades (1998, 2001) and Teichler et al. (2006) defined these occupational groups as "managerial or support professionals" as hybrid actors in view of their academic qualifications and their professional decision preparation competences. They act either in supportive units for faculty or the rectorate and are localised both in central service units and in administrative functions of schools or departments (Kehm, 2015). Schneijderberg and Merkator (2012) refer to these employee groups in higher education institutions as new "higher education professionals".

When having a look at the academic side of the HEIs, it comes as no surprise that the encroachment of the market and market-like mechanisms into academia have not taken place without controversies (Tuunainen, 2005).

> Not surprisingly, there is a lot of suspicion among academics of the organisational change and the corresponding decision-making structures. […] Many academics think that the new legislation has imposed the decision-making structures of the corporate world onto universities. They fear and expect a steep hierarchy which could be at odds with academic freedom, an authoritarian mode of leadership which will not allow appropriate faculty influence. (Pechar, 2010, p. 18)

Thus, HEIs are currently facing the challenges of supporting and implementing strategic objectives and decisions, on the one hand, and representing and defending the interests of faculty, on the other hand (Bryman, 2007; Smith, 2005). Accordingly, the relationship between administrative management and academics is known to be challenging and conflict prone (Krücken et al., 2013).

In parallel to the described (legal) reforms of the university system, there was a second development which sustainably influenced the Austrian HE system: namely, the establishment of the Austrian universities of applied sciences sector at the beginning of 1990s. Above others, the overall aims of this differentiation of the tertiary education system to a binary one were the relief of 'traditional' universities which struggled with an ever-increasing student intake and the introduction of a counter draft to the traditional university, which focus on vocationally oriented

academic education and training (with limited study duration) in terms of teaching and applied R&D, prototyping and innovation in terms of research (Pichl, 2012; Pechar, 2013; Bruenner & Koenigsberger, 2013). Organisational reforms of HEIs in terms of governance and management structures have gradually come to the fore during the initial negotiation processes for the legislative foundation of this new type of HEI, when experts and policy makers agreed on a governance model which differs considerably from that of traditional universities (Pechar, 2013). Since their establishment, strong interaction between and influence by industry and its relevant vocational fields on the one hand, and well-defined internal steering mechanisms and a powerful president and administration staff with management functions, on the other hand, were prevalent (Nickel, 2011; Leitner, 2006). Considering this, it can be said that some of the reforms imposed to traditional universities were already recognized by and implemented into the new UAS system from its beginning. Therefore (and also due to a more pronounced focus placed on teaching and its inherent functional logic), the configuration of the relationship between academia and administration initially corresponded to the above-described requirements of a 'reformed' HEI allied with NPM and related concepts (Nickel, 2011).

In line with Anderson's definition of 'managerial' HEIs, Austrian universities of applied sciences (henceforth UAS) can be seen as examples of ‚managerial' HEIs which he describes as universities with high emphasis on particular forms of accountability, high market-orientation, a focus on securing non-government funding and a strong focus on efficiency and economy. Hence, contrary to traditional Austrian universities and even more so than German UAS (Nickel, 2011), Austrian UAS have ingrained a market logic which is defined by Thornton et al. (2012, p. 57) along the lines of market transactions, status in market, efficiency increase and market capitalism. Accordingly, Leitner (2006, p. 8) identifies the "market-based-model" of Austrian UAS. Nickel (2011) describes their internal governance scheme as the opposite of the traditional (Humboldtarian) university. Based on her analysis, Figure 9 shows the differences between traditional universities and the Austrian universities of applied sciences by drawing on the internal relationship between four different governance mechanisms. When looking at the reformed university scheme described above, by contrast, all four governance mechanisms seem to be rather balanced.

In fact, the internal governance of Austrian UAS tends to correspond to corporations in that sense that they are legal entities under private law (often limited liability companies) with a comparatively powerful president or top management team operating in the tertiary education market. In this regard, Nickel (2011) rates the governance mechanisms "hierarchy and steering" and "competition and pressure to adopt" as particularly strong.

In recent years, however, a certain academic drift has been observable within the Austrian UAS sector which is partly expressed by an increasing importance of research activities and recruitment of academics from traditional universities (Sterrer et al., 2015) but also by an empowerment of academic self-regulation

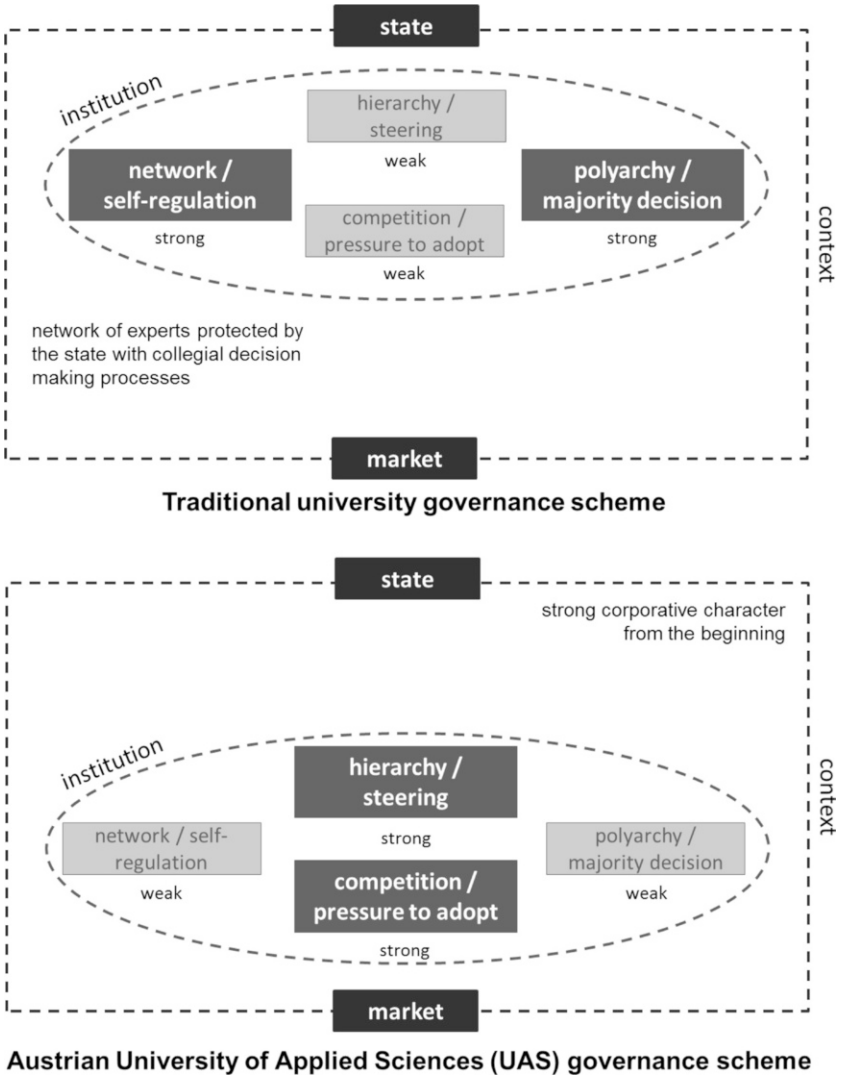

Figure 9. Governance schemes.
Source: Nickel 2011, adapted and translated by the authors

(Nickel, 2011) – a development which challenges the relationship between academia and administration from the opposite angle.

This overview reveals the current parameters of cooperation between academics and administrative staff in two different sectors of Austrian HE system. Still, in line with Fumasoli and Stensaker (2013, p. 488) who have pointed out that current

studies "have disregarded somewhat the point of view of practitioners, or, in other words, the needs of those that, within universities and colleges, have to cope with the reforms being implemented", it appears to be unclear how administrative managers perceive and perform their current roles within a HE context.

It is for this reason that this chapter presents a case study of an Austrian UAS with the aim to shed light on the personal experiences and subjective perceptions of administrative HE managers in terms of cooperation of faculty and administration, in due consideration of the specific features of UAS organisations and recent developments. The study is embedded in a wider research context of Austrian UAS internal governance structures from the perspectives of manager-academics (Ehrenstorfer et al., 2015) and 'academic drift' tendencies within the Austrian UAS sector (Sterrer et al., 2015).

Following the recommendation of Fumasoli and Stensaker (2013) to integrate new institutionalism theory (e.g. Greenwood & Hinings, 1996) in order to focus on intra-organisational processes shaping university actions, the authors decided to particularly explore challenges arising from tensions among different organisational logics (Battilana & Dorado, 2010; Pache & Santos, 2013; Kodeih & Greenwood, 2014). Thus, it was sought to draw on concepts of institutional logics (e.g. Thornton & Ocasio, 1999; Thornton et al., 2012) and organisational ambidexterity (e.g. Tushman & O'Reilly, 1996) incorporated in hybrid organisations (e.g. Battilana & Dorado, 2010). Accordingly, the integration of market and corporative logic opposing professional academic logic as well as their learning modes (exploration versus exploitation) is essential to ensure long-term organisational success and survival (Güttel & Konlechner, 2009; Simsek, 2009; Tahar et al., 2011).

THEORETICAL BACKGROUND

Competing Organisational Logics

Frequently, new universities, like the analysed Austrian UAS, have a strong focus on entrepreneurialism and external marketing which according to Tuunainen (2005, p. 281) is at the price of "academic vigor". Gumport (2000, p. 84) stated that current academic reorganisation is supposed to be defined as a "set of budget issues and management problems, albeit with educational implications". Hence, challenges for academics arise as they try to fuse their research and teaching activities with marketisation tendencies within their university organisation (Tuunainen, 2005). Institutional logics are defined in line with the provision of "formal and informal rules of action, interaction, and interpretation that guide and constrain decision makers in accomplishing the organization's tasks and in obtaining social status, credits, penalties, and rewards in the process" (Thornton & Ocasio, 1999, p. 804).

At the investigated institution, namely the UAS Upper Austria, the more entrepreneurial academic identity (Ehrenstorfer et al., 2015) which is more open to corporatist tendencies reflects a stronger corporation logic [hierarchy, market

position of firm, top management, bureaucratic roles, managerial capitalism (Thornton et al., 2012, p. 57)] that results from requirements of the market logic on a macro level. It opposes the traditional professional academic logic [relational network, personal expertise, professional association, personal reputation (Thornton et al., 2012, p. 57)] universities have traditionally been renowned for.

Organisations that incorporate elements from different institutional logics are defined as hybrid organisations (Battilana & Dorado, 2010) and are "by nature arenas of contradiction" (Pache & Santos, 2013, p. 972). Resulting conflicts can be very harmful for organisations because organisation members may resist the influence and impact of less traditional logics (Pache & Santos, 2013). Thus, Greenwood et al. (2014) highlight the most relevant question along the lines of how the resulting conflict influences human and organisational behaviour and not whether motivation and action of organisational members are rational.

In a recent qualitative study carried out at UAS Upper Austria (Ehrenstorfer et al., 2015), academic identity was identified as a significant factor of success in transforming and further developing the institution. In spite of high marketisation endeavours, many academics still feel strongly obliged to their original professional logic. Faculty of UAS Upper Austria highlights academic freedom to still hold a significant value in their academic culture. Thus, they warn against overregulation that may constrict flexibility, creativity and innovation and conclude that universities may not be organised and led like companies. It is generally agreed upon that fresh ideas are crucial in a prospering university context and that new concepts can neither be evolve under pressure nor be sequentially planned and scheduled. At the same time, top-down-processes, which imply predictability, are termed as dangerous and, although the need for efficiency and planning was perceived by academics, "a well-established administrative body has somehow a negative aftertaste" (Preymann, 2014, p. 5). Thus, from and academic point of view formalisation and centralisation tendencies are still seen as a double-edged sword.

Organisational Ambidexterity and Its Potential to Combine Logics

Hybrid organisations may need different response strategies to cope with internal tensions (Pache & Santos, 2013). Current studies (Battilana & Dorado, 2010; Binder, 2007; Greenwood, Diaz, Li, & Lorente, 2010; Greenwood et al., 2011; Lounsbury, 2007; Reay & Hinings, 2009) suggest that hybrid organisations may merge competing logics by integrating activities drawn from each logic in order to secure wide-ranging endorsement (Pache & Santos, 2013).

In order to harmonise discrepancies of diverging corporative and professional logics, the concurrent use of explorative and exploitative learning modes (Birkinshaw & Gupta, 2013, Raisch & Birkinshaw, 2008) seems promising. In 1996 Tushman and O'Reilly introduced the notion of organisational ambidexterity to organisational research which generically describes the skill to equally use both hands. They defined it as "[…] the ability to simultaneously pursue both incremental

and discontinuous innovation and change (resulting) from hosting multiple contradictory structures, processes, and cultures within the same firm […]" (p. 24). Although the appropriate relation between exploratory and exploitative learning may differ among organisations and circumstances, the integration of both learning modes is essential to ensure long-term organisational success (March, 1991; Gupta et al., 2006; Güttel & Konlechner, 2009; Simsek, 2009; Tahar et al., 2011; Gibson & Birkinshaw, 2004). According to Ambos et al. (2008), HEIs appear to be able to manage the tensions between academic and commercial demands through the creation of dual structures. This means that centralised administrative oriented subunits (exploitative learning mode) which correspond to exploitative structures place particular emphasis on stability, routinisation and efficiency. By doing so, they fulfil the needs for a high number of small, differentiated, non-centralised knowledge-creating subunits (explorative learning mode) under the roof of a common mission, strategy and set of values (Tahar et al., 2011). Finally, HEIs strive to pursue a balance that can ensure academic freedom while at the same time reinforcing routinisation of procedures to such an extent that prospering working conditions are created without limiting the academic mind-set or destroying intrinsic motivation of researchers. In addition, relating to Clark (2004), improved steering capacity considerably depends on collegial connections between academics and administrators in daily operations even more so as "balancing influence across multiple levels is an almost constant problem in entrepreneurial universities" (Clark, 2004, p. 359).

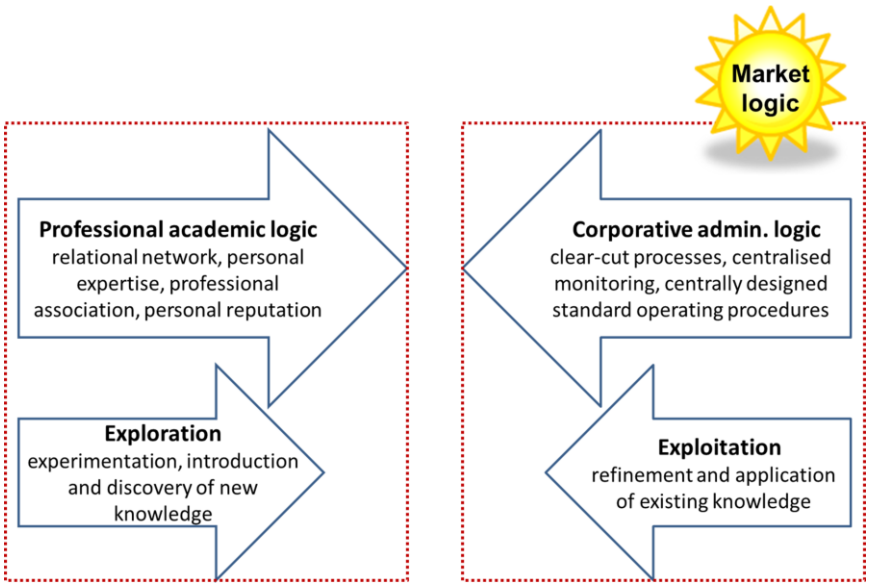

Figure 10. The hybrid higher education institution

Although near consensus on the need for balance exists, there is less clarity on how these conflicting demands arising from tensions among different organisational logics can be dealt with and on how balance can be achieved (Ambos et al., 2008; Gupta et al., 2006; Battilana & Dorado, 2010; Pache & Santos, 2013; Kodeih & Greenwood, 2014). In addition, it is not clear how administrative managers perceive their role themselves (Krücken et al., 2013). Thus, the perspective of administrative managers represented in this research study provides a useful lens from which to study the alignment of discrepancies resulting from tensions between academic and commercial mind-sets.

DESCRIPTION OF THE CASE

Founded in 1993, UAS Upper Austria is one of the first and biggest UAS in Austria (with around 5000 students and a research turnover of €13m p.a.). Situated in the Austrian province of Upper Austria it comprises four schools on four regionally separated campuses. In sum, around 2100 persons are employed at UAS Upper Austria and the ratio between academic and administrative staff is 76 % to 24 %.

Table 4. Characteristics of UAS Upper Austria

University of Applied Sciences Upper Austria (UAS Upper Austria)	
Year of foundation	1993
Student intake	5,362 (2014/2015)
Research turnover	€13.8m (2014)
Employees	2,118 (2014/2015; 916.8 FTE)
Ratio of academic – administrative staff	76%–24%
Principles of teaching and research	Vocationally oriented teaching and applied research in line with industrial requirements

Figure 11 depicts a simplified version of the internal governance structure of UAS Upper Austria.

Basically, it can be said that at the top management level of the UAS Upper Austria there is a duality of both corporate management (president and top management team consisting of chancellor, vice president R&D and academic head) and academic self-organisation (academic board).

The *top management team* (henceforth TMT) of the UAS Upper Austria consists of four different people: the president as head of the organisation, the chancellor, the vice president for R&D and the academic head. Members of the TMT have all their own fields of responsibilities (see Table 5). Having a look at the individual background of the current members of the TMT reveals one the one hand a professional career of the president and chancellor and on the other hand, an academic career of the vice president R&D and the academic head.

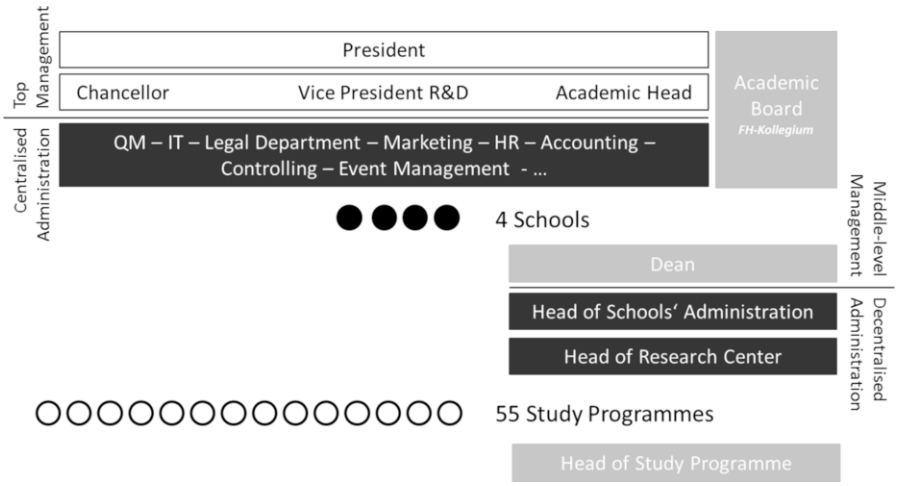

Figure 11. Internal governance structure of UAS upper Austria

Table 5. Responsibilities of the TMT-Members

TMT-Member	*Responsibilities*	*Personal background*
President	Strategy, controlling, marketing, external representation	professional career
Chancellor	Organisational development, accounting, budgeting, administration, HR, quality management	professional career
Vice president R&D	Strategic planning R&D, coordination of acquisition of R&D funds, superior of research assistants and R&D-related administrative staff, scientific conferences	academic career
Academic head	Teaching and study programmes, HR development in teaching, teaching infrastructure, integration of research and teaching, coordination of the four schools	academic career

An amendment of the Austrian UAS Studies Act in 2011 introduced an *academic board* into UAS internal governance structures on an obligatory basis (Hauser, 2013). This board contains of representatives of heads of study programme, teachers/researchers and students, and is, above others, responsible for the following issues (defined in § 10 (3) UAS Studies Act[1]):

The tasks of the University of Applied Sciences Board shall be: […]

3. modifying the accredited degree programmes […]
4. establishing or terminating a degree programme and a certificate programme for further education […]
5. making applications concerning the budget (capital, non-personnel and personnel expenditures) […]
6. submitting proposals for the appointment and dismissal of teaching and research staff […];
7. coordinating the content of all teaching and examinations;
8. evaluating all teaching including examination rules and curricula;
9. awarding academic degrees and revoking them, deciding on the nostrification of foreign degrees as well as awarding […] academic honours common in the university system; […].

Administrative staff is not part of the academic board, although the board is entrusted with tasks which had been indisputably related to administration and had been performed by chancellor and administrative staff at UAS Upper Austria before the introduction of this new academic self-organisation body.

Central administrative entities. Which are responsible for UAS-wide support and steering activities are incorporated in the central headquarters. This involves for example departments for quality management, marketing, HR, accounting, controlling, etc. All of these units are managed by a head of department.

At faculty level, *deans*, who fulfil the roles of researchers/teachers as well as managers (temporarily elected), head the respective school. Schools also employ their own administrative staff, mainly led by *heads of administration* and *heads of the local Research Centre.* Each of the four schools offers a broad variety of different study programmes, which are, in contrast to the traditional subdivision of universities into different disciplinary departments, the main organisational units at the bottom level of this UAS organisation. Each study programme is managed by a *head of study programme*, a 'manager-academic' (Deem & Brehony, 2005) fulfilling the management and leadership position on the one hand and the teaching and research position, on the other hand.

The description of the different governance layers of the UAS Upper Austria reveals the co-existence of both 'manager-academics' (Deem & Brehony, 2005) and 'third space professionals' (Whitchurch, 2008). To reduce the complexity of the organisation for the analytical issues of this study, the structure was simplified to a certain extent by attributing the term 'administration' to the heads of the centralised and decentralised administrative units and the term 'academia' to those persons who correspond to the definition of manager-academics (members of the academic board, deans and heads of study programme). Only when it comes to the analysis of bridging links between academia and administration, the incorporation of these two worlds within one position as an integrating feature will come to the fore again.

METHODOLOGY AND RESEARCH DESIGN

The overall aim of the investigation was to gain insight into the personal experience and subjective perception of administrative managers in terms of the specific demands and challenges of administrative HE management and to gain in-depth knowledge of current behaviour patterns, formal processes and more informal norms regarding the alignment of academic and administrative mind-sets within a HEI. On a more structural level, the main objective of this research endeavour was to illustrate the main conflicts between administration and academia and the possibilities to align and harmonise discrepancies as well as conflicting and diverse demands from an administrative point of view.

For this purpose, the research team opted for a qualitative design in order to explore underlying motivation and deep-rooted reasons rather than test variables (Corbin & Strauss, 2008). In exploring pathways dealing with conflicting demands of alignment and adaptability in the context of UAS Upper Austria, the authors relied on extensive case data. Accordingly, a qualitative case study appeared most suitable to provide insight into the complex structures of interactions and illuminate potentials for harmonising these competing mind-sets in a so-called 'managerial' HEI.

The applied focus group method draws on interactions with the group and the joint construction of meaning (Bryman, 2012). Besides the specific topic of the focused interview that is explored in depth, the researchers "will be interested in such things as how people respond to each other's views and build up a view out of the interaction that takes place within the group" (Bryman, 2012, p. 501). The arguing process contributes to gathering more realistic accounts of what people think, because they are forced to reflect and possibly revise their views.

Overall, the study consists of five focus group interviews with 20 administrative managers of UAS Upper Austria. 'Administrative managers' for this purpose are the heads of the centralised and decentralised administrative units. Table 6 gives an overview of the involved persons describing their organisational assignment, their academic background and the focus group they participated in. Concerning composition of the respective focus group, particular emphasis was put on their homogeneity. The groups consisted of 3 to 5 persons each.

Field research was performed from January 2015 to April 2015 and the focused interviews lasted between 60 and 75 minutes each. All focused interviews were conducted in accordance with an interview guideline and moderated by a facilitator. The interview guideline emphasised the patterns of cooperation and interaction in their daily professional lives, the flow of information, interfaces between administrative staff and faculty and the related upcoming challenges as well as their own self-perception/role within the organisation. All focus groups were tape-recorded and transcribed. Qualitative data were analysed by computer-based software (MAXQDA) and in compliance with qualitative thematic (content) analysis (Silverman, 2013). Moreover, each focus group was analysed separately so as to create descriptions of the cases (case analysis of each focus group).

Table 6. Composition of focus groups

Organisational assignment	*Academic background*	*Group*
Centralised administrative units		
Head of international affairs	Master's degree or equivalent	B
Head of marketing	Master's degree or equivalent	B
Head of HR	Master's degree or equivalent	B
Head of corporate controlling	Master's degree or equivalent	B
Head of controlling	Master's degree or equivalent	B
Head of R&D controlling	Master's degree or equivalent	D
Head of accounting	Master's degree or equivalent	D
Head of legal department	Doctor's degree	D
Head of quality management	Master's degree or equivalent	E
Head of software development centre	Master's degree or equivalent	E
Head of IT-services	no academic degree	E
Head of IT-governance	Doctor's degree	E
Decentralised administrative units		
Head of administration (school for informatics, communications and media)	Master's degree or equivalent	A
Head of administration (school for applied health and social sciences)	Master's degree or equivalent	A
Head of administration (school for management)	Master's degree or equivalent	A
Head of administration (school for engineering and environmental sciences)	no academic degree	A
Head of research centre (school for informatics, communications and media)	Master's degree or equivalent	C
Head of research centre (school for applied health and social sciences)	Master's degree or equivalent	C
Head of research centre (school for management)	Master's degree or equivalent	C
Head of research centre (school for engineering and environmental sciences)	Doctor's degree	C

RESULTS

In this section, results are grouped in three parts. First, evidence of the existence of the two different organisational logics within UAS Upper Austria, namely the professional academic logic and the corporative administrative logic, is given. Second, a short overview of the highlighted self-perception of administrative managers is provided. The third part points to challenges for administrative

managers in the context of the dualism of academia and administration. Next, focus is placed on bridging and balancing links between the distinct mind-sets resulting from the two organisational logics mentioned. Since the interviews were all conducted in German, the selected vignettes were subsequently translated into English by the authors.

The Professional Academic Logic vs. the Corporative Administrative Logic

In discussion of their experiences and allied own and perceived (dissenting) other perspectives, the interviewees provided evidence for the existence of two different institutional logics within the case UAS.

Corporative administrative logic. Administrative parts of UAS Upper Austria primarily account for establishing processes and procedures and for carrying out routine tasks. Administrative staff's corporative administrative logic manifests itself in the assigned importance of performance indicators, as the following vignette shows:

> I believe that for leadership and decision making you'll need performance indicators – because in a HEI you have to find ratios. (B-151)[2]

Due to its process driven mind-set, administration insists on an increase in efficiency and thus supports standardisation and formalisation procedures, heightened importance of control mechanisms, monitoring and documentation and formal decision taking (B-71-77, B-105, A-36). The corporative administrative logic feels obliged to bureaucracy and a highly process-oriented structure (B-71-77) as illustrated in the following statement:

> If there is no red-tape this will make us slow. Because then we will have to rework everything endlessly. (B-105)

Too much deregulation seems to unnerve some administrative personnel as they fear of getting insufficient information. This is even more so when academic parts of the organisation are involved or affected, as administration cannot control these parts that well and is dependent on academics' goodwill.

> How can you be sure that you've got all information that is relevant for you? (B-137)

However, even within an administrative community the right amount of bureaucracy is under discussion (B-79, B-126, B-104, B-119). Some parts of administration call for streamlining and lean management (B-107, B-119, C-130, B-119) and advocate a limitation of "insanity of reporting" (B-148) whereas other parts insist on adding further regulations, especially at the interface of administrative and scientific parts of the institution (B-137) in order to increase control.

This heterogeneity in perceptions seems to result from different tasks and needs of different organisational units. For instance, marketing is supposed to react quickly to changes whereas controlling is supposed to guarantee stability and rule-consistency (B-79). In addition, personal attributes of administrative managers tend to influence their feeling for the right amount of red tape (B-107).

Professional academic logic. Administrative managers at UAS Upper Austria believe that academic freedom still holds a significant value in the academic culture. Thus, from their point of view, professional academic logic is associated with faculty's empowerment and their craving for independence and flexibility in carrying out their tasks (B-152). It is assumed that faculty tries to secure traditional freedom and flexibility and tries to "take it as easy as possible" (B-128). From an administrative perception, there is little commitment to rules and regulations (B-70). From their point of view, faculty may experience a clash between their professional status and traditionally established practices on the one hand, and a feeling of loss of direct influence due to rising regulation from top management, on the other hand. Informants presume that this tendency is perceived as unjust by academics as they might think that "[…] we [faculty] are supposed to be the key players of higher education" (D-30) and "we [faculty] are at a disadvantage, because everything is operated over our heads" (D-30).

Administrators' Self-Perception

As far as their self-perception is concerned, administrative managers at UAS Upper Austria see themselves predominantly as enabler (D-98, C-95, A-89) and service provider (D-97, D-93, D-95) for certain players within the organisational context, especially top management and academics as the following vignette shows.

> It's about coordination, it's about knowledge-exchange, it's about knowing about everything. (A-20)

Hence, administrative managers label themselves as "interface-manager" (A-98), "Jack and Jill of all trades" (E-94, A-90), coordinator (E-95, A-89) or moderator (B-158, C-60). Decentral administrative units concentrate more on the needs of their school (C-78, C-130, B-18, E-20) but also keep in mind the requirements of the headquarters (A-35, E-95).

Challenges of Administration

Generally, administration managers attribute tensions between administration and academia to highly contrasting interests of these two different organisational spheres (E-107) and a "tow-class-society" (E-107) consisting of faculty as first class and administration as second class. A circumstance which is perceived as typical of HEIs (D-55+58):

> The higher education sector is divided in an academic side and an administrative side. And faculty tends to look down on administration, because […] these are those people who have only a degree but we [faculty] are the great scientists. (D-54)

In addition, administrative managers complain about faculty's limited willingness to change and establish practices that comply more with current contextual changes (D-50, A-53).

Thus, in a working context, they relate their own dissatisfaction to three main factors that appear to have their roots in the relationship of the underlying conflicting institutional logics: minor esteem and appreciation, a minor integration in decision-making bodies combined with a missing understanding of administrative information demands and limited formal power.

Minor esteem and appreciation. A recurring topic discussed within the focus groups is status and prestige of administrative positions. Administrative management claims to be faced with only minor esteem and appreciation in their daily working routine (E-107, D-50). They are confronted with accusations of establishing bloated bureaucracy (E-107) and consequently constrict flexibility and creativity as described in the following vignette:

> In administration we are always the bad guys. Because we create so much red tape and prevent others from working smoothly. (B-81)

Some experts perceive a rising service-expectation from the academic side (D-29). One informant feels on some occasions degraded to a mere "writing office" (D-28) that is supposed to act on behalf of academics' needs. The following vignette reflects this opinion strikingly

> Don't get cross when something gets complicated because of our [faculty] needs. You have to be happy for having the right of being here – because your reason for being here is us [faculty]. (D-28)

Some informants miss equally assigned status and likewise acknowledgement of accomplishment in both academic and administrative parts of the organisation (D-27). However, they already perceive a change to the positive (D-27, C-88-95). Some think that capability and efficiency of administrative parts of the organisation is highly appreciated, however, feel that some employees tend to refrain from verbalising it as legitimation of power is still supposed to result from the professional academic logic (E-115). Although some of the administrative managers suffer from poor recognition of their achievements, they are nonetheless proud of their accomplishments of the past years (B-159).

Strikingly, it was found that research centre managers who primarily support researchers in administrative aspects of their research attach particular importance

to be differentiated from administration. For them, administration is a most "emotive term" (C-109) that seems to go hand in hand with minor tasks like making room reservations, writing lists and archiving data (C-108-119, C-43-56). The pure notion of administration seems to touch a "sore spot" (C-154) caused by the feeling that their profession has not received the respect it deserves (C-150-158).

Minor integration in decision making bodies and missing understanding of administrative information demands. Administration managers are not part of the decision making bodies of the UAS Upper Austria. In that regard, two main challenges were identified for administration: First, interviewees complained about a lack of transparency about the decision making processes, the results and the related consequences for administrative operations [B-138+139+152].

> I don't get any information from them [… and] I have no idea if something is relevant for us. [B-138+139]

Thus, the interface is prone to loss of information because faculty tends to depreciate administrative related information (C-128, A-22) and does not pass on information within a satisfying time span (C-119, B-79).

Second, due to the missing administrative voice in decision making bodies, they criticise a minor recognition of administration needs and an underdeveloped understanding of the consequences of certain decisions on administrative procedures (A-87+104, B-152). Administrative managers complain about limited interest in assigned tasks from the other side "[…] because one side does not know what the other side does." (E-117).

Limited formal power. Administration seems to dispose only of limited formal power (D-65-70, B-114+159+161+162, A-59+100+152), as administrative staff is dependent on the decisions of top management (A-63), on the one hand, and academics' good will, on the other hand. Undoubtedly, academics' good will is all the more relevant since they tend to put forward their academic freedom, especially when they do not feel inclined to act as advised from an administrative angle (A-60). As the following vignette highlights, administrative manager rate TMT's support as most effective and important to acknowledge their procedure-oriented efforts (B-115, B-81) and to stay informed.

> When something is requested from top management to be executed […] then somebody has to impose sanctions but we [administration] can't do that. (A-63)

On a more informal basis, some participants even seek dialogue with top management to get an overall impression of the current situation (B-137). Thus, administrative managers do not feel empowered to encourage or initiate changes as shown in the following vignette:

> When somebody says, I am not interested in this task at all, I can only put up with it. (A-53)

Another challenge for administrative managers is rooted in the elected status of some of their supervisors [e.g. deans (of the local faculty are seniors of heads of administration]. Heads of administration mentioned that, in the worst case, they would have to adapt to a different management style of their superior every three years (A-49). As these elected roles and functions allow for a high degree of flexibility, it is up to the manager-academics to define their own field of duties, which, in turn, necessitates equal adaption from the administrative side (A-50-52). This is even more so as deans are increasingly challenged to act as academic managers who discover themselves at the interface of faculty and administration (A-49).

In sum, administration managers point to a number of inefficiencies in HE administration procedures which hint to the struggle of the two different institutional logics within the organisation. To begin with, they highlight minor esteem and lacking appreciation of administrative staff as a valuable source of expertise (instead of a factor of interference). Further, they emphasise the insufficient integration of administrative perspectives in decision making bodies and a missing understanding of the administrative information demands In addition, due to the missing formal power and the incomplete, informal and slow information flow between academia and administration, administration manager highly depend on formally defined processes, which secure their regulated and compulsory integration in important procedures.

Bridging Links between Faculty and Administration (from an Administrative Point of View)

Although the administration managers stressed the challenges described above, several informants have already observed some improvement in cooperation, as shown in the following vignette:

> This yield line that keeps those two groups apart is getting smaller. (E-123)

However, they still see the need for further enhancement. In the course of our research, several bridging links between either professional and corporative logic or explorative and exploitative mind-sets could be revealed. Those bridging links either address cultural, structural or behavioural elements of organisations.

Cultural aspects involve (1) a common organisational identity, (2) a higher appreciation of administrative expertise and contribution to organisational efficiency and success and (3) an increased mutual understanding between academia and administration.

Common organisational identity. Findings indicate that a common organisational identity seems to play an important role in the successful alignment of competing

mind-sets represented by the academic and the administrative part of a university organisation. The interviewees point out that organisational identity has already changed to some extent from a faculty-driven identity to an overall organisational-driven identity (E-116+123+125, A-12+20). Especially, administrative managers of centralised units tend to identify themselves with the overall institution as they have never been associated with one of UAS Upper Austria's faculties (E-107, B-82), as shown in the following vignette:

> We try to set a good example. We see UAS Upper Austria as one institution. (E-116)

Concurrently, they understand that a change of perspective might be much more difficult in academia since, in the first place, academics feel obliged to their disciplines which are represented by their relevant school (E-123+124, B-92), instead of the whole HEI. Younger academic staff tends to work in a more organisation-oriented context and they do not distinguish that strictly between administration and academia (B-117). Still, an overall identification is seen as necessary (E-123) as shown in the following statement:

> In the end it does not really matter to which school you belong. […] It is a rat race and you have to win the game. And all of us have to run for it. (E-125)

Higher appreciation of administrative expertise and recognition of administrative demands. As already described in the challenges for administration, respondents critically assessed that minor esteem and lacking appreciation of administrative expertise were crucial factors in a valuable contribution to the organisational efficiency and success. Based on this perception, they wish for a stronger integration of their expertise (A-45) especially in those cases that impact administration (A-32) and when overlaps with current administrative projects appear likely (B-152). Furthermore, they aim for additional information when topics at the admin-academia interface are concerned (A-87+104, B-152). By the way of improved coordination with academia, administrative managers expect several improvements, like an earlier verification of technical feasibility of planned projects (E-27), a formally correct implementation of new procedures (B-106), a better coordination of existing processes (B-142) and a better exploitation of existing resources at the interface (A-87+104, B-152).

Increased mutual understanding and joint goals of academia and administration. Regarding joint collaborations, it was found that well-established and transparent processes (B-106+109) and clear task definition are most essential, so „that not everybody talks of something different" (B-106). Thus, goals have to be defined beforehand in order to generate a joint "picture of the goal" (E-26) and to ensure that inputs of all participants are considered (E-69). Cooperation tends to get simplified when benefit and long-term additional values are made explicit

(E-26+45+47, C-68), as the readiness to participate constructively tends to rise in these cases (E-45). Still, the need for consensus is rated high ["And I can only solve this on a consensual basis." (B-161)].

Participants stress the importance of an esteem culture and an appreciative communication style which takes account of the special needs of a modern university culture (C-88). Depreciative behaviour is rated as not conducive to reaching the goal ["to depreciate others (…) that's not ok" (D-58)].

According to our informants, a supportive atmosphere is an essential requirement for the success of group work. Administrative personnel stress the importance of developing mutual understanding for diverse challenges which impact interactions between academia and administration (E3-117, D-64). In addition, capacity to compromise (E-32, E-28) and persuasiveness (E-28+32+74+76) is considered a prerequisite for task implementation.

> A number of alternative solutions are put forward and it is hoped that they might defuse the situation. (E-45)

Structural configurations referred to as bridging links between administration and academia are invoked by the focus groups as (1) support and influence of top management team, (2) crucial role of deans and head of study programmes as manager-academics and (3) cross-sectoral cooperation between administration and academia in hybrid project teams and organisational bodies.

Top management. In order to harmonise the interface between academic and administrative scope of responsibilities, respondents suggest that it is the top management team's (TMT) responsibility to create a supportive climate that enables alignment of academic and administrative structures (B-115, E-82, B-61, A-50). The management board holds responsible for the implementation of a clear strategy that supports the operationalisation of goals, creates transparency, establishes commitment and thus reinforces ambidextrous thinking (E-116).

In addition, participants point to the necessity of a clear structure and well-established transparent processes (B-106+109) in order to ensure the functioning of administrative support (E-72, B-161). They emphasise that in addition to leadership, organisational structure significantly impacts the institution's ability to balance ambiguities (D-64).

Dean's mediating role. Due to their multifunctional tasks, deans seem to be accustomed to building knowledge-bridges between exploitative and explorative organisational units and taking over a managerial function at their school (A-49). However, informants do not appear to be wholly satisfied with the quality of communication originating from their relevant schools (A-52, B-138).

Cross-sectoral cooperation. Informants feel that committee and project work would benefit from administrative know-how in those cases where the topic is

located at the interface between academic input and administrative implementation (E-125). Still, administrative managers hope for stronger involvement in the academic board in order to be able to provide valuable expertise (D-84, B-55+137+142, A-32), as mentioned in the following vignette.

> At the end of the day, there is little awareness of the academic board on which topics administration could make a useful contribution. (B-143)

Currently, administrative managers can only participate in the academic board when formally invited by members of the board. Hence, informants believe that academic topics with cross connections to administration cannot be discussed with all relevant information and expertise (B-143-147). Additionally, some respondents point out that continuous participation of administrative and academic staff in service projects and interaction with team members in both domains may enable the development of a fruitful collaboration (E-33+123). Hence, team members have to display both scientific rigour and business relevance concurrently.

On the level of *individual behaviour*, administration managers predominately describe one way to cope with the challenges of administration in interaction with academia, which is pithily described by one respondent as "leadership by competence" (B-92).

Leadership by "competence". To ensure work progress (C-63, B-162) and to "[…] keep the work relationship up and running" (B-92), service quality of administrative support staff and recognised benefits appear to be essential (B-79).

> The more service you offer, the more commitment you will get from the others (faculty), because you facilitate their tasks. (B-79)

Thus, "leading and serving" (B-92) as well as "leadership by competence" (B-92) were found to be an escape route from a fragile position of influence.

DISCUSSION AND REFLECTION

Overall, the findings of our empirical study suggest that the self-perception of administrative personnel goes hand in hand with a deeply rooted corporative logic that subordinates to the market logic of the macro or societal level. Thus, it opposes the traditional academic mind-set (Ehrenstorfer et al., 2015) as well as the professional academic logic at the organisational level. Drawing from our empirical findings, the professional academic logic is associated with academic freedom and flexibility whereas the corporative administrative logic promotes clear-cut processes and centralised monitoring, which allows for the validation of centrally designed standard operating procedures.

The dichotomy of the different institutional logics and related mind-sets of actors intensify different daily-work challenges for administration. The administration managers perceive minor esteem and lacking appreciation of

administrative competences and knowledge, and hence critically highlight their limited integration in decision making processes and a missing understanding of administrative information demands. To their mind, this leads to an insufficient use of their expertise, an incomplete and slow information flow and therefrom resulting organisational inefficiencies. Furthermore, they described a lack of formal power vis-à – vis faculty. Consequently, administration managers highly depend on the academics' good will to cooperate. The willingness to support administration is constrained by the professional logic and the related academic mind-set and their traditional perspective of administration as a burden, constraint and interference.

This work sought to find ways of how competing logics can co-exist for the benefit of the whole institution. From the theory of organisational ambidexterity it is known that co-existence of conflicting learning modes (explorative and exploitative) is crucial for the success of organisations under complex environmental circumstances (March, 1991; Gupta et al., 2006; Güttel & Konlechner, 2009; Simsek, 2009; Tahar et al,. 2011; Gibson & Birkinshaw, 2004). Thus, HEIs should strive for a balance that can ensure flexibility and innovation in building on academic freedom (explorative learning mode) on the one hand, and reinforces routinisation of procedures to such an extent that prospering working conditions are created (exploitative learning mode), on the other hand (Chang et al., 2009). However, due to a greater application of management business concepts and a rising significance of management tasks (Kehm & Lanzendorf, 2007; Nickel, 2011) top-down processes are perceived as increasingly important (Chang et al. 2009). Yet, a bottom-up, flexible context which is part of a long established and traditional university culture (Ambos et al., 2008; Chang et al., 2009) is critical in the development of innovative and explorative HE structures (Chang et al., 2009; Ambos et al., 2008).

Our findings show how the rivalry between competing logics can be managed through a collaborative relationship at different organisational levels where collaborators still maintain their independence when working together for the sake of the organisation (Reay & Hinings, 2009). From a structural angle, administration managers identify three different configurations that were supportive in their position within the organisation and that strengthened their corporative administrative logic against the professional academic logic.

First, on an institutional level, they identify the *top management's* explicit commitment to administrative assignments as decisive in order to achieve a balance between academia and administration and their goals. In other words, it stays within the responsibility of TMTs to establish a reasonable balance between most diverse interests and assigned responsibilities to define clear and precise processes. Hence, it can be assessed that a strong HE management has the potential to provide a supportive context for aligning dual structures in enabling units to switch between academic and commercial endeavours (Ambos et al., 2008; Birkinshaw & Gupta, 2013; Buyl et al., 2012; Lin & McDonough, 2011; O'Reilly & Tushman, 2013). Thus, it is the top management's task to establish both clear organisational structures and transparent procedures that meet the special prerequisites for hybrid

organisations (Brown & Eisenhardt, 1997; Güttel & Konlechner, 2009) and to foster an organisational culture that allows for cooperation and knowledge-exchange between faculty and administration.

In the latter context, top management needs to translate between exploiting and exploring units where senior executives are supposed "to function as interpreters for the rest of the organisation" (Gumport, 2000, pp. 77–78).

Second, the participating administration managers point to the crucial role of "*manager-academics*" (Deem & Brehony, 2005) (especially in the role of deans or heads of study programme) as persons who bridge both worlds. Manager-academics unite an academic reputation and socialisation on the one hand, and- due to their high inclusion in administrative procedures- possess an understanding for administrative duties and requirements, on the other hand. It is for these purposes that manager-academics dispose of thorough knowledge of both logics. In addition, they hold a certain formal power over academics, which administrative managers miss. They can therefore be useful allies for administration when it comes to the enforcement of certain regulations and processes. Certainly, the same also applies for the academic side, when it comes to the prevention of over regulation.

Third, on a micro level, administration managers identify *hybrid project teams* as crucial since they enable new collaborative relationships in making use of both academic and administrative expertise and perspectives. Further, they tend to facilitate the exploitation of diverse capabilities and knowledge and to enhance mutual understanding. In doing so, they act as pathfinders that actively support contextually ambidextrous working conditions. Furthermore, there is common ground that project work enables knowledge transfer between the two differing learning modes, as team members are deeply integrated into different business and/ or scientific environments and, hence, have to display both scientific rigour and business relevance concurrently (Güttel & Konlechner, 2009). Additionally, working in project teams enhances group cohesion and "enables the development of an ambidextrous mind-set that favours exploration and exploitation in an equal balance, a shared language, and mutual understanding" (Güttel & Konlechner, 2009, p. 162).

Besides these developed institutionalised working practices that support a co-existence of competing logics, we propose that several cultural and behavioural factors are a prerequisite for the functioning of these bridging links. First, administrative managers strive for a higher appreciation of administrative expertise and recognition of administrative demands on an organisational level. Second and related to that, they demand increased mutual understanding and the development of joint goals of academia and administration, which are pursued by a meaningful combination of the different and complementary capabilities. Third, they consider that a common organisational identity that looks at the organisation as a whole, strikes a balance between the different logics that a hybrid organisation needs to integrate. In the long run, an emerging common identity may prevent the maintenance of subgroups whose different identities "emphasise the tensions between the logics combined" (Battilana & Dorado, 2010, p. 1435).

Finally, the present study points to individual actions of administrative managers aimed at developing new collaborative relationships which simplify accomplishment of work. Correspondingly, leadership by 'competence' was described as an individual behaviour that seeks to appreciate administrational expertise as useful for the support of academic tasks. Thus, it is expected to improve esteem and appreciation of administration at an individual level.

Several features of the UAS Upper Austria support the diagnoses that the corporative administrative logic is more strongly embedded in this organisation than in traditional universities. First, the organisation is led by a president with professional background in the corporate world rather than the academic one. Basically, both logics are represented in a more balanced manner within the TMT. Second, the manager-academics are more strongly committed to managerial and administrative structures in the UAS (Ehrenstorfer et al., 2015), as they, most of the time, draw on prior professional expertise in companies and, from the beginning, got to know the UAS as a rather corporate like institution. Interestingly, this phenomenon is also applicable to most of the teachers and researchers. Third, the organisation has a certain tradition of cross-sectoral cooperation and hybrid project teams for a number of topics (like e.g. quality management issues or IT-related questions).

Nevertheless, the description of administrative challenges at the UAS Upper Austria seems to be similar to those within traditional universities (minor esteem and appreciation of administration, insufficient integration in decision making bodies, missing formal power). This hints to a predominant significance of the professional academic logic and its inherent values and understanding of HEIs. Accordingly, a closer look at the identified bridging links reveals that although there is a certain personal representation of both logics within top management, it is also necessary to shed light on the real and mutable constellations of power within the TMT. Furthermore, it seems to be crucial of whether a manager-academic is appointed or elected in such a position, but also how this position tends to be interpreted from an academic perspective and how strongly it is based on a professional academic logic. For hybrid project teams it can be assumed that the simple pooling of people with different backgrounds and mind-sets will be insufficient to create a mutual understanding, joint goals and a common organisational identity. On closer inspection, it appears to be essential to explicitly reflect on different mind-sets and implicit hierarchies within hybrid project teams.

Finally and in due consideration of the single perspective of administration managers represented in this study, a qualified look must be taken at the claim of an enhancement of the corporative administrative logic within HEIs. From an administrative point of view, this seems to be justified, but shows a distorted picture of resent discussions and attitudes in HEIs.[3] In the entire Austrian UAS sector we can currently observe academic drift tendencies (Sterrer et al., 2015) which are assumed to strengthen professional academic logic in UAS organisations. These include, for example, the compulsory implementation of an academic board (which introduces

academic self-governance structures on organisational top level), an increased importance of research and an intensified recognition of academic qualification and success in recruitment processes.

CONCLUSION

In sum, it can be said that at the investigated UAS organisation both professional academic logic and corporative administrative logic are prevalent and become effective, although the latter seems to have more weight compared to traditional universities. Nevertheless, it was found that the tensions between the two different logics and the thereby emerging challenges for administration managers appear to be identical to those at universities. In order to relieve these tensions, several bridging links between different persons, logics and learning modes have been identified at a structural and cultural level of HEIs.

Arguably, the findings of the present study are limited and only present a single case of one specific Austrian UAS organisation. Still, under the consideration of specific national and organisational aspects which are widely disclosed in the introduction and description of the case, several findings seem to apply to hybrid organisations in a HE context. Accordingly, the following aspects were identified: the critical role of structural configurations related to a powerful TMT (as an influencing factor for organisational cultures and balanced conflicting organisational logics in hybrid organisations), a bridge-building function of manager-academics (Deem & Brehony, 2005) and third space professionals (Whithchurch, 2008) and the integral role of hybrid project work within the HEI.

The present findings therefore, although they require further testing and exploration, contribute to current efforts to further understand how agents enact multiple institutional logics within a hybrid organisation. They indicate how a highly market-based and managerial HEI deals with persistently competing logics and which elements of these logics they enact. Hence, this study sets out to provide a better understanding of the functioning of hybrids in an HE context, not only at a structural level but also in consideration of organisational culture.

NOTES

[1] Source: https://www.ris.bka.gv.at/Dokumente/Erv/ERV_1993_340/ERV_1993_340.pdf

[2] This citation is used to link the vignettes to the empirical data. The letter refers to the respective focus group. The number refers to the transcription paragraph.

[3] For getting insight in the discussions in the same organisation from the angle of manager-academics see Ehrenstorfer et al. (2015).

REFERENCES

Ambos, T., Mäkelä, K., Birkinshaw, J., & D'Este, P. (2008). When does university research get commercialized? Creating ambidexterity in research institutions. *Journal of Management Studies, 45*, 1424–1447.

Anderson, G. (2008). Mapping academic resistance in the managerial university. *Organization, 15*(2), 251–270.

Battilana, J., & Dorado, S. (2010). Building sustainable hybrid organizations: The case of commercial microfinance organizations. *Academy of Management Journal, 53*(6), 1419–1440.

Binder, A. (2007). For love and money: Organizations' creative responses to multiple environmental logics. *Theory and Society*, *36*, 547–571.

Birkinshaw, J., & Gupta, K. (2013). Clarifying the distinctive contribution of ambidexterity to the field of organization studies. *Academy of Management Perspectives, 27*(4), 287–298.

Brown, S., & Eisenhardt, K. (1997). The art of continuous change: Linking complexity theory and time-paced evolution in relentlessly shifting organizations. *Administrative Science Quarterly, 42*, 1–34.

Bruenner, C., & Koenigsberger, G. (2013). Zur Positionen der Fachhochschulen im Hochschulsystem. In W. Berka, C. Bruenner, & W. Hauser (Eds.), *20 Jahre Fachhochschul-Recht* (pp. 81–96). Wien, Graz: Neuer Wissenschaftlicher Verlag.

Bryman, A. (2007). Effective leadership in higher education: A literature review. *Studies in Higher Education, 32*(6), 693–710.

Bryman, A. (2012). *Social research methods* (4th ed.). New York, NY: Oxford University Press.

Buyl, T., Boone, C., & Matthyssens, P. (2012). The impact of the top management team's knowledge diversity on organizational ambidexterity. *International Studies of Management and Organization, 42*(4), 8–26.

Chang, Y.-C., Yang, P., & Chen, M.-H. (2009). The determinants of academic research commercial performance: Towards an organizational ambidexterity perspective. *Research Policy, 38*(6), 936–946.

Clark, B. (2004). Delineating the character of the entrepreneurial university. *Higher Education Policy, 17*(4), 355–370.

Clarke, J., & Newman, J. (1994). The managerialisation of public services. In J. Clarke, A. Cochrane, & E. McLaughlin (Eds.), *Managing social policy* (pp. 13–31). London: Sage.

Corbin, J., & Strauss, A. (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (3rd ed.). Thousand Oaks, CA: Sage Publications.

Deem, R., & Brehony, K. J. (2005). Management as ideology: The case for 'new managerialism' in Higher Education. *Oxford Review of Education, 31*(2), 217–235.

Ehrenstorfer, B., Sterrer, S., Preymann, S., Aichinger, R., & Gaisch, M. (2015). Multi tasking talents? Roles and competencies of middle-level manager-academics at two Austrian Higher Education Institutions. In R. Pritchard, M. Klumpp, & U. Teichler (Eds.), *Diversity and excellence in higher education* (pp. 175–200). Rotterdam: Sense Publishers.

Fumasoli, T., & Stensaker, B. (2013). Organizational studies in higher education: A reflection on historical themes and prospective trends. *Higher Education Policy, 26*(4), 479–496.

Gibson, C., & Birkinshaw, J. (2004). The antecedents, consequences, and mediating role of organizational ambidexterity. *Academy of Management Journal, 47*(2), 209–226.

Gläser, J., & Laudel, G. (2010). *Experteninterviews und qualitative Inhaltsanalyse*. Wiesbaden: VS Verlag für Sozialwissenschaften.

Greenwood, R., & Hinings, C. (1996). Understanding radical organizational change: Bringing together the old and the new institutionalism. *Academy of Management Review, 21*, 1022–1054.

Greenwood, R., Diaz, A. M., Li, S. X., & Lorente, J. C. (2010). The multiplicity of institutional logics and the heterogeneity of organizational responses. *Organization Science, 21*, 521–539.

Greenwood, R., Raynard, M., Kodeih, F., Micelotta, E., & Lounsbury, M. (2011). Institutional complexity and organizational responses. In J. P. Walsh & A. P. Brief (Eds.), *Academy of management annals: Volume 5*. Essex, UK: Routledge.

Greenwood, R., Oliver, C., Suddaby, R., & Sahlin-Andersson, K. (Eds.). (2014). *The Sage handbook of organizational institutionalism.* London: Sage Publications.

Güttel, W., & Konlechner, S. (2009). Continuously hanging by a thread: Managing contextually ambidextrous organizations. *Schmalenbach Business Review, 61*, 149–171.

Gumport, P. (2000). Academic restructuring: Organizational change and institutional imperatives. *Higher Education, 39*, 67–91.

Gupta, A., Smith, K., & Shalley, C. (2006). The interplay between exploration and exploitation. *Academy of Management Journal, 49*(4), 693–706.

Hauser, W. (2013). Die wesentlichen Inhalte der Stammfassung und der Novellen zum FHStG. In W. Berka, C. Brünner, Christian, & W. Hauser (Eds.), *20 Jahre Fachhochschul-Recht.* Vienna: NWV Verlag.

Kehm, B. (2015). Academics and new higher education professionals: Tensions, reciprocal influences and forms of professionalization. In T. Fumasoli, G. Goastellec, & B. Kehm, (Hrsg.), *Academic work and careers in Europe: Trends, challenges, perspectives* (pp. 177–120). Cham/Heidelberg/New York, NY/Dordrecht/London: Springer International Publishing.

Kehm, B. M., & Lanzendorf, U. (2007). The impacts of university management on academic work: Reform experiences in Austria and Germany. *Management Revue, 18*(2), 153–173.

Kelle, U., & Kluge, S. (2010). *Vom Einzelfall zum Typus. Fallvergleich und Fallkontrastierung in der qualitativen Sozialforschung* (2nd ed.). Wiesbaden: VS Verlag für Sozialwissenschaften.

Kodeih, F., & Greenwood, R. (2014). Responding to institutional complexity: The role of identity. *Organization Studies, 35*(1), 7–39.

Krücken, G., Blümel, A., & Kloke, K. (2013). The managerial turn in higher education? On the interplay of organizational and occupational change in German academia. *Minerva: A Review of Science, Learning and Policy*, *51*(4), 417–442. (Springer)

Krücken, G., & Wild, E. (2010). Zielkonflikte – Herausforderungen für Hochschulforschung und Hochschulmanagement. *Hochschulmanagement, 5*(2), 58–62.

Lanzendorf, U. (2006). Austria – From hesitation to rapid breakthrough. In B. Kehm & U. Lanzendorf (Eds.), *Reforming university governance: Changing conditions for research in four European countries* (pp. 99–134). Bonn: Lemmens.

Leitner, E. (2006). Austria's Fachhochschulen and the market-based model. *International Higher Education*, *42*. Retrieved November 25, 2014, from http://glotta.ntua.gr/posdep/International/EU/2006-Winter-IntrHighEdu-42.pdf

Lin, H.-E., & McDonough, E. (2011). Investigating the role of leadership and organizational culture in fostering innovation ambidexterity. *IEEE Transactions of Engineering Management, 58*(3), 497–509.

Lounsbury, M. (2007). A tale of two cities: Competing logics and practice variation in the professionalizing of mutual funds. *Academy of Management Journal, 50*, 289–307.

Macfarlane, B. (2011). The morphing of academic practice: Unbundling and the rise of the para-academic. *Higher Education Quarterly, 65*(1), 59–73.

March, J. (1991). Exploration and exploitation in organizational learning. *Organization Science, 2*(1), 71–87.

Nickel, S. (2011). Governance als institutionelle Aufgabe von Universitäten und Fachhochschulen. In T. Brüsemeister & M. Heinrich (Eds.), *Autonomie und Verantwortung: Governance in Schule und Hochschule* (pp. 123–143). Münster: Verlag Monsenstein und Vanderdat.

Nickel, S. (2012). Engere Koppelung von Wissenschaft und Verwaltung und ihre Folgen für die Ausübung professioneller Rollen in Hochschulen. In U. Wilkesmann & C. Schmid (Eds.), *Hochschulen als Organisation* (pp. 279–292). Wiesbaden: Springer.

O'Reilly, C., & Tushman, M. (2013). Organizational ambidexterity: Past, present, and future. *Academy of Management Perspectives, 27*(4), 324–338.

Pache, A.-C., & Santos, F. (2013). Inside the hybrid organization: Selective coupling as a response to competing institutional logics. *Academy of Management Journal, 56*(4), 972–1001.

Pechar, H. (2010). Academic middle managers under the new governance regime in Austrian universities. In V. Meek, L. Goedegebuure, R. Santiago, & T. Carvalho (Eds.), *The changing dynamics of Higher Education middle management: Higher education dynamics* (Vol. 33, pp. 15–30). Netherlands: Springer.

Pechar, H. (2013). Die österreichischen Fachhochschulen – Bilanz und Ausblick. In W. Berka, C. Bruenner, & W. Hauser (Eds.), *20 Jahre Fachhochschul-Recht* (pp. 115–129). Wien, Graz: Neuer Wissenschaftlicher Verlag.

Pechar, H., & Pellert, A. (1998). Managing change: Organizational reform in Austrian universities. *Higher Education Policy, 11*(2), 141–151.

Pichl, E. (2012). Universitäre Profilbildung im Kontext des österreichischen Hochschulraums und des Universitätsgesetzes 2002. *Zeitschrift für Hochschulrecht, 11*(6), 195–206.
Preymann, S. (2014, August 29). *Pathways for aligning conflicting demands of exploitative and explorative learning modes within HEIs.* Presentation at 36th EAIR Annual Forum Essen, Germany.
Raisch, S., & Birkinshaw, J. (2008). Organizational ambidexterity: Antecedents, outcomes, and moderators. *Journal of Management, 34*(3), 375–409.
Reay, T., & Hinings, C. R. (2009). Managing the rivalry of competing institutional logics. *Organization Studies, 30*, 629–652.
Rhoades, G. (1998). *Managed professionals: Unionized faculty and restructuring academic labor.* Albany, NY: New York State University Press.
Rhoades, G. (2001). Managing productivity in an academic institution: Rethinking the whom, which what, and whose of productivity. *Research in Higher Education*, *45*(5), 619–632.
Schimank, U. (2004). Handeln in Institutionen und handelnde Institutionen. In F. Jaeger & J. Straub (Eds.), *Handbuch der Kulturwissenschaften* (pp. 293–307). Stuttgard: Weimar.
Schneijderberg, C., & Merkator, N. (2012). The new higher education professionals. In B. Kehm, & U. Teichler (Hrsg.), *The academic profession in Europe: New tasks and new challenges* (pp. 53–92). Dordrecht: Springer Science + Business Media.
Silverman, D. (2013): *Interpreting qualitative data*. London: Sage.
Simsek, Z. (2009). Organizational ambidexterity: Towards a multilevel understanding. *Journal of Management Studies, 46*(4), 597–624.
Slaughter, S., & Rhoades, G. (2004). *Academic capitalism and the new economy: Markets, state, and Higher Education.* Baltimore, MD & London: The Johns Hopkins University Press.
Smith, R. (2005). Departmental leadership and management in chartered and statutory universities. *Educational Management, Administration and Leadership, 33*, 449–464.
Sterrer, S., Aichinger, R., & Preymann, S. (2015, August 30). *Panta rhei – on phenomena of academic drift: The case of the Austrian university of applied sciences sector.* Presentation at 37th EAIR Annual Forum Krems, Austria.
Tahar, S., Niemeyer, C., & Boutellier, R. (2011). Transferral of business management concepts to universities as ambidextrous organisations. *Tertiary Education and Management, 17*(4), 289–308.
Teichler, U., Kehm, B., & Alesi, B. (2006). Einleitung. Qualifizierung für eine professionelle Hochschulgestaltung. Neue Studiengänge in Deutschland. In Stifterverband für die Deutsche Wissenschaft (Ed.), *Qualifizierung für Hochschulprofessionen. Neue Studiengänge in Deutschland* (Positionen 8, pp. 6–13). Essen: Stifterverband für die Deutsche.
Thornton, P., & Ocasio, W. (1999). Institutional logics and the historical contingency of power in organizations: Executive succession in the Higher Education publishing industry, 1958–1990. *American Journal of Sociology, 105*(3), 801–843.
Thornton, P., Ocasio, W., & Lounsbury, M. (2012). *The institutional logics perspective: A new approach to culture, structure, and process*. Oxford, UK: Oxford University Press.
Tushman, M., & O'Reilly, C. (1996). Ambidextrous organizations: Managing evolutionary and revolutionary change. *California Management Review, 38*(4), 8–30.
Tuunainen, J. (2005). Hybrid practices? Contributions to the debate on the mutation of science and university. *Higher Education, 50*(2), 275–298.
Weick., K. (1998). *Der Prozeß der Organisation* (2nd ed.). Frankfurtam Main: Suhrkamp Verlag.
Whitchurch, C. (2008). Shifting identities and blurring boundaries: The emergence of third space professionals in UK higher education. *Higher Education Quarterly*, *62*(4), 377–396.

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