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The Corporatisation of Research in Australian Higher Education

Ruth Neumann

Macquarie University

James Guthrie

Macquarie Graduate School of Management

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Research Office
Macquarie Graduate School of Management
Macquarie University
Sydney NSW 2109
Australia

Tel +612 9850 9016
Fax +612 9859 9942

Email gsm-research@mq.edu.au
URL http://www.gsm.mq.edu.au/research

Director of Research Professor John A. Mathews
Manager, Research Office Ms Kelly Callaghan

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Ruth Neumann & James Guthrie

Associate Professor Ruth Neumann
Vice Chancellor's Office
Macquarie University
Sydney NSW 2109

Professor James Guthrie
Macquarie Graduate School of Management
Sydney NSW 2109
+61 2 9850 9030

Abstract

The Corporatisation of Research in Australian Higher Education

The recent public policy trend emphasising markets and economic logic among public sector institutions, including universities, has led to the introduction of greater managerialism and demonstrations of efficiency and effectiveness. Such moves require a definition of inputs, outputs and outcomes as a means to rendering these activities visible and measurable.

In Australian universities, recent changes to higher education policy (particularly research and science policy) have tightened control by Canberra over academic professional activities and increased the drive to render professional activities calculable (simple, standardised) for the allocation of scarce resources. This paper focuses on the narrowing of definitions in two particular areas, namely, research publication and the funding of postgraduate research degree completions. The paper argues that such policy strategies reinforce selectivity of styles of research, types of research problems undertaken, and favour the research approaches of some disciplines over others (that is, 'big' Science over 'small' Science and Science over humanities and social science). A further consequence is tighter central control both over higher education institutions and academic professionals. Professionals experience a drive to define their activity as either teaching or research, as opposed to teaching and research. This policy drive leads to a narrowing of professional activity into discreet categories. A further consequence of this drive on the part of Canberra, may be the definition of higher education institutions into one of three categories, as either 'teaching' or 'research' universities, with a third group predominately 'teaching' but undertaking some 'research'.

The Corporatisation of Research in Australian Higher Education

Introduction

The last two decades have seen considerable changes internationally in the management and control of public sector organisations (Jones, Guthrie and Steane 2001a; b). Many Western governments have, it would seem, perceived a 'fiscal crisis' in the nation-state and, with the expansion of multinational firms and the internationalisation of markets, neo-liberal economics and philosophies have increasingly dominated policy discussions (Olson, Guthrie and Humphrey, 1998). Several governments have undertaken major experiments in structural adjustment in the public sector, typically in the name of economic efficiency. Traditional public sector administrative systems have suffered, *inter alia*, a 'legitimacy crisis'. One manifestation of this has been the promotion of 'new' management systems, typically characterised by the downsizing, re-engineering and restructuring of the public sector in the context of the 'new', 'competitive', 'international', and 'economic' regime (Guthrie, Humphrey and Olson, 1999).

The Higher Education Sector (HES) has not escaped these developments. This paper seeks to analyse the consequences for research of HES changes in Australia. Specifically, the social construction of research will be explored by examining two related aspects, namely, research publications and research student outcomes.

As wider public sector management changes have their impact on the HES, a fundamental transformation is being witnessed in funding, organisation and work practices in this sector. The HES is a major 'player' in the societies and economies in Australia. In 1999, the HES in Australia employed 29,748 academic staff, 30,000 administrative staff (DETYA, 1999e) and enrolled 686, 267 students (DETYA, 2000a). The ideal of 'markets' is being introduced in relation to students, research funding, university funding, and staffing, resulting in a measurement systems that seeks to structure relationships between individual academics, departments, and universities across the HES (Cameron and Guthrie, 1993; Parker *et al.*, 1998; Humphrey *et al.*, 1995; Boston *et al.*, 1996). An increasingly 'economic' and 'managerial' vocabulary is also being utilised in describing these structures. Central to these shifts is the construction of performance information systems, the goal of which is to render a

variety of activities, including research (e.g., research output, quality, training, and ability to attract external research inputs) and teaching (e.g. graduate outcomes, graduate employability, student satisfaction with teaching and quality.), measurable and commodifiable. This is what we mean by the corporatisation of Australian HES and in particular its research activities.

The 'official' intention underlying these developments is to use 'performance', however constructed, for resource allocation; as a criterion for a notional status-ordering of the universities; for assessing the viability of, and maintaining/discontinuing, academic units; and for individual academic appointment, tenure and promotion (see, various DETYA). The focus of this present paper will be on 'research' activities, in particular upon measuring publication output and also upon the recent heavy weighting placed on postgraduate research student completions in determining funding. There are signs that measurable publication output has increasingly been viewed 'officially' as an important criterion in the construction of performance at individual, departmental and university levels (see, Parker *et al.*, 1998). From 2002, 50% of funding to institutions for higher degree research (HDR) students will be based on student completions. Costs per completion will be the prime 'quality' consideration.

The present study has been prompted by what we consider to be signs of the increasing central control of professional academics' research activities and their products by managerialist systems. It is possible that this shift in control will (and indeed has already begun to) engender a situation within which the means comes to assume more importance than the end. For example, in evaluating a piece of research, the mode of scholarly communication employed (i.e., the quality/reputation of the journal), is currently valued more highly than the actual content and contribution of the scholarship itself. Similarly, the funding of research degree completions within the specified time values the degree as an output, favours some of the science disciplines over others and fosters a bias towards funding low risk students and "safe" research questions.

This study is informed primarily by prior research into Australian public sector management change and the impact of its 'new managerialist' philosophy. Critical investigations and analyses of the dimensions of related structural and process changes are to be found in an expanding array of public sector accounting and management research literature (e.g.,

Guthrie, 1994; Olson *et al.*, 1998; Jones *et al.*, 2001a; b). The earlier analysis of Australian HES research policy by Neumann and Lindsay (Neumann and Lindsay, 1988; Lindsay and Neumann, 1987a; b; Neumann and Lindsay, 1987) is also of importance and provides the context for the present analysis and argument.

In section two, the paper reviews the context of public sector reform surrounding the HES. As part of public sector reform, the paper considers the key dimensions of change within the Australian HES. In section three, it provides an overview of the key policy changes which it will be argued are leading to the corporatisation of research. In section four, two key changes are considered in detail: namely, the practice of measuring research publication outputs, which has come to be such an integral feature of university funding in the past decade, and the somewhat contentious move to strongly weight research funding based on HDR student completions. Both provide examples of the output-based commodification of research. The final section of the paper considers the consequences of the corporatisation of research for institutions and the academic profession. It will be argued that the policies introduced above result not only in selectivity of research (e.g., types of research, research questions, and disciplines), but also lead to a separation of the roles of teaching and research both at the level of the individual professional and for the institution as a whole.

Public Sector Transformation - The Driver

Public sector reforms have been promoted on the premise that the public sector is too big, is organised on outdated principles and is therefore in need of re-invention and institutional renewal via the application of market mechanisms (see, Osborne and Gaebler, 1993). The result has been, *inter alia*, the pursuit of policies of restraint on public spending, the selling of public assets and the adoption of market models and business accounting for the delivery of public sector goods and services (Olsen *et al.*, 1998). In addition, there has been a reassessment of the size of the public sector, a questioning of the quality of public investment, and a reworking of the roles, responsibilities and management of public sector institutions.

The shift in practice, as various public sector administrations move towards purchase/supplier contracting, market testing, outsourcing, commercialisation and corporatisation, can be seen reflected in a new language (and with it, associated technologies and technical practices)

gaining ascendancy in public sector discussion (Guthrie and Humphrey, 1996). Included in this new language are concepts such as 'markets' and related terminology (e.g., competition, choice, pricing, monetary incentives) and 'performance management' and its related terminology (e.g., objectives, outputs, outcomes, measurement and indicators) (Guthrie *et al.*, 1999). In addition to these more subtle changes to organising and management technologies, there are more direct expenditure changes, for instance, major reductions in government expenditure, user-charging for a number of activities, and forced 'productivity' savings, particularly for the Australian HES (Commonwealth Government, 1996).[1]

The increasing resort to market concepts and managerialism for resource allocation decisions in the public sector, and for the management, control and accountability of various activities, has meant both a redefinition of the meaning of welfare and public service and also a major transformation of the public sector. This climate of public sector transformation is under girded by two potentially contradictory policy objectives: (1) a proclaimed commitment to increased/improved "customer service" in the open "market place"; and (2) a declared intent to pursue "smaller government", reduced government expenditure and lower cost service delivery.

Change in the Higher Education Sector

The changes and pressures in the public sector described above have been undertaken in the HES in Western countries such as Australia, the UK, the USA and New Zealand (Kogan, 1998; Neimark, 1996; Fisher, 1994; Butterworth and Tarling, 1994; Boston, 1992; Marginson and Considine, 2000). The present study will focus only on Australia. The manifestation of the wholesale disassembly of the public sector is evident in the HES through such mechanisms as 'marketisation' and 'performance measurement' of academic activities such as teaching and research. These activities become calculable, marketable and tradable under the commercialised and managerialist regime in which universities must now operate.

As the 'fiscal crisis' of the state has been operationalised in terms of balanced budgets, fiscal responsibility legislation, reduced taxation, expenditure reductions and efficiency savings,

[1] Nicholls and Marginson (1996) for example, point out that the conservative Federal Government in Australia has begun to dismantle the universal public provision of undergraduate education and will rely more on competition and markets for funding options in the future.

traditional public sector administrative systems have become under funded and are no longer able to support the existing scope of activities (Laughlin and Pallot, 1998). A response to this situation has been the promotion of 'new' management systems, the use of external sources of funding and an emphasis on the HES' "responsiveness" to the needs of industry (Kemp, 1999a). In the past two decades this has resulted in major structural transformations in the HES. These changes have included institutional amalgamations into larger units and the renaming of Colleges of Advanced Education (Australia) as 'new universities'. Also changes in the disciplinary mix within the sector (with growth in vocationally oriented degree programs and increasing emphasis on vocational training), moves to fee paying quotas for undergraduate and postgraduate courses, increased internationalisation of programs and program delivery, and, competition for international students. As well as the development of competition within internal markets, the increasing selectivity and concentration of research activities result in considerable change in the nature of the internal university working environment. Australian universities have been responsive to this call to adopt a more managerial approach to their institutions (see, Marginson and Considine, 2000). New forms of performance measurement, tight management control, and cost-reduction were the core principles adopted so that universities could be managed and assessed according to 'the bottom line' (Hoare, 1995). There have also been calls for higher education to become more vocational and linked to the domestic and international business environment (Karpin, 1995). Indeed, in Australia today, up to 50 percent of income from universities is from non-government sources (DETYA, 1999a).

In many traditional universities, the collegial, committee-based model was perceived as being forced out early in the creation of the UNS (Harman and Wood, 1990), replaced by a hierarchical management model. This model is characterised by a significant increase in the number of 'professional' management appointees in the central and faculty/school bureaucracy, (as opposed to elected senior academics who have traditionally functioned as deans and other strategic leaders). With the increase in 'professional' appointments has come a concomitant increase in their decision-making authority (McInnis, 1992; McNay, 1995). As a result, recent studies (Henkel, 2000; Marginson and Considine, 2000) have shown a gradual shift in the university power base away from individual academics and disciplines, towards senior management. Collegial modes of governance have been quickly replaced by stronger

managerial structures and practices which contain a concentration of executive power. The role of academic boards is declining, the role of university councils is changing and the management of research as a system of measured performance, ensconced in a language of planning, management and strategic positioning, is occurring. Thus, a new corporatised model of university management has emerged, based on business/market principles, and this model is edging out the traditional administrative systems focussed on academic committees and professional (academic peer) judgements. As part of this process, there has been pressure on academics to produce particular kinds of 'commodities', namely, articles in refereed journals from "new" sources of inputs such as industry collaborative schemes. Overall, the program of corporatisation and managerialism of universities has assisted the move towards commodifying academic labour into discrete categories of teaching or research (Willmott, 1995) and attempts to identify, measure, report and evaluate these activities (Hoare, 1995).

Corporatising Research

4.1 Australian Higher Education Research Policy

The direction of the Australian HES in general, and university research and management practices in particular, became the subject of major government attention in the mid-1980s. Prior to this, Commonwealth government funding for university research was implicit. It was contained within the general operating grants of universities and it was expected that the funding provided would cover the teaching and research costs of academic staff. Corporatisation strategies have gradually intensified to the extent that, by 2000, almost all core funding is allocated on the basis of measured performance. Most noteworthy amongst the inquiries and investigations were the 1986 Commonwealth Tertiary Education Commission's (CTEC) *Review of Efficiency and Effectiveness* (Commonwealth of Australia, 1986), the 1987 *Green Paper* (Commonwealth of Australia, 1987), and the 1988 *White Paper* (Commonwealth of Australia, 1988). Following these investigations, the Federal Government in 1988 initiated sweeping reforms to the role, management and structure of the higher education system.

For research in particular, the now disbanded Commonwealth Tertiary Education Commission (CTEC, 1987) established a theme of "concentration of effort" for the 1988-90 triennium. However, the major challenge to research funding came from the Australian Science and

Technology Council (ASTEC, 1987) in response to a request from the Commonwealth Government to review Australian universities, as part of the national R and D effort. The consequences of this review were recommendations for the concentration of research effort, for greater selectivity in the type of research funded, for structures to promote greater variation in the research and teaching activities of staff and a review of the HDR scholarship stipend, in an attempt to encourage student mobility to support research concentration. Detailed discussion of the impact of these policies on academic work roles, the separation of teaching and research activities, the concentration of disciplines and the type of research undertaken, can be found in the analyses of Neumann and Lindsay referred to earlier (section 1). These policies of selectivity and concentration of research were designed to make Australian university research more competitive. Over the 1990's such encouragements intensified. Added to these were moves to deregulate and encourage markets, not just in research, but also in teaching and internal administration.

The period of Minister Dawkin's reforms[2] and the creation of the Unified National System of higher education continued to emphasise managerialist policies, adding to these themes of "economies of scale" and increased competitive funding. The amalgamation of institutions from the binary era was designed to create fewer and larger institutions to assist with concentrations of effort and selectivity of educational purpose. In order to provide the former college sector with opportunities to undertake research, special targeted staff development funds were allocated for several years to enable opportunities for college academic staff to develop research profiles. At the same time however, institutional competition for research funds was promoted.

An important step in this process was the creation of the Research Quantum (RQ), started in 1990. Negotiated between the government and the AVCC, the Research Quantum was designed to provide infrastructure support for existing research.[3] Six percent of operating grants were deemed necessary to support research activity over and above the teaching cost element attached to the higher degree research loads (DEET, 1993). The Research Quantum was a performance driven supplement to operating grants, based essentially on institutional

[2] John Dawkins was Minister for the Employment, Education and Training in the period 1987-1991.

success in obtaining competitive national grants. In 1995, industry and public sector research grants were added to the formula, but the weighting for these grants was lower than the national competitive peer review grants. The Quantum was also broadened to include publication output and HDR student completions. These three components formed the measured research activity of an institution and, using a standard formula, distributed each university's share of the Quantum on the basis of the proportion of total research activity measured. The largest single element in research income came from nationally competitive grants (82.5%), followed by research publications (12.5%) and HDR completions (5%) (The use and definition of research publications and their role in shaping research will be discussed in more detail in the following section). The Research Quantum became the source of supplementary funds in an increasingly resource poor environment and hence soon became the primary measure of research standing. The measured components of the Quantum enabled the calculation of a final bottom line to provide a simple, but convincing distinction between successful and unsuccessful research.

In addition to the Research Quantum, in the period 1989 to 1991 part of each university's operating grant for research was redistributed competitively through the ARC. This enabled more research activity to be funded competitively and as a result research not tied to specific funds diminished. Centralised funding distributed by the government formed the majority of all designated research activity and project research became dominant over open-ended, long-term research programs. The project format makes research a tradable commodity, an activity that happens in defined periods, capable of calculation and sale.

From 1995, competition policy was added to the policies of concentration and selectivity and further enabled the creation of corporatisation in research. Competition became the controlling policy context, the method of resource allocation and the sign of excellence. These three themes give research management an air of authoritative efficiency (Marginson and Considine, 2000).

[3] Such a move advantaged the traditional universities which had been funded to undertake both teaching and research. The former college sector had not initially been envisaged to undertake a research role and was not funded for it.

With the election of the Coalition Government in 1996, the direction of research policy has remained the same, although with an intensification of market oriented policy and the economic logic. Characteristic has been further pronounced reduction of general block grant monies, which the government intends to be redistributed more specifically.

The most recent major direction in research policy came with the Green (DETYA, 1999f) and White Papers (DETYA, 1999a). Compared with previous research policies, these papers included a far stronger focus on HDR students (not just scholarship holders), integrating them at a fundamental level into the new financial structure for research funding. The papers also emphasised competition markets and industry liaison to a much greater degree.

Another central alteration contained in the White Paper changes was the introduction of Research and Research Training Management Plans (RRTMP). These plans, a modification of the Research Management Plans introduced as part of institutional profiles in the 1988 White Paper, were designed to encourage universities to use business oriented strategically plans to determine their research direction, focus for research and resource strengths. A RRTMP is fundamental to government research resource allocations for universities. The RRTMP formally require institutions to include HDR students in institutional research planning. HDR places can only be allocated where there is a RRTMP. The places are allocated on the basis of performance, with funding formula, effective in 2002, being weighted 50% for HDR student completions, within a reduced timeframe (see 4.3 below for a detailed discussion on HDR completions). The plans require the cconstruction of a 'new' calculation of what constitutes both an 'active researcher' and areas of 'research excellence', to be included within a performance and directions statement. It is expected that these 'new' measures and activities will be used internally and externally for the allocation of scarce research resources and hold implications for academic career development, status and reward.

Developments for research funding within the White Paper are quite significant, showing not only an intensification of the prior research direction (examined above) but also the addition of a strong focus on innovation and economic growth through university and industry liaison. The policy framework of the White Paper has been reinforced and further developed through two subsequent reports, *Innovation: Unlocking the Future* (ISIG, 2000) and *The Chance To*

Change (DSIR, 2000) and also by a Prime Ministerial statement: *Backing Australia's Ability* (Howard, 2001). The stated objective of these reports is to harness the university research effort to the knowledge economy and innovation process, by means of financial support which rewards industry funding, research relevance, commercialisation and research strengths.

A key development is the change in the Research Quantum, altered from being a research infrastructure block grant (RIBG) (with a strong emphasis on publication and research income in which competitive grant funding has a stronger weighting than other grants), to being an institutional grant scheme (IGS) with a changed funding. The IGS will combine the previous Research Quantum with the ARC Small Grants Scheme. The funding formula is based 6o% on research income from all sources (competitive and industry) weighted equally, a research student load of 30% with high cost places weighted 2.35 times low cost places, and publications at 10% (with the same weightings as in the past). From 2003, the IGS will also take account of patents, refereed designs and exhibited works as evidence of research output. The diversification of recognised inputs and outputs supports the priority given to applied and commercial research and the innovation theme of the government. It is important to note that the inclusion of research student numbers in the funding formula recognises the overall cost of sustaining a high quality research environment, beyond the specific tuition or direct supervision cost.

This brief history of the development of research policy in the Australian HES from the mid eighties has highlighted the move away from individual academic and disciplinary autonomy and determination of research, to the creation of a performance economy in research. Through funding policies and strategies, there has been a continual increase in the centralisation of ever-scarce resources by the government and a competitive redistribution which rewards those aspects of research which achieve government policy goals. Ironically, while the rhetoric of government policies has been that of competition and corporatisation, with implied decentralisation and freedoms, the impact appears to be stronger government control and intervention (Boyer, Altbach and Whitelaw, 1994). International comparisons show that Australian government control of universities and research and publication is above average (Anderson and Johnson, 1998).

4.2 Research Outputs: Publications

Traditionally, academic performance has been measured primarily by peer review of outputs, namely refereed journal articles, and competitive government research grants. In academic communities the principle of peer review is considered sacred and has offered a degree of protection from alternative measurements (e.g., commercial) of academic performance criteria.

In the new era of 'marketisation' and 'managerialism', other forms of measurement are being privileged. Throughout the 1990s, a range of attempts were made to record and measure the performance of the Australian HES, including the work by the Federal Department of Employment Education and Training (DEET) (see DEET, 1994), commissioned inquiries (e.g., Hill and Murphy, 1994; Linke, 1991), and three rounds of the Quality Assurance Scheme (see, Committee for Quality Assurance in Higher Education [CQAHE], and various). During this period, DEET[4] continued to change the formula funding system (see, Hattie *et al.*, 1991; ANAO, 1994) for tertiary education which was, in part, determined by research performance (Research Quantum). The annual data collected for this funding formula was placed in one of three main categories: inputs in research dollars from external competitive grants; outputs in terms of postgraduate research enrolments and completions; and publication outputs in terms of a DEET weighting scheme. This scheme was subsequently further revised in March and April 1997, when publication data submitted to DEETYA were restricted to categories A1, B1, C1 and E1 as shown in Table 1. This later modification in the specifications reduced the number of categories accepted for calculating the Research Quantum and therefore also reduced those eligible for direct government research funding (Vanstone, 1997). Specifically, this was achieved by introducing administrative requirements such as using a commercial publisher, various criteria for recognising conference publications, and proportioning mechanisms for joint authorship. As will be argued later, this meant a new social construction of what constitutes ‘proper’ quality academic research for performance measurement.

[4] Subsequently renamed DEETYA (Department of Employment, Education, Training and Youth Affairs) in 1996, and then DETYA (Department of Education, Training and Youth Affairs) in 1998.

Table 1

AUSTRALIAN FEDERAL GOVERNMENT DETYA PUBLICATIONS WEIGHTINGS

A: Books	
A1 Authored research *	5.0
A2 Authored other	2.0
A3 Edited	1.0
A4 Revision/new edition	1.0
B1: Chapters in books *	1.0
B2 Chapters other	0.5
C: Journal Articles	
C1 Article in scholarly refereed journal *	1.0
C2 Other non-contribution to refereed journal	0.5
C3 articles in non-refereed scholarly or professional journals	0.3
C4 Letter, note or book review	0.1
C5 Editorship	1.0
D: Major Reviews	1.0
E: Conference Publications	
E1 Full written paper - refereed proceedings *	1.0
E2 Full written paper - non-refereed proceedings	0.3
E3 Extract of paper	0.1
E4 Edited volume of conference proceedings	1.0
F: Audio - Visual Recordings	0.5
G: Computer Software	0.5
H: Technical Drawing/Architectural & Industrial design/Working Model	0.5

I: Patents	2.0
J: Other Creative Works	
J1 Major written or recorded work	2.0
J2 Minor written or recorded work	0.2
J3 Individual exhibition of original art	1.0
J4 Representation of original art	0.2
J5 Curatorship of major exhibition; production of CD recording	0.1
K: Entry in Dictionary or Encyclopedia	
K1 Major entry in A1 publication	1.0
K2 Minor entry in A1 publication	0.2
L: Other Public Output	
Substantial scholarly contribution to newspaper or magazine	0.1

* DETYA 1999 revised scheme items that now only count for research funding.
Source: http://www.ro.mq.edu.au/Quantum/Weightings.html

In this era of performance based funding, the development of outcome measures of research in Australia has been undertaken by the Research Quantum Publications Collection (RQPC). The RQPC has been used as an output measure in the composites index for the allocation of research quanta money to Universities.[5] The RQPC has involved the collection of publications and considerable effort in classifying these, to achieve an outcome which is measurable and able to be reported. However, on its first audit it was found to have an unacceptable error rate in qualifying publication records reported by universities. The error rate reported by the KPMG audit ranged from 32%-80% with an average of 60%.

[5] In the Australian RQPC system, assessments are based on specified categories of written material submitted by each higher education institution. In the Australian case, the stated funding associated with the RQPC Research Quantum in 2000 was $223 million (DETYA, 1999c, p. 182.).

Changes have also occurred in the Australian HES with respect to performance construction and measurement in teaching and administration. In teaching, quantifiable measures have come to include: staff-student ratios; progression of students; graduate employment rates; and student evaluation scores for each subject. More qualitative judgments, such as quality control mechanisms, have also been utilised. In administration, measures of performance have been aimed at governance, management and workplace issues. One ongoing external avenue for reporting 'performance' has been the university annual report, which has undergone significant change in its nature as a result (see, Cameron and Guthrie, 1993). It can be seen that changes in research funding have been accompanied by parallel developments in the 'commodification' of teaching, research and administration performance, thereby exerting pressure upon academics to produce particular kinds of measurable activities.

Despite these manifest links between performance outcomes and government funding, only a small proportion of total funds provided to universities have actually been linked to and allocated by either the formula funding scheme (Research Quantum component) or the quality assurance scheme. Furthermore, during this period of funding and administrative changes, there have been substantial increases in student numbers (at less funding per student from the Federal government) (Kemp, 1999b, p.3) ADD TO REFS. Claims have also been made that efficiency and 'productivity gains' have occurred at the expense of the terms and conditions of academic and general staff employed within the Australian HES (NTEU, 1996).

In 1998, in its final report, the West Review of Australian Higher Education (West, 1998) advocated four key changes: funding via student choice; greater emphasis on teaching; greater alignment of research to national needs; and the requirement to embrace technology and infrastructure developments. This review committee favoured a model of public funding where students would be able to choose their institution through some form of voucher system and market competition. The West Review also indicated that market mechanisms could be introduced into universities, that governments should use financial management devices such as capital charging and the provision of loans for capital works rather than outright capital grants, and that the ability of universities to lease or sell major assets should be utilised.

In our view it is too early in the HES transformation regime to make a reliable empirical assessment of the degree to which 'managerialism' has transformed university administrative practices. For example, the proposal to introduce vouchers has been raised repeatedly, but due to its unpopularity, it has been shelved (until an opportune time (Kemp, 1999a))ADD TO REFS. However, to judge from the official discourse and the appearance of formal control systems and proliferating accountability and reporting requirements, the signs of this transformation are present. Interview data reported in Parker *et al.* (1998) provides evidence of the onset of emerging commodification practices, as senior academics rely on rating other academics on some form of measurement scheme for appointment, promotion, and so forth. Recent government policy has entrenched the language of marketisation and, via funding cuts and the strategic redistribution of allocations, has increasingly compelled institutions and their senior academics to consider ways of lining up their practices with the 'market'.

The 1996 U.K. Research Assessment Exercise required disciplinary panels to formulate their own criteria within the general guidelines set. A brief examination of the various disciplinary panel guidelines tends to reinforce the argument that preference was given to refereed journal articles and refereed research publications as the chief indicator of 'quality'. The Australian DEETYA criteria for 1997 only differed with respect to their continued admission of research books (though by then textbooks had been excluded as part of an apparent DEETYA process of rapidly narrowing its criteria, relative to the earlier years of its assessment system).

The refereed journal article now clearly dominates as the prime indicator of publishing quality in the Australian assessment systems. Arguably this is the product of: (1) the privileging of peer review as a generally employed control mechanism and therefore as an indictor of quality; and (2) the performance measurement drive towards a standardised unit of analysis that can facilitate comparisons across disciplines, academic units and universities.

As indicated in Table 1, in 1999 the DETYA publication weighting was reduced to four categories (research books, research chapters, refereed scholarly article and refereed conference proceedings), alongside a significant tightening of definitions. The recent White Paper (DETYA, 1999a) has reduced publication weighting to only 10%, has reduced the recognised publication categories and has suggested tightening the definition on what is

'acceptable' research output. The inclusion of patents and refereed designs as new output categories in 2003 is in keeping with the government policy of commercialisation of university research and placing greater emphasis on applied research.

These developments only reinforce the critical importance of recognising and understanding the corporatisation of research that they represent, and of addressing the process of evaluating the quality of the journals that dominate this system.

4.3 Research Outputs: HDR Completions.

One of the more daring and contentious moves announced in the research White Paper (DETYA, 1999a) was the decision to include research student completions as a key measure in calculating the institutional research block grant (See 4.1 above). This policy decision, announced in December 1999, is to be fully implemented by 2002 drastically extending the performance incentives of the past decade. Details of how this is to be calculated and implemented were not given in the White Paper – a matter causing considerable consternation within the HES. Although implementation details and calculations are still being finalized, this section discusses the broad features of the policy and to highlight the issues of corporatisation connected with this change.

Institutions will be provided block funding for research through an Institutional Grants Scheme (IGS) designed to support the overall institutional infrastructure for research and research training. This scheme replaces the Research Quantum and the ARC Small Grants Scheme. Grants will be determined through a combination of external research income (60%), research student load (30%) and research output (10% publications and publication equivalents) (DETYA 1999a). The weighted inclusion of research student numbers in block funding is designed to recognize the costs of research training beyond the specific student supervision costs. Funding for research training will be allocated to universities on a performance basis through HECS-exempt scholarships (i.e., places for doctoral and research masters students). HDR load will be calculated on a disciplined weighted basis for HECS-exempt domestic students.

In addition to the IGS, a Research Training Scheme (RTS) will also be implemented. The funding formula for the RTS will be based on HDR completions (50%), research income (40%) and publications (10%). The important development within this new process is the increased weighting for HDR completions, from 5% to 50%, averaged on institutional performance for the preceding two years. DETYA (2001:4) maintains that the RTS objectives are to:

- enhance the quality of research training provision in Australia;
- improve the responsiveness of institutions to the needs of their students;
- encourage institutions to develop their own research training profiles;
- ensure the relevance of research degree programmes to labour market requirements; and
- improve the efficiency and effectiveness of research training.

DETYA (2001) argues that the formula to be used will be sensitive to the size and composition of the research student body of each university and will be weighted to reflect cost differentials associated with the different fields of study. While funding is for domestic students, completions will be calculated to include international students. Important also in this new policy development is the reduced time that is allowed to complete a higher degree. Funding for Ph.D. students will be based on a maximum of four years EFT to complete (compared with five years previously) and two years rather than three years EFT for a research masters student.

This policy on postgraduate research students, strongly reflected and reinforced through the restructuring of its financial support, stresses outcomes above all else. Understandably, this strong focus on research student output, that is, the actual completion of a higher degree, compared with undertaking a higher degree, has caused considerable debate within the higher education community. Concern has been particularly evident given that the proposed formula for calculating the HDR places was not made clear at the time of the White Paper. However, the strong argument voiced in both the Green and the White Papers, and subsequently by DETYA (see Gallagher, 2000) is that quality of supervision is the driver. The argument made is base on a perception of a crisis of wastage, demonstrated in high attrition rates, student dissatisfaction with supervision, long completion times, and a perception that their knowledge

and skills will be outdated by the time they (re)enter employment. Thus, it is concluded that there is a "significant waste of talent, and public and private investment (Gallagher, 2000 :9).

It is further argued that concerns with the research experience date back 40 years to the Martin Committee review of higher education and that these concerns have remained despite various research policy changes. It is concluded therefore that the only consistent explanation for the concerns is poor quality supervision using a conservative training model, supported by the existing funding framework (Gallagher, 2000). A performance-based funding approach is perceived to encourage greater responsiveness to students and employers and encourage universities to adopt more successful strategies, resolving the difficulties noted above. The student output approach is designed to bring about a cultural shift in universities by focusing on completion rates within tightly specified times.

A further complication is the impact on various disciplines that the funding of completions with actually have. The lack of modeling by DETYA has already been noted and the most detailed modeling undertaken in response to the White Paper has been that of the Council of Australian Postgraduate Associations (CAPA). CAPA's modeling shows that the value of a completion is essentially the same across types discipline, with the difference between high and low weighted disciplines being only $11,000 for a doctorate. Such a small financial difference could encourage universities to shift the load between disciplines for financial rather than strategic research reasons (Smith, 2000). That is, universities may encourage a larger intake in non-science, lower band disciplines, in the hope that encouraging greater completions in these disciplines will be more financially prudent in the longer term than encouraging enrolments in more expensive research disciplines.

Likely Impact of Research Output Focus

The sections on research publication and HDR students have provided specific examples of output-focused and outcome-funded policy directions influencing the corporatisation of research within Australian universities. Each of the sections has highlighted consequences of the government policy direction, indicating both positive and negative implications. In this section, the likely overall impact of research corporatisation on the Australian HES is

discussed. Three areas in particular will be examined: the educational process, the academic profession, and universities.

5.1 The educational process

Educationists tend to view learning as a process, emphasizing understanding and depth of insight. Research, as a learning activity, is thus a process whereby academics and HDR students advance knowledge and understanding of their area. While there are clearly outcomes within this process, it is essentially seen as a "journey" where the undertaking is more important than the completion per se. A strong outcome focused funding direction does not always sit comfortably in a context where quality of process dominates thinking and behaviour.

In the current policy environment however, the quality of research and what students have produced become outcomes. Within this equation the university becomes the producer, while HDR students and academic publications become units in the educational process. To be financially successful in terms of measured outcomes, concentration and selectivity of research clearly become highly important. Such financial strategies are, however, not without consequences for the educational process of the academic research undertaken and the manner in which higher degrees are undertaken.

For academic research key impacts are on the scope and mode of research undertaken. Quite clearly project research with clearly defined time frames become preferred to long term research programs. Research activity becomes what is funded by an external grant while research which does not attract grants is unlikely to be undertaken, valued or 'counted'. The policies favour applied research over more fundamental research, research processes which are low risk and do not involve time consuming data collection and analysis. One recent report noted that there had been a reduction in basic and long term research and that private research funders were less interested in longer term research issues (The Parliament of the Commonwealth of Australia, 1999). The research modes and publication styles of "big" science and experimental science dominate those of "little" Science, theoretical science and the humanities and the social sciences. As a consequence, the mix and balance of disciplines undertaking research within universities is impacted, with stronger concentrations within

certain science based fields. The research process within fields and sub-fields is also strongly influenced, with deleterious consequences for diversity.

Similar consequences exist for the higher degree research process. A real concern exists that the research process for HDR students could be distorted in the rush for completions. It can be argued that universities will be encouraged to select low risk students who are seen to be able to complete within the time funded. This will mean that students with a high undergraduate academic record will be preferred over those with a medium to high record and that students who are single (or have minimal family commitments) will be preferred over those who are not. The new funding framework could also encourage enrolment in disciplines or subfields in which completion times are perceived to be shorter. The funding of completions also encourages students and their supervisors to select 'safe' research questions with a narrow focus and a minimum of expected complications. Intellectual ambition, and more speculative, 'high risk' questions, which have more unknowns and uncertainties, will be discouraged. Such tendencies of course go against the policy intention of the White Paper and the Prime Minister's Innovation Statement (Howard, 2001), which explicitly focus on innovation and the development of a culture of innovation. The encouragement of 'safe' research questions will not only impact the scope of research projects, but also influence the styles and types of research. Given that postgraduate students have long been recognized to make a significant contribution to university research output (Powles, 1984; DETYA, 1999a) the impact on the range of research within disciplines will be felt in the future.

The funding of completions is also likely to impact strongly on the student supervisor relationship, an impact which is of course fully intended under the current policy (DETYA, 1999a; Gallagher, 2000). The actual impact may of course be other than is stated in the policy. For instance, it will be in the interests of potential supervisors to select only students whose research questions are central to their own research programs. Students whose questions are peripheral will find it more difficult to attract a supervisor. In other words, there will be fewer staff willing to be supervisors of even well qualified students if their interests are only peripheral to their own.

The final implication of the policy examined here will be the 'professionalisation' of the HDR process. This will involve institutions focusing more strongly on services available to HDR students and will encourage the incorporation of models other than the student supervisor model. Changes in these areas are likely to include HDR degrees which involve a stronger initial focus by, for example, requiring some elements of course work. This is more likely to occur in disciplines where students may not have an undergraduate research major, for example education or management. There will be stronger support for student research proposal development including professional (non supervisor) support in ethics and ethic clearance, research writing, and research methods. The shift will be away from the European master – apprenticeship model to a more professional, U.S style model. This shift has already been occurring over the past decade and can be expected to accelerate under the current HES policies.

5.2 The Academic Profession

One of the core organisational principles of academic work has been the interconnection, or nexus, between teaching and research. The assumption has traditionally been that academics are involved in both activities and, although at times the link is hotly debated, there is a reciprocal benefit that derives from being involved in both teaching and research. Higher education research has shown that the teaching research nexus is far more complex than usually assumed (see Neumann, 1992; 1994; 1996; Clark, 1995). The current policy and institutional moves to separate the teaching and research roles through financial policy will lead to more distinct and differentiated academic career paths with teaching only and research only strands. There may be a third, elite group of teaching and research academics.

The impact on academic staff of the measurement of their research performance, weighting of HDR completions and the identification of 'research active' staff in institutional Research and Research Training Management Plans, means that universities will need to distinguish more directly between the teaching and research roles of their academic staff. Whereas past funding and policy have assumed an integration of teaching and research, the current developments encourage a separation between the two roles. Only staff in officially designated research areas with outside grants, regular research output as counted by the DETYA publication counts and active research programs will be in a position to supervise HDR students. Within

institutions, a consequence of this weighting will be a greater separation between undergraduate teaching functions and postgraduate research functions.

This will most likely mean that academics on a teaching only career path will be essentially undergraduate teachers, with high teaching loads and little if any time for research and scholarship. There may be a small core of tenured academics within this category but short casual and fixed term appointments will most likely dominate to allow for more rapid response to changes within the undergraduate student population. High status career paths will involve substantial amounts of research activity. Hence research only, or possibly teaching and research academics, will be not only active researchers in the sense of generating regular research outputs, but will also have funded research programs with concentrations of HDR students. These academics are more likely to be tenured than teaching only staff. Their teaching focus will be primarily on postgraduate students undertaking HDR degrees. Hence the academic profession will split, developing separate undergraduate and postgraduate strands with different status and reward levels.

5.3 Institutional differentiation

A feature of the Labor Minister Dawkins's policies in the late 1980's was the emergence of a unified national system (UNS) of higher education and the abolition of the binary divide separating universities and colleges of advanced education. Government policies in the decade following the establishment of the UNS have included targeted financial support and a period of time for former colleges to either adopt or increase their research focus. Within the first decade of the UNS, the requirement for universities to have research and research training management plans and a strong research output as well as strong research income with significant numbers of HDR students, is likely to create an institutional catergorisation more fragmented than the former binary divide. While it is not clear at present how many institutions can benefit and thrive under the corporatisation of research, it seems certain that differentiated universities will be a feature of the future Australian HES.

Essentially, three types of universities are likely to emerge. Type A will be undergraduate teaching institutions where research will play little or no role. Academic staff will be teaching only, providing courses to larger numbers of undergraduate students. There may be some

inclusion of postgraduate coursework degrees. These institutions will not have the infrastructure or research concentration to survive current policy moves. Type B will be strong research universities, employing academic staff with large concentrations of research only or predominately research academic staff. There will be a strong emphasis on research with larger concentrations of research programs across a large range of disciplines offering HDR places. While such universities will no doubt have a strong undergraduate component as well, the separation between the undergraduate and HDR roles within the university will become far more distinct than they have been in the past. The Group of Eight (Go8) are strong contenders for adopting this role within the new Australian HES. For example, in 1997 more than a half of all PhD completions were concentrated in six of the Group of Eight universities, and 65% in nine universities - the Go8 and one other (DETYA, 1999g). A third category, Type C institutions, may also emerge and will be akin to the U.S doctoral granting institutions. Such universities are likely to have a modest involvement in research, research concentrations across fairly select disciplines and hence academic staff who have both teaching and research roles. They will be able to provide doctoral supervision in select fields but will also have a strong undergraduate teaching component.

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The use of language in relation to HDR students can be used to illustrate the effect of ignoring educational processes in favour of the defined outcomes,. The language used for HDR students refers to ‘research training’ as opposed to ‘education’. The word ‘training’ focuses on research skills rather than research knowledge and the content of the higher degree project, and the overall transformative nature of education and research. Hence, higher degree students undertake ‘research training’ and institutions develop ‘research training’ management plans.