University Restructuring and Teaching Quality

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Abstract

The pursuit of quality of teaching and learning has become an increasingly important goal of higher education in recent decades, as academic staff numbers and public funding have lagged behind the growth in student numbers. This transformation has been qualitative as well as quantitative: academic staff are teaching more students from more diverse backgrounds, and using a greater variety of teaching methods. As with other industries, productivity growth has also been associated with labour flexibility and work intensification strategies, including increased numerical and functional flexibility such as workforce casualisation and offshore teaching. This study provides evidence of the link between the work context and teaching outcomes based on a survey of academic staff in two universities, one in Australia and one in New Zealand. Our findings indicate that class size is a critical influence on the effectiveness of teaching and that the current policy emphasis on 'quality' assurance has been accompanied by a pervasive deterioration in quality of teaching and learning outcomes. If academic staff are to retain some autonomy over their own work and a commitment to student-centred teaching, they need to develop strategies appropriate to this context – a process to which collective bargaining can contribute significantly.

Introduction

The quality of teaching and learning in higher education has received increasing attention in recent years (Light and Cox, 2001; Trigwell, Martin, Benjamin and Prosser, 2000:155). This issue is associated with increasing demands for better learning outcomes, accountability and efficiency from government and from a more diverse, increasingly fee-paying student population (Goodyear and Hativa, 2002:1). The quality of teaching and learning is now being systemically assessed through national and institutional quality audits, more rigorous and on-going evaluations of courses and through university performance management and promotion systems (Martens and Prosser, 1998). Running parallel to these pressures for formal academic accountability and efficiency is the increasing management orientation and focus on market-driven outcomes. This paper assesses some key factors influencing teaching approaches among business faculty academic staff, focusing on what teachers think and do, rather than how students learn. The two are, of course, intimately linked. While there are various external factors influencing teaching approaches, this paper reinforces the belief that the way teachers conceive of and approach their teaching has a direct impact on student learning outcomes.

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Restructuring the Higher Education Sector in Australia and New Zealand

As with most service sector industries, there is pressure on higher education managers and employees to accommodate technological developments and internationalisation, combined with conflicting demands for improved service quality, reduced costs and increasing flexibility in service delivery (Clark, 2004; Marginson, 2004). In Australia these pressures are compounded by more direct control and regulation of academic activity exerted by the central government, as the provider of an important source of finance for the sector (Sappey, 2006). Over the past decade real funding per student has declined, students are paying for a growing share of the costs of higher education, fees have been gradually deregulated, and universities are becoming increasingly dependent on onshore and offshore full-fee income. The Federal Government has tied funding to workplace and industrial relations changes, and a new system of quality accreditation for research (the Research Quality Framework) is being introduced (Clark, 2004; Kniest, 2006; Sappey, 2006). The sector is receiving less funding for doing more, and in the process student: staff ratios have increased dramatically (Kniest, 2006).

Performance management in Australian universities can be traced back to the late 1980s, and the conjunction of award restructuring, productivity-based wage bargaining and John Dawkins's term as Minister for Employment, Education, and Training. The 'Dawkins revolution' encompassed a rapid growth in student numbers, the end of the 'binary divide' separating universities from colleges and institutes of technology, and the tying of university funding to quantitative indicators of research performance. These factors contributed to an overall intensification of pressures on academic staff, with the introduction of performance management schemes and the allocation of resources becoming closely linked to institutional and individual research performance and productivity (Lowe, 1987; Marginson, 1991, 1992; Neumann and Lindsay, 1988).

The Howard government's Research Quality Framework (RQF) and Higher Education Workplace Relations Requirements (HEWRRs) constitute only the most recent incarnations of this process. Through the HEWRRs, public funding under the Commonwealth Grants Scheme was made contingent upon all 'Higher Education Providers' (HEPs) introducing such provisions as Australian Workplace Agreements and the removal of limits on employing casual and fixed-term staff, and the requirement for all collective agreements to include 'a fair and transparent performance management scheme' (DEST, 2007). The recent election of the Rudd ALP government will no doubt change this situation, though how is yet unclear at the time of writing (December 2007).

The broad shift towards managerialism, increasing student numbers with no equivalent increase in staffing, and the implementation of quality assurance mechanisms has also occurred in New Zealand. Yet there are significant differences from the Australian experience. The implementation of 'new managerialism' in New Zealand universities has been less systematic, with government playing a lesser role. The decentralisation and deregulation of industrial relations implemented through the *Employment Contracts Act 1991* eradicated the industrial awards system, removing the kind of institutional framework within which changes to work and management practices evolved in Australia. Whereas Australian academic staff typically have to undergo a probationary period of three to five years, there is no equivalent requirement in New Zealand. Universities, like other employers, have limited scope to enforce probationary periods. Section 67 of the *Employment Relations Act 2000* stipulates that, although the employer and employee may agree on a probationary clause in an

employment agreement, the employee cannot be dismissed at the end of the period solely on the basis of their performance. Therefore, employees on probationary periods have the same rights and entitlements as all other workers, and dismissal requires justification and fair procedures.

Nor have New Zealand academic staff experienced the kind of direct intervention directed by the Howard government towards universities and the NTEU. In contrast, the main university union, the Association of University Staff (AUS) has developed a quite close relationship with the current Clark government. For example, the most recent (2006) round of university collective bargaining was concluded mainly through national-level negotiations between the AUS, the New Zealand Vice-Chancellors' Committee and the Minister for Tertiary Education, Dr Michael Cullen. The *Tertiary Education Strategy 2002-2007* has provided the current framework for the development of research and teaching across the New Zealand tertiary sector, which includes universities, polytechnics and various training organisations. The Tertiary Education Commission (TEC) is the main implementation agency for the Strategy, although it is required to work in liaison with several government departments and agencies. The most prominent (and controversial) 'quality assurance' mechanism in New Zealand's tertiary sector at present is the Performance Based Research Fund (PBRF). The first PBRF Quality Exercise occurred in 2003, with a further round in 2006, and can be seen as a systematic implementation of one aspect of 'new' managerialism with respect to research, across the tertiary sector (see Curtis 2005). The PBRF, therefore, constitutes significant new performance management mechanism, with significant implications for university funding and the careers of academic staff, a further round being scheduled for 2012.

Currently, the *Education (Tertiary Reforms) Amendment Act* (to take effect from 1 January 2008) will have a substantial impact, as it changes the basis of tertiary funding from a model driven by unrestricted growth in student numbers to one based on three-year investment plans, taking into account such factors as demographic change, student demand and shifting economic and educational priorities. This change has already prompted the University of Auckland to propose restrictions on undergraduate student entry in several disciplines, with the likelihood that other universities will follow suit. In both Australia and New Zealand, then, the pursuit of teaching and learning quality is constantly governed by often volatile policy regimes and student demand, within a considerably more managerialist environment than in earlier decades. To a significant degree, the developments in higher education reflect those in other service sector industries, with the significant difference that 'the market' is one constrained and constructed through extensive government intervention in the sector, and that higher education has been seen traditionally as an integral component of nation-building, with a far broader remit than just the provision of 'educational services'. The sector has a clear division between core and peripheral labour, and the casualisation of the workforce has been a feature of the sector as universities switch towards part-time and casual staff to meet the shortfall in funding (Junor, 2004). Other characteristics of service work are present including the trend towards internationalisation (Marginson, 2004), with many universities establishing offshore campuses in Asia and in the Middle East, while IT developments have facilitated new ways of delivering programs and productivity improvements through reduced costs and increasing student:staff ratios. Course packages and customisation by international publishers allow for all aspects of the course to be linked to a given text template and increased product standardisation – the process of 'McDonaldization' described by Ritzer (1993).

Many of the issues present in call centre work (Burgess and Connell, 2006) are emerging in higher education. These include the loss of autonomy, the standardisation of work, the close monitoring of performance and the importance of emotional labour at the service-customer interface (Sappey, 2006). Indeed, the public rhetoric of universities has shifted towards a customer and a client focus where the student is a consumer and consumer expectations are included in the operating principles of universities (Sappey, 2006). In this context there is an emphasis on teaching quality that is reinforced by student evaluations of courses and teachers, competitive teaching grants and internal and national teaching awards. However, the question is, can rising student:staff ratios be compatible with teaching quality?

Teaching and Learning Quality and the Work Context

The educational literature on the effectiveness of teaching and learning provides our first source for answering this question. Student learning, for most writers on the topic, should optimally focus on meaning and not reproduction, and high quality learning outcomes occur when students adopt a deep approach to learning and seek to find meaning and understanding in learning materials. Students using a deep approach to learning report that teachers are effective, workloads are appropriate and standards and goals are clear (Biggs, 2001:16; Martens and Prosser, 1998:29). Conversely, lower quality learning outcomes occur when students adopt a surface approach aimed at rote memorising and reproduction to meet externally imposed demands. Low quality learning outcomes occur where students' learning is unstructured, unrelated to their past experiences, and comprises isolated segments of information that are retained for only a short period. Students using a surface approach to learning report high workloads and assessment aimed at reproducing learned materials (Biggs; 2001:16; Martens and Prosser, 1998:29). It is clear from this research that the way subjects are structured, taught and assessed affects the quality of student learning – that is, teaching is fundamental to learning.

Previous research also indicates that academic staff conceive and approach their work as teachers in a number of different ways (Prosser and Trigwell, 2001: 138). At one end of the spectrum, lecturers may adopt a 'teacher-centred' approach, viewing teaching as a process of transmitting information or concepts about their discipline to students. The focus is on facts and skills but not the interrelationships between them. Prior student knowledge is not considered important and it is assumed that students will not be active in the teaching-learning process (Trigwell, Prosser and Waterhouse, 1999; Trigwell, Prosser and Taylor, 1994).

At the other end of the spectrum, lecturers with a 'student-centred' approach help students develop and reflect upon their views of both the subject they are studying and the world. Lecturers accept that they cannot transmit a new world view to students and therefore the emphasis is on enabling students to construct their own knowledge. Accordingly, student activity and prior knowledge are viewed as central to the learning process (Trigwell, Prosser and Waterhouse, 1999; Trigwell, Prosser and Taylor, 1994).

Some qualitative research indicates that teachers can adopt an intermediate position between these two main approaches: teacher/student interaction strategy (Prosser, Trigwell and Taylor, 1994). Teachers adopting a teacher/student interaction strategy help student acquire the concepts of the discipline. As in the teacher-centred approach, students are not viewed as constructing their own knowledge, but, as in the student-centred approach, students are seen as active agents in the teaching-learning process (Prosser and Trigwell, 2001:153).

Quantitative analysis, however, has provided less support for this construct (Trigwell and Prosser, 1996a) and subsequent research has dropped this concept from the study of approaches to teaching, to focus instead on the two main types of strategy: teacher-centred and student-centred. Teacher-centred/knowledge transmission approaches to teaching are positively associated with surface approaches to student learning and negatively associated with deep approaches to learning. Conversely, student-centred or knowledge facilitation approaches to teaching are positively associated with deep approaches to learning and negatively associated with surface approaches to learning (Gow and Kember, 1993; Kember and Gow, 1994; Trigwell and Prosser, 2001; Trigwell, Prosser and Waterhouse, 1999). While the conceptual simplicity of the deep/surface, student-centred/teaching-centred dichotomy may be questioned (Webb, 2004), it seems reasonable to conclude that student-centred teaching generally leads to superior learning outcomes than those attained through teacher-centred teaching.

The approaches that academics adopt to teaching will be influenced by their prior experiences and their perceptions of the learning context or environment. Educational research indicates that there are five situational factors affecting university teachers' approaches to teaching. First, teachers focus on the amount of control they have in teaching. Second, they ask whether inappropriate class sizes are influencing the amount and quality of teacher-student interaction. Third, teachers examine the increasing diversity of student characteristics: with the expansion of higher education, more domestic students with lower levels of academic success in secondary schooling are gaining access to university, while there has been a rapidly growing international student population, who sometimes experience English language difficulties. Fourth, academics assess the extent to which their teaching and research are valued by their departments or schools. Fifth, university teachers question whether they have appropriate workloads (Prosser and Trigwell, 1997).

The recognition of the importance of teaching context is particularly important from an industrial relations perspective. The nature of university work has changed in Australia and overseas, with the shift from (relatively) 'elite' to 'mass' higher education (Halsey, 1992). Academic staff workloads have grown, as higher student:staff ratios have brought more assessment, teaching and evaluation, while pressure to increase research and scholarly activities has intensified, within a more competitive research funding environment (Light and Cox, 2001:1). Therefore, to understand the teacher-student relationship we need to address the context within which that relationship develops.

The implementation of corporate management practices has included much tighter performance monitoring and the 'extensive process of routinisation, standardisation and codification of academic work, emphasising measurable skills and outcomes' (Lafferty and Fleming, 2000:260). These factors have reduced the degree of control that academic staff retain over their work and their perceptions of the support provided to them by their own departments (or schools) and universities, and by government. Research by Prosser and Trigwell (1997) on the approaches to teaching and the work context has found that teachers adopt a student-centred/conceptual change approach where they perceive they have some control over how and what they teach, their class sizes are not too large to hinder teacher-student interaction and their department (or school) values teaching. Given this, we would expect that the student-focused approach is also associated with a context where teachers perceive that their university provides significant resources to encourage and support high quality teaching. Although Prosser and Trigwell (1997) found no consistent relationship

between elements of the work context and teacher-centred approach, they did find a negative relationship with class size and a positive relationship with departmental support.

Research Method

This project used two existing survey instruments developed by Prosser and Trigwell. These instruments have been used for several studies (Trigwell and Prosser, 1996a, 1996b; Prosser and Trigwell, 1997, 2001). Permission was sought and given to use these instruments. The survey instrument contained seven separate scales measuring the two main approaches to teaching scales (Trigwell and Prosser, 1996a, 1996b) plus five contextual variable scales from the Prosser and Trigwell (1997) study. A survey instrument was constructed using these scales plus additional demographic items including employment status, full- or part-time status, gender, position, years taught, education qualification and actual class size taught.

The survey was administered to staff in management schools in two universities – one in Australia and one in New Zealand. The survey was sent out to 374 staff, and 166 useable responses were returned, giving a response rate of 44 per cent. Characteristics of the sample were as follows: average years of teaching experience (12.6), senior academics (defined as senior lecturer and above) (52%); continuing appointments (83%); educational qualifications (26%); males (66%). Given that few studies have examined these constructs, we chose to use exploratory factor analysis to delineate the underlying factor structure of the dependent and the independent variables. For the dependent variables – teacher-centred approach and student-centred approach – we used principal axis factoring with an oblique rotation (not shown). As anticipated, the factor analysis revealed a two factor structure: 'teacher-centred' and 'student-centred'. The means, variances, Chronbach's alpha and factor intercorrelations for the main factors are shown in Table 1.

Table 1: Means, Variances, Chronbach's Alpha and Factor Intercorrelations for Main Factors

Factor	M	Var	*Alpha*	1	2	3	4	5	6
1. Teacher centred	2.6	1.4	0.6	1	-0.24	0.49	0.04	-0.07	-0.27
2. Student centred	3.5	1.3	0.71		1	-0.14	0.08	0.13	0.09
3. Teaching Encounter	2.6	1.5	0.76			1	0.31	-0.18	-0.30
4. Time Pressure	3.2	1.4	0.75				1	-0.29	-0.15
5. Department Support	3.4	1.7	0.69					1	0.26
6. Control	4.3	1.0	0.77						1

For the independent variables, we used principal axis factoring with oblique rotation as we expected the constructs to be correlated. We commenced the factor analysis using 33 items. The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.75, indicating that the items were factorable. We checked the sampling adequacy of the individual variables. The analysis

included some 166 cases although the *n* was reduced to 165 due to missing values. We eliminated items that loaded at below 0.39.

We anticipated a five factor solution but the scree plot suggested a four factor solution. As can be seen in the factor loading table (Table 2), the items relating to 'class size' and 'diverse student characteristics' loaded into the same factor. We interpreted this factor structure to imply that teachers perceived the teaching encounter, in terms of student characteristics and class size, as a single phenomenon. We have combined the items from the student characteristics and the class size scales into a single construct labelled 'demanding teaching encounter'.

The four factors accounted for some 48 per cent of the total variance and 37 per cent of the common variance. The mean, standard deviation and Chronbach's alpha for each factor and factor intercorrelations for each factor are presented in Table 2. The final items used in the four derived factors are shown in the factor loading table (Table 2).

Table 2: Factor Loadings

	Factor			
	Demanding Teaching Encounter	**Dept Support**	**Control**	**Time pressure**
Item	**1**	**2**	**3**	**4**
Time pressure				
It is difficult to devote sufficient time to teaching because of increasing pressure from administrative duties.	-0.070	-0.011	-0.060	0.631
Increasing pressure from research makes it difficult to devote sufficient time for teaching.	0.093	-0.007	0.037	0.655
Increasing workload makes it difficult for me to maintain my enthusiasm for teaching this course.	0.119	-0.098	-0.045	0.608
Control				
Teaching this course would be more rewarding if I had greater say in the contents of the syllabus. #	-0.155	-0.052	0.624	0.080
The school allows me considerable flexibility in the way I teach in this course.	-0.038	0.179	0.454	-0.062
I have had little say in the way this course is run. #	0.106	-0.045	0.838	-0.036
I feel a lack of control over what and how I teach in this course.#	-0.123	-0.021	0.736	-0.084
Department view				
Teaching is a low priority in my school. #	0.008	0.732	-0.008	0.079
My school's dedication to improved teaching makes it easier for me to plan and conduct this course.	0.020	0.663	0.064	-0.031
This school provides a good environment for the discussion of teaching with colleagues.	0.168	0.445	0.164	-0.131
Research is a greater priority than teaching in this school. #	-0.104	0.422	-0.138	-0.105
This school's view of teaching makes it less rewarding to focus much attention on teaching.#	-0.165	0.684	0.113	-0.061
Class size				

In large classes students are often disruptive.	0.396	-0.085	-0.036	0.022
Once classes in the course get too large, I just try to get the students to take a good set of notes.	0.406	-0.125	-0.019	0.017
In large classes I try to avoid questions.	0.442	-0.068	-0.130	-0.143
Large classes discourage contact between the students and myself.	0.553	0.044	0.129	0.182
Student characteristics				
The students act as though I am a teacher at school, rather than someone who will assist their adult learning process.	0.485	-0.136	-0.076	0.000
In this course I have had to rethink the way that I teach because of increasing numbers of lower standard students.	0.531	0.129	-0.004	0.056
Poor English skills amongst my students discourage me from supporting discussion sessions in this course.	0.484	-0.204	0.010	-0.056
Having a range of students' talent in a lecture makes it difficult for me to direct my teaching. appropriately	0.528	0.112	-0.063	0.026
Students in this course are often intolerant of anything outside the syllabus.	0.392	-0.008	-0.066	0.154
Students have such variable skills that I find it hard to predict what they know and what they don't.	0.504	0.213	0.005	0.027

Note: # Reverse coded

Results

To test the relationship between the contextual and demographic variables and the approaches to teaching we constructed the following equation:

> TEACHING APPROACH = b0 + CONTROL + DEPT SUPPORT + DEMANDING TEACHING ENCOUNTER + TIME PRESSURE + GENDER + POSITION + STATUS + PART-TIME + YEARS TAUGHT + EDUCATIONAL QUALIFICATION + LOG ACTUAL CLASS SIZE + e.

We ran this equation separately for both the student-focused and the teacher-focused approaches. The results for the regression analysis of the variables associated with teaching approaches are shown in Tables 3 and 4. Table 3 contains the results for the student-focused regression. The model explains some six per cent of the variation in teaching approach. The regression results indicate that student-centred approach was negatively related to class size indicating that, as class sizes get bigger, academic staff are less able to adopt a student-centred approach.

Table 3: Regression Analysis Results of the Effects of Contextual and Demographic Variables on Student-centred Approach

	Unstandardised Coefficients B	Std. Error	Sig.
(Constant)	3.758	6.148	0.000
Time Pressure	0.097	1.740	0.084
Control of Teaching	0.033	0.415	0.678
Demanding Teaching Encounter	-0.114	-1.372	0.172
Departmental Support for Teaching	0.115	1.714	0.089
Years Taught	-0.003	-0.476	0.635
Position (senior = 0, junior =1)	0.061	0.458	0.647
Gender (male =0, female =1)	-0.145	-1.241	0.217
Status (continuing= 0, fixed term and contract =1)	-0.264	-1.617	0.108
Education Qualification (no = 0, yes =1)	0.181	1.492	0.138
Log of class size	-0.141	-2.535	0.012

Adjusted $R^2 = 0.06$; N = 155

Table 4 contains the results for the teacher-focused regression. The model explains some 33 per cent of the variation in teaching approach. The regression results indicate that academic staff who perceive that they lacked control of their teaching, are entering a demanding teaching encounter and are dealing with large class sizes are more likely to adopt a less effective teacher centred approach. Actual class size (log thereof) was the only variable that was significant in both equations, indicating that student numbers in class are the critical determinant of the quality of teaching.

Table 4: Regression Analysis Results of the Effects of Contextual and Demographic Variables on Teacher-centred Approach

	Unstandardised Coefficients B	Std. Error	Sig.
(Constant)	1.505	2.747	0.007
Time Pressure	-0.063	-1.258	0.210
Control of Teaching	-0.141	-2.000	0.047
Demanding Teaching Encounter	0.474	6.368	0.000
Departmental Support for Teaching	0.057	0.952	0.343
Years Taught	-0.007	-1.060	0.291
Position (senior = 0, junior =1)	-0.117	-0.978	0.330
Gender (male =0, female =1)	-0.175	-1.679	0.095
Status (continuing= 0, fixed term and contract =1)	0.092	0.633	0.528
Education Qualification (no = 0, yes =1)	0.035	0.319	0.750
Log of class size	0.156	3.144	0.002

Adjusted $R^2 = 0.33$; N = 155

Conclusion

There is a well-established literature on the relationship between students' perceptions of their environment and their approach to learning. However, exploration of the relationship between teaching approaches and perceptions of the environment is relatively new. Educational research indicates that student-centred teaching rather than teacher-centred teaching produces superior educational outcomes in terms of student learning, and that perceptions of the work context affect academics' approach to teaching. In a context where there seems little prospect of more adequate public funding, academic staff are left with diminished control over their teaching environment.

Without over-burdening the data presented in this paper, we can reasonably conclude that 'quality', understood as attaining 'deeper' learning outcomes, is unlikely to be maintained in the face of much larger class numbers than in previous decades. Therefore, we would disagree with claims that teaching staff can (or should be expected to) simultaneously manage larger classes and pursue effective student-centred learning. Greater scepticism towards the origins and intent of some higher education literature may be appropriate in this regard: 'more with less' may be a less than optimal maxim for the achievement of quality in university teaching and learning. While there remains considerable rhetoric about quality in higher education (in both teaching and research) and an increasing student focus, these findings indicate that while larger class sizes are one consequence of these developments, another consequence is a deterioration in teaching effectiveness.

Over recent years, student expectations have risen with respect to the resources provided to them (such as extensive notes and course websites). The increasing provision of standardised materials contradicts the pursuit of more active learning, since it encourages passivity and the reliance on generic knowledge, rather than autonomous learning. More student-centred learning in the current context may be attainable only through academic staff reducing their own contributions and encouraging students to become less dependent on them, while also investigating less work-intensive methods of teaching and evaluation – for example, minimising levels of assessment and teaching contact.

The intersections between the reorganisation of academic work and the quality of teaching and learning ultimately concern the politics of resource allocation within higher education systems presently driven by market and managerial imperatives. In both Australia and New Zealand, though, the greater integration of teaching and learning objectives within collective bargaining (already present, to varying degrees) could permit their linking to the provision of sufficient resources and the prevention of unsustainable student:staff ratios. Collective bargaining processes can allow strategies for teaching and learning quality to be integrated with workload allocation and the management of student numbers, through negotiation rather than managerial fiat.

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